AUGUSTA - RICHMOND COUNTY and the Cities of BLYTHE and HEPHZIBAH MULTI - JURISDICTIONAL HAZARD MITIGATION PLAN

2012-2017

PMC

Augusta GEORGIA

Plans & More, LLP

GEORGIA EMERGENCY MANAGEMENT AGENCY
GEORGIA OFFICE OF HOMELAND SECURITY

NATHAN DEAL
GOVERNOR

CHARLEY ENGLISH
DIRECTOR

July 2, 2012

RECEIVED
JUL 05 2012
By

Mr. Frederick L. Russell
City Administrator
City of Augusta
530 Green Street
Augusta, Georgia 30911

Dear Mr. Russell:

I am pleased to inform you that the Augusta-Richmond County Multi-Jurisdictional Hazard Mitigation Plan has been federally approved through June 28, 2017. With this approval, Augusta-Richmond County is an eligible applicant for the Hazard Mitigation Assistance (HMA) grant programs made available through the Georgia Emergency Management Agency (GEMA).

We commend Augusta-Richmond County for the development of a solid and workable mitigation plan that will guide hazard mitigation activities over the coming years. The Augusta-Richmond County Multi-Jurisdictional Hazard Mitigation Plan established a firm foundation to pursue many valuable and needed mitigation projects that have been identified by Augusta-Richmond County. Implementation of these projects will ultimately make your community a safer place to live and sustainable even through times of disaster.

I strongly encourage the Augusta-Richmond County Hazard Mitigation planning team to perform an annual review and assessment of the effectiveness of the mitigation plan and provide a report on any updates or changes made to the plan. This report should be coordinated through your Augusta-Richmond County Emergency Management Agency (EMA) Director who will take care of the updates to be submitted to GEMA.

If you would like more information on the HMA grant application process, please contact Alicia Soriano, Risk Reduction Program Manager, at 404-635-7235 or 1-800-TRY-GEMA.

Sincerely,

Terry K. Lunn
Hazard Mitigation Division Director

tkl/bnl
cc: Terri Turner, Administrator
Augusta-Richmond County Planning Commission
Gordon Lowe, Area Coordinator
Georgia Emergency Management Agency

EMAP Accredited

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EXECUTIVE SUMMARY

AUGUSTA – RICHMOND COUNTY, and the Cities of BLYTHE and HEPHZIBAH HMP UPDATE

The history of Augusta - Richmond County and the Cities of Blythe and Hephzibah reveals a past, present, and future commitment to long-term strategies to reduce the hazard risks and the resulting impact to the community.

Existing Plan Review and Revision Update Process and Methodology

The Augusta – Richmond County Multi-Jurisdictional Hazard Mitigation Planning Committee (HMPC) and Stakeholders, formed by the governmental consensus of the City of Augusta (to include Richmond County), the City of Blythe and the City of Hephzibah, comprising all incorporated jurisdictions in Richmond County.

After an exhaustive review of the existing Hazard Mitigation Plan hereinafter referred to as HMP, the HMPC determined the approach to the HMP update would differ from the norm. Rather than attempting to fit new information, challenges, and objectives within the existing Plan, the HMPC with the support of their governments decided to re-work the entire Plan. The goal was to produce a living document to reflect the individual jurisdictional profiles, circumstances and needs. The resulting Plan is essentially new and the identification of individual updates would be impractical and time-consuming. Each chapter of the Plan contains a table outlining the updates to chapter sections and a description of the methodology used for the process.

The methodological approach used by the HMPC reflects the common goal of sustainability, economy, and protection for the citizens of each community and the county as a whole.

The purpose of the Hazard Mitigation Plan update is to serve as a framework and resource guide to coordinate and implement hazard mitigation policies, procedures, and projects. It expresses the community mitigation goals, objectives, and related activities to assist in reducing risk and eliminating or minimizing losses from natural and technological hazard events. Intentional, informed decisions and processes reduce or avoid hazards and lessen community exposure when appropriate actions are taken before hazardous events occur. Proactive community hazard planning and implementation policies save lives, reduce property loss, and minimize the social, economic, and governmental disruptions following hazard events.

Augusta - Richmond County and the Cities of Blythe and Hephzibah concur that hazard mitigation is an essential component of prudent government function and community service. Identification of vulnerable areas, populations, and services and implementation of sound strategies to minimize exposure reduce (mitigate) the negative impact of natural or technological hazards on the community and maximize emergency response and recovery efforts.

Augusta - Richmond County and the Cities of Blythe and Hephzibah developed without consideration of hazard mitigation planning, mitigation, response, and recovery. As a result, some areas are vulnerable to flooding, wildfires, and other hazards such as tornadoes, high wind, severe storms, and lightning. Manmade hazards such as Chemical Leaks/Spills, Nuclear Plant Incidents, Dam/Levee Failure, and Terrorism are potential threats to the communities as well. The FEMA process of mitigation planning encompasses Hazard Identification, Risk Assessment, Mitigation Strategies, Implementation, Plan Update and Maintenance, and Incorporation of hazard mitigation activities in existing community processes and functions. These Plan elements and activities are conducted to ensure that vulnerability to hazard events does not increase.

Encouraging acquisition, relocation, retrofitting of existing vulnerable structures, protection of valuable natural resources, and a sound response and recovery plans seek to minimize damages and foster a stronger, disaster resistant community following a hazard event.

Communities face significant challenges in post - disaster response and redevelopment activities. Balancing the pressing need for rapid recovery with critical long - term hazard mitigation strategies to reduce future exposure is difficult, costly, and frequently politically charged. Search and rescue efforts, meeting basic service and supplies needs, relocation activities for those displaced populations, and activities to stabilize government operations frequently overshadow long-term community resiliency considerations. The push to return to 'normal', the initiation of reconstruction activities and the desire of government to provide services and assistance to neighbors and businesses frequently hamper or circumvent sustainability goals, objectives and implementation.

While common to communities following hazardous events, these factors emphasize the need for pre - disaster planning and mitigation strategies that incorporate resilient development principles within recovery efforts. Proactive hazard mitigation planning facilitates rebuilding to reduce vulnerability to future hazard events, reduces costs to local, state, and federal governments, supports economic vitality, and improves the quality of life.

Once the plan is complete and implemented in the everyday processes, roles, and activities of local government, it is imperative for local decision makers to review plan progress, provide insight, feedback, and suggestions for future updates to the Augusta - Richmond County and the Cities of Blythe and Hephzibah Multi-Jurisdictional Hazard Mitigation Plan. Adoption of the plan is the first leg of the journey. As better mitigation techniques and prediction models develop, local governments update and refine the plan to promote the processes, policies, and strategies that lend support to those charged with plan implementation. In doing so these community leaders contribute to a resilient, economically vibrant community, better prepared to respond to hazardous events and dedicated to the success of all citizens and visitors to Augusta - Richmond County and the Cities of Blythe and Hephzibah.

Chapter 1: PLANNING PROCESS

1.1 PURPOSE - BACKGROUND

Augusta - Richmond County and the cities of Blythe and Hephzibah desire to update the existing Hazard Mitigation Plan (HMP) adopted in April, 2006. Once completed, crucial components of the Plan are integrated within the Augusta - Richmond County Comprehensive Plan (CP, adopted in February, 2006), existing Emergency Operations Plan (EOP, adopted in March, 2009, revised in October, 2009) and other jurisdictional guidance documents. Integration of the updated Plan will produce seamless guidance for staff and personnel throughout the county and contribute to the success of the adopted strategies and mitigation measures. As with all state of Georgia planning processes, the HMP encompasses the entirety of the Augusta - Richmond County and the Cities of Blythe and Hephzibah.

1.2 AUGUSTA – RICHMOND COUNTY MULTI – JURISDICTIONAL HMP PLANNING AREA and PLANNING COMMITTEE

In 1996 the City of Augusta consolidated with Richmond County to form Augusta-Richmond County, later designated 'Augusta, GA' by the Georgia General Assembly. Augusta-Richmond County is one of only three consolidated governments in Georgia. The cities of Blythe and Hephzibah are separate municipalities chartered by the State of Georgia. Community Profile data for each jurisdiction is included in Appendix G of this document.

Augusta - Richmond County and the Cities of Blythe and Hephzibah established a Multi-Jurisdictional Hazard Mitigation Planning and Stakeholders Committee (HMPC), hereinafter referred to as Augusta – Richmond County HMPC, representative of the three jurisdictions in the county. Inter-governmental cooperation, coordination, and consensus are the foundation of the HMPC and the HMP project approach.

The Augusta - Richmond County Multi-Jurisdictional HMP project addressed the update of the existing community Multi-Hazard Mitigation Plan to fulfill requirements of the Federal Disaster Mitigation Act of 2000 (DMA2K). The Act is administered by the Georgia Emergency Management Agency (GEMA) and the Federal Emergency Management Agency (FEMA). The Mitigation Act provides federal assistance to state and local emergency management and other disaster response agencies in an effort to reduce damage and loss resulting from disasters.

The proposed planning process involves numerous community partners including elected and appointed officials, fire and EMS, emergency management, law enforcement, engineering departments, flood plain and storm water managers, planners, business and economic development entities, social and civic representatives, and citizen representatives from Augusta - Richmond County and the Cities of Blythe and Hephzibah.

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

The primary goals of hazard mitigation planning and implementation are to identify manmade and natural risks to the community, assess the potential impact of the identified risks, develop goals and objectives based on a prioritized impact framework, and implement strategies to reduce or eliminate community vulnerability.

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

In preparing the HMP, Augusta - Richmond County and the Cities of Blythe, and Hephzibah utilized a multi-jurisdictional planning process consistent with those recommended by FEMA (Publication Series 386). A local mitigation plan crosswalk, found in Appendix D, provides a summary of FEMA current minimum standards of acceptability for compliance with the DMA2K and notes the location where each requirement is met within the plan. These standards are based upon FEMA's Interim Final Rule, as published in the Federal Register on February 26, 2002, in Part 201 of the Code of Federal Regulations (CFR).

Augusta - Richmond County and the Cities of Blythe, and Hephzibah, like many communities in Georgia, each espouse a documented commitment to the planning process and active participation throughout the HMP update process. Area universities and colleges were invited to participate in the update process. The Hazard Mitigation Planning and Stakeholders Committee (HMPC) and personnel from Augusta - Richmond County and the Cities of Blythe and Hephzibah participated in the general session planning meetings to gather data including known hazards, flood prone areas, areas of vulnerability, existing mitigation plans and projects, and technical data for the plan. Scheduled meetings with each jurisdiction facilitated community input, data collection, and shared information. The data collected was forwarded to the HMPC for review and incorporation into the plan. Additional technical meetings were held to ensure accuracy of information and data, and that agency, organization, and public input are included as presented. Resolutions documenting each jurisdiction's support for the HMP are included in the plan. The plan update process is conducted over the course of several weeks.

Disaster Mitigation Act of 2000: To support the expanded role of emergency management, Congress passed the DMA2K, the Stafford Act, Section 322, an

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

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

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

- Plan adoption by all jurisdictions;
- Planning process including public involvement;
- Hazard identification and risk assessment;
- Mitigation strategy;
- Plan implementation and maintenance procedures;
- Any specific GEMA, FEMA, Augusta – Richmond County, City or Blythe or City of Hephzibah requirements

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

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

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

- Planning Grants – Allocated funds to be used for HMP development;
- Competitive Grants – Distributed funds using a competitive application process wherein all state, local and tribal governments interested in obtaining grant funds can submit applications to be reviewed and ranked by FEMA using pre-determined criteria. The minimum eligibility requirements for jurisdictions receiving competitive HM funds include the following:

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

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

- Reduce the number of repetitively or substantially damaged structures and the associated claims on the National Flood Insurance Fund;
- Encourage long-term, comprehensive mitigation planning;
- Respond to the needs of communities participating in the NFIP to expand their mitigation activities beyond floodplain development review and permitting;
- Complement other federal, state and local mitigation programs with similar long-term mitigation goals.

The following three types of grants are available under FMA:

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

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

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

1.2.1 Incorporation of Mitigation Plan in Existing Planning Mechanisms

Plan responsibilities for each participating jurisdiction determined additional implementation procedures when appropriate. This included integration of the requirements of the HMP into other local planning documents for all jurisdictions in the planning area, processes or mechanisms including the following:

- Comprehensive Plan;
- Strategic Plans;
- Capital Improvement Plans;
- Growth Management Plans;
- Ordinances, Resolutions and Regulations;
- Emergency Operations Plan;
- Flood Hazard Mitigation Plan.

1.2.1.2 Incorporation of Existing Plan in HMP Update

Elements of the Augusta – Richmond County Multi-Jurisdictional EOP and LEOP Plans including the all hazards approach to hazard event response, evacuation, and recovery; Joint Comprehensive Plan related to Land Use Policies, Development Trends, Demographic Data, Short and Long Term Work Programs, and Environmental Policies; Augusta – Richmond County and the Cities of Blythe and Hephzibah Capital Improvements Plans related to stormwater projects; Building Code requirements for hazard area and critical facility construction; Zoning

Ordinances related to Flooding Hazards and Land Use; Subdivision Regulations related to Transportation Corridors and location of subdivisions in Sensitive Areas; and Economic Development Plans including the Augusta/North Augusta 2009 Master Plan related to protection of the Savannah River basin; Stormwater Management Plan related to Public Outreach and Watershed Education; and the Community Greenspace Program Plan related to acquisition and preservation of land along the river and creeks were incorporated in the HMP Update.

1.2.2 Continuity of Operations Plans

Opportunities to integrate the requirements of this HMP into other local planning mechanisms were identified in meetings of the HMPC and will continue throughout the five-year review process.

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

The members of the HMPC were tasked with ensuring the goals and strategies of new and updated local planning documents for their jurisdictions and/or agencies are consistent with the goals and actions of the HMP, and do not contribute to increased hazard vulnerability in Augusta - Richmond County and the Cities of Blythe, and Hephzibah.

During the planning process for new and updated local planning documents (such as a Comprehensive Plan, Capital Improvements Plan or Emergency Management Plan), Augusta - Richmond County and the Cities of Blythe, and Hephzibah will provide a copy of the HMP to the appropriate parties and recommend that all goals and strategies of new and updated local planning documents are consistent with, and in support of, HMP goals and do not contribute to increased hazards in the affected jurisdiction(s).

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

1.3 PLANNING PROCESS METHODOLOGY

Chapters 1 – 8 and Appendices A - D of the 2006 Augusta – Richmond County Multi-Jurisdictional Hazard Mitigation Plan were reviewed by the HMPC as a group during the June 14, 2011 HMPC Workshop. The HMPC reached consensus to redraft Chapter 1 to reflect FEMA requirements and GEMA Highlights for Hazard Mitigation Plans. Table U - 1 below details changes to Chapter 1 of the existing Plan.

Table U – 1: Updates to Chapter 1	
2006 HMP Chapter 1 Section	**Updates to Sections**
1.1 Purpose & Authority	1.1 Section title changed to 1.1 PURPOSE – BACKGROUND. Entire section re-written.
1.2 The Planning Process 1.2.1 Planning Committee Participants 1.2.2 Step-by-Step Process 1.2.3 Committee Meetings	1.2 Section title changed to 1.2 AUGUSTA – RICHMOND COUNTY MULTI – JURISDICTIONAL HMP PLANNING AREA and PLANNING COMMITTEE. Entire section re-written. Added sections 1.2.1 Incorporation of Mitigation Plan in Existing Planning Mechanisms and 1.2.2 Continuity of Operations Plans.
1.3 Organization of the Plan	1.3 Section title changed to 1.3 Planning Process Methodology. Entire Section re-written. Added sections 1.3.1 Plan Purpose, 1.3.2 Plan Scope, and 1.3.3 Plan Methodology & Organization.
1.4 The Planning Area 1.4.1 Geography & Climate 1.4.2 Population & Economy 1.4.3 Land Use & Growth 1.4.4 Building Inventory 1.4.5 Critical & Essential Facilities	1.4 Section title changed to 1.4 Chapter 1 – HMP: Planning Process – Products. Section 1.4.1 changed to 1.4.1 Augusta – Richmond County and the Cities of Blythe and Hephzibah Executive Summary Products. 1.4 The Planning Area Sections 1.4.1; 1.4.2; and 1.4.3 The Planning Area moved to Appendix G: Community Profiles. Sections 1.4.4 and 1.4.5 moved to Chapters 2 and 3 and Appendix A.
1.5 Hazard Summary 1.5.1 Hazard History 1.5.2 Weather-Related Deaths 1.5.3 Losses Due to Major Disasters 1.5.4 Relative Ranking of Hazards	1.5 Section title changed to 1.5 HMPC Members. Entire Section re-written. Sections 1.5.1 HMP Update – Planning Committee; 1.5.2 HMP – Stakeholders Committee; 1.5.4 Consulting Team Members added.
1.6 Mitigation Goal	1.6 Section title changed to 1.6 HMPC Meetings – Public Outreach Efforts. Entire section re-written. 1.6.1 Initial Scoping Meeting – June 14, 2011; 1.6.2 Augusta – Richmond County HMPC Meeting – June 14, 2011; 1.6.3 HMPC Public Hearing – June 14, 2011; 1.6.4 Augusta – Richmond County HMPC Workshop – June 22, 2011; 1.6.5 Augusta – Richmond County HMPC Workshop – July 14, 2011; 1.6.6 Augusta – Richmond County HMPC and Shelter in Place Meeting – July 12, 2011; 1.6.7 Augusta – Richmond County HMPC Meeting and Public Hearings – 25 July, 2011 added. Mitigation Goals moved to Chapters 4 & 5 Mitigation Strategies.
1.7 Multi-Jurisdictional Considerations	1.7 Section title changed to 1.7 HMP Authority. Section 1.7 Multi-Jurisdictional Considerations moved to Chapters 2 & 3 under the heading of Multi-Jurisdictional Differences for each Natural and Manmade Hazard. Entire section re-written.

1.8 Public Involvement 1.8.1 Public Meetings 1.8.2 Public Awareness of Flood Hazards 1.8.3 Communicating about Hazards	1.8 Section title changed to 1.8 Chapters 2 - 3 – Hazard Identification, Risk Assessment and Vulnerability (HRV).Entire section re-written. Added Sections 1.8.1 Hazard Identification Process; 1.8.2 Broad Hazard Categories; 1.8.3 Hazard Mapping; and 1.8.4 Vulnerability Assessment.
1.9 Adoption, Implementation, Reporting, Evaluation & Revision	1.9 Title changed to 1.9 Community Capability Assessment. Entire section re-written.
	1.10 Chapters 4 & 5 –Mitigation Strategies added.
	1.11 Chapter 6 – Executing the Plan (HMP Maintenance and Update Process) added.
	1.12 Chapter 7 – Conclusions and HMP Adoption and Approval added.
	1.13 HMP Appendices added.

1.3.1 PLAN PURPOSE

In response to unacceptable loss of life and property resulting from natural disasters, Augusta - Richmond County and the Cities of Blythe and Hephzibah developed its original HMP in February of 2006, an initial Plan providing homes, businesses, and communities with safeguards to mitigate the impacts of hurricanes, floods, tornadoes, wildfires, and other natural hazards. This Plan update assesses the effectiveness of current programs and activities in the community; identifies shortfalls; and develops mitigation measures to reduce Augusta - Richmond County and the Cities of Blythe and Hephzibah's exposure to these natural hazards.

Augusta - Richmond County and the Cities of Blythe, and Hephzibah remain dedicated in continuing the work program established by the 2006 Plan and improving hazard mitigation strategies through the current Plan update in order to:

- Protect life and property by reducing the potential for future damages, community disruption, and economic loss resulting from natural hazards;
- Qualify for additional grant funding, in both pre-disaster and post-disaster environment;
- Provide quick recovery and redevelopment assistance and services following future disasters;
- Integrate existing mitigation documents, processes, and plans;
- Demonstrate a firm local commitment to hazard mitigation principles; and
- Comply with state and federal legislative requirements governing local hazard mitigation planning.

1.3.2 PLAN SCOPE

The visioning scope of the Augusta - Richmond County Multi-Jurisdictional HMP proposal included the following:

- Existing HMP review and update methodology

- Involved committee members and citizens in drafting a HMP to guide future development and preparedness activities across the county;
- Identified risks and hazards that may affect Augusta - Richmond County and the Cities of Blythe, and Hephzibah using a systematic hazard identification and risk assessment process;
- Prioritized loss reduction and emergency preparedness activities for disasters;
- Determined hazard vulnerability areas within Augusta - Richmond County and the Cities of Blythe, and Hephzibah;
- Developed strategies and best practices to reduce and/or mitigate the impact of identified hazards;
- Developed a Continuity of Operations Plan to integrate the Plan in existing local government plans, regulations, policies and administration; and
- Developed a Plan Update & Maintenance Matrix.

1.3.3 PLAN METHODOLOGY & ORGANIZATION

The scope of the HMP encompassed all areas of Augusta - Richmond County and the Cities of Blythe, and Hephzibah. The HMP identified all natural, manmade, and technological hazards that potentially threatened community life, property, quality of life, and sustainability. Elements of the HMP include short and long-term mitigation goals and objectives, implementation strategies and projects with possible sources of project funding.

Additionally, the HMP contains the following components:

- Existing HMP review and update methodology
- The mitigation vision of the community;
- A profile of Augusta - Richmond County and the Cities of Blythe, and Hephzibah, geography, history, assets, critical facilities, physical features and community indicators;
- Planning process overview and participation program for project committee, local, state and federal governments, citizens, industry and community entities;
- Review of Existing Plans to determine validity, integration, and revision opportunities;
- Review and Documentation of past and predicted exposure to natural hazards, including potential impact of risks to critical infrastructure, facilities, and operations;
- Assessment of anticipated losses resulting from identified hazards;
- Assessment of capabilities to implement hazard mitigation goals, objectives and policies to effectively mitigate community risks;
- Strategies and Procedures to implement and maintaining an effective, long range HMP;
- Assessment of recommendations for revisions to current policies, goals and regulations resulting from the HMP;
- Critical facilities information and mapping;

- Intergovernmental Coordination between Augusta - Richmond County and the Cities of Blythe, and Hephzibah, GEMA, and FEMA; and
- Process documentation.

SCOPE OF WORK – PRODUCTS

This Plan update meets the requirements set forth by FEMA and GEMA and ensures that Augusta - Richmond County and the Cities of Blythe, and Hephzibah remains eligible for funding and technical assistance from State and Federal hazard mitigation programs. Routine updates and maintenance addresses the natural and technological hazards ranked as high and moderate hazard risks and defined by the updated local hazard, risk, and vulnerability summary. Additional natural hazards will be evaluated during future updates to the Plan to determine vulnerability and risk to the community and needed development of specific mitigation measures to reduce impact. The HMP is updated and FEMA-approved on a five-year cycle.

1.4 Chapter 1 – HMP: PLANNING PROCESS – PRODUCTS

1.4.1 AUGUSTA - RICHMOND COUNTY and the Cities of BLYTHE, and HEPHZIBAH EXECUTIVE SUMMARY PRODUCTS

The HMPC and the Consulting Team documented the hazard mitigation planning process, including but not limited to:

- Existing Plan Review and Update Methodology
- Plan Preparation Process and Documentation;
- Plan Mission – Vision developed by the Consulting Team and HM Planning Committee containing public input;
- Plan Organization;
- Plan Financing;
- Plan Participation.

HMPC scheduled public participation and involvement events, (i.e. workshops, community outreach), document comments, survey data, and meeting minutes, encouraged input and commentary from the public, and HMPC.

As part of the public involvement process, Augusta - Richmond County, and the Cities of Blythe, and Hephzibah formed a Hazard Mitigation Planning and Stakeholders Committee (HMPC), chaired by Chief Howard Willis, Augusta-Richmond County EMA Director/Fire Chief. Members included a cross-section of the community, such as residents, government officials, EMA personnel, planners, engineers, community leaders, public and private agencies, business owners and the Consulting Team. The HMPC and Stakeholder Members list is located in Section 1.5 below. The list contains the name, email, and entity affiliation of each member and the roles of each.

1.5 HMPC MEMBERS

1.5.1 HMP Update – Planning Committee

1. **Committee Chairman** – Chief Howard Willis; EMA Director / Fire Chief; hwillis@augustaga.gov
2. **Committee Vice-Chair** – Terri Turner; Assistant Zoning & Development Administrator, Augusta-Richmond County Planning Commission; tturner@augustaga.gov
3. **Committee Secretary** – Sharon Bennett; EMA / LEPC; SWBennett@augustaga.gov
4. J R Hatney; Augusta Commission, District 9; jhatney@augustaga.gov
5. Grady Smith; Augusta Commission, District 10; hgssbm@knology.net
6. Deke Copenhaver; Mayor; MayorDeke@augustaga.gov
7. Fred Russell; City Administrator; frussell@augustaga.gov
8. George Patty; Executive Director, Augusta-Richmond County Planning Commission; gpatty@augustaga.gov
9. Scott Gay; Sheriff's Department; sgay@augustaga.gov
10. Robert Buckwitz; Commission Chairman, City of Hephzibah (or his designated representative); cityofhephzibah@bellsouth.net
11. Mayor Patricia Cole; City of Blythe (or her designated representative); pcblythe@yahoo.com

1.5.2 HMP – Stakeholders Committee

Other City Stakeholders:

1. Tameka Allen; Deputy Administrator; allen@augustaga.gov
2. Bill Shanahan; Deputy Administrator; bshanahan@augustaga.gov
3. Bill Wright; Planning Commission Chair; billwr1120@comcast.net
4. Billy Yates; GIS Project Leader; yates@augustaga.gov
5. Randy Wishard; Health Dept.; rewishard@dhr.state.ga.us
6. Jonathan Adriano; Director of Emergency Preparedness, GA Health, District 6; jdadriano@dhr.state.ga.us
7. Dominick Nutter; E-911 Director; dnutter@augustaga.gov
8. Jack Womack; Fire Marshall, Augusta Fire Department; JWomack2@augustaga.gov
9. Hameed Malik; Assistant Engineering Director / City Engineer; HMalik@augustaga.gov
10. Abie Ladson; Engineering Director; aladson@augustaga.gov
11. Rob Sherman; Director, License & Inspections; rsherman@augustaga.gov
12. Chester Wheeler; Director, Housing & Development; CWheeler@augustaga.gov
13. Tom Wiedmeier; Director, Augusta Utilities; TWiedmeier@augustaga.gov
14. Dayton Sherrouse; Director, Augusta Canal Authority; sherrouse@augustacanal.com
15. Earl Hilson; LEPC Chair; jehilson@olin.com

16. Frank Carl; Augusta Ports Authority; frankcarl@knology.net

1.5.3 Federal, State, Regional and Local Stakeholders

Federal and State Stakeholders:

1. Scott Hyatt; Operations Project Manager – J Strom Thurmond Dam and Lake, USCOE; scott.m.hyatt@us.army.mil
2. Jason Hunter; FP Mgmt. & Ins, FEMA Region IV; jason.hunter@dhs.gov
3. Lynne Keating; NFIP Outreach Specialist, FEMA Region IV; Lynne.keating@dhs.gov
4. Brian Laughlin; Hazard Mitigation Planner Central GA, GEMA; brian.laughlin@gema.ga.gov
5. Dee Langley; Planning Program Manager, GEMA; dee.langley@gema.ga.gov
6. Tom McQueen; GDOT Project Manager – Atlanta, GA; tmcqueen@dot.ga.gov
7. George Brewer; GDOT, District 2 Project Manager, Tennille, GA; gbrewer@dot.ga.gov
8. Steve Abbott; Chief Ranger, GA Forestry Commission; sabbott@gfc.state.ga.us
9. John Ambrose, PhD; Assistant Chief, Nongame Conservation Section; Wildlife Resources Division; GA DNR; Jon.Ambrose@dnr.state.ga.us
10. Steve Willard; Chief of Environ & Nat, Fort Gordon; steve.willard@us.army.mil

Local Stakeholders:

Industry

1. Bill Walls; Environmental Specialist, Solvay; william.walls@solvay.com
2. Phillip Delk; St Technician – Sr. Specialist HSE & Emergency Response Chief, Elanco; delkph@lilly.com

Hospitals

1. Susan James; Emergency Management Coordinator, University Hospital; susanj@uh.org
2. Dennis Jones; MCG; djones@georgiahealth.edu
3. David Brown; Emergency Preparedness Coordinator, VA Medical Center; David.Brown1@va.gov
4. Brad Thompson; Director of Safety and Security, Doctors Hospital of Augusta; brad.thompson@hcahealthcare.com
5. Bill Welsh; Director of Plant Operations, Trinity Hospital; Bill.Welsh@TriadHospitals.com

Emergency Services

1. Tom Knight; Special Projects Coordinator – South Star; tknight.ssems@gmail.com

Universities
1. James Reid; Paine College; reidj@mail.paine.edu
2. Jasper A Cooke; Public Safety Director, Augusta State University; jcooke@aug.edu

Schools
1. Chief Patrick Clayton; Dept. of School Safety and Security, RCBOE; ClaytPa@BOE.Richmond.k12.ga.us

Business Leaders
1. Braye Boardman; President, Beacon Blue, LLC; braye@beaconblue.com
2. Barry Storey; Co-Owner, Hull-Storey Gibson Companies; LLC; BStorey@HullStoreyGibson.com

Chamber of Commerce/CVB
1. Susan Parr; President/CEO, Augusta Metro Chamber of Commerce; sparr@augustagausa.com
2. Scott MacGregor; Augusta Metro Chamber of Commerce; scott@oglethorpepublicaffairs.com
3. Barry White; President, Augusta Visitors and Convention Bureau; bwhite@augustaga.org

Non-Profit Organizations
1. Jennifer Pennington; Executive Director, East Georgia Chapter of the American Red Cross; jpennington@arcaug.org
2. Mie Lucas; Emergency Services Director, American Red Cross of Augusta; mlucas@arcaug.org
3. Katie Atkinson; Volunteer and Disaster Services Coordinator - Salvation Army / Kroc Center; Katie_Atkinson@uss.salvationarmy.org

Environmental Groups
1. Hazel Langrall; Director, Central Savannah River Land Trust; hazel@csrlt.org
2. Tonya Bonitatibus; Savannah RiverKeepers; tbonitatibus@comcast.net
3. Susan Nicholson; Executive Director; Southeastern Natural Sciences Academy; snicholson@naturalsciencesacademy.org

Citizens
1. James Germany; Elderberry Subdivision – District 3; (706) 796-6588; gman6011@comcast.net
2. Leo Jackson; Belair Hills Estates – District 3; (706) 863-0519
3. Bobby Hankerson; Breeze Hill Plantation – District 5; (706) 793-2342; bobby@bobbyhankerson.com
4. Calvin Holland; Laurel Hills - District 5; (706) 798-5294

The Consulting Team, under the direction of the HMPC, drafted and implemented a Public Participation Program to solicit input from citizens and professionals with

knowledge of applicable hazards. The Multi-Jurisdictional Augusta - Richmond County and the Cities of Blythe, and Hephzibah project website, Augusta -Richmond County HMP Update, serves as the repository for all documents, Public Meeting announcements and Agendas. The website is located at: https://sites.google.com/a/plansandmorellp.com/augustarichmondhmplanupdate/.

1.5.4 Consulting Team Members

Augusta – Richmond County and its municipalities hired a consulting team to facilitate the Plan update process. Members of the team include:

Pudar Mitigation Consulting, Inc.

- Ranko S. Pudar, P.E., CFM, – Overall Project Manager, Risk Assessment Coordinator

Plans & More, LLP

- Sharon Caton, M.S., AICP – Principal Planner, Outreach Coordinator;
- Alan (Mike) Armstrong, CFM - Data Collection, Ordinance Review, Field Assessment;
- Rachael Davis, GIS Technician III, - Database Management, GIS support

The HMPC held public hearings, meetings, and/or workshops during the Plan development period. Press releases, articles, and workshop presentations explained the planning process, solicited input and responded to comments. The Committee conducted key informant interviews and surveys, conducted field assessments and reported findings on the project website, in workshops, press releases, and other documents.

Activities included:

- Interagency and Intergovernmental Coordination, meeting facilitation, documentation;
- Hazard Identification and Risk Assessment;
- Plan Goals;
- Mitigation Goals, Objectives and Strategy Organization;
- Solicited input regarding the feasibility of potential mitigation measures for each hazard and the prioritize mitigation projects;
- Plan Implementation;
- Preparation of the draft and final HM Plan, Plan goals and objectives, mitigation projects, and recommendations for integration of Plan elements in existing documents, policies, procedures;
- Drafted strategies for implementation and update of Plan goals and mitigation projects including cost analysis and potential community funding sources.

1.6 HMPC Meetings – Public Outreach Efforts

Augusta – Richmond County and the Cities of Hephzibah HMP public outreach efforts over the past five years were carried out through EMA and Planning operations. Joint EMA, LEOP, ESF, Comprehensive Plan, SPLOST, and Disaster

Preparedness meetings involved the Cities of Augusta (Metro Government that includes the City of Augusta and all unincorporated areas of Richmond County), Blythe, and Hephzibah representatives, local businesses, major subdivision citizen representatives and, hospitals, industrial board, development district, USACE, GA Forestry, Chamber of Commerce, Board of Education, and other public/private stakeholders. All meetings were publicly advertised and many of the board representatives are citizen, health care, emergency and disaster volunteers, governmental operations, and business leaders. Public involvement and input were solicited in all meetings. Meeting venues included schools, municipal buildings, the EOC, restaurants, community centers, and local businesses. HMP updates occurred following community and stakeholder input gathered at these meetings.

1.6.1 Initial Scoping Meeting – June 14, 2011

Representatives from Augusta - Richmond County HMPC met with the project Consulting Team on June 14, 2011 to discuss the HMP Project Timeline, Scope, HMPC and jurisdictional roles and responsibilities, and community outreach and input activities. The Initial Community Meeting Minutes are included in Appendix A of the HM Plan.

1.6.2 Augusta – Richmond County HMPC Meeting – June 14, 2011

A HMPC Kick-Off Public Hearing was held on June 14, 2011 at 9:00 AM at the Augusta Municipal Building, Room 802 and 803. The Consulting Team presentation explained the HM Planning Process, HM Project Timeline, Scope, HMPC and jurisdictional roles and responsibilities, and community outreach and input activities. The HMPC Workshop Presentation, Meeting Video, and Meeting Minutes are included in Appendix B of this document. GEMA Representatives Dee Langley, Planning Program Manager and Brian Laughlin, Mitigation Planning Specialist conducted training for the HMPC, Stakeholders, and citizens.

The GEMA HM Plan Kickoff Presentation, available at the following link: (https://sites.google.com/a/plansandmorellp.com/augustarichmondhmplanupdate/home/GEMAAugusta-RichmondKickoff.ppt?attredirects=0) and HMPC Workshop Presentation, (https://sites.google.com/a/plansandmorellp.com/augustarichmondhmplanupdate/home/AugustaHMPCpresentation.ppt?attredirects=0).

1.6.2.1 Review of Existing Plan and Determination of Revision Process

Following the Kick off Meeting a HMPC Workshop was conducted at 11:00 AM in the Commission Chamber, Room 803 of the Augusta Municipal Building for a thorough review of the existing plan to determine the Plan update strategy. Each section was reviewed and a consensus reached to rewrite the existing plan chapters. Plan update tables are included in each chapter.

1.6.3 HMPC Public Hearing – June 14, 2011

The HMPC held their first Public Hearing on June 14, 2011, 5:00 PM to roll out the HMP process, solicit community input, and present the project timeline to the

citizens of Augusta – Richmond County and the Cities of Blythe and Hephzibah. The meeting was held at the Augusta Municipal Building, Commission Chamber Room 803. The Public Hearing Presentation is available at the following link: (https://sites.google.com/a/plansandmorellp.com/augustarichmondhmplanupdate/home/Augustakickoffpublichearingpresentation.ppt?attredirects=0).

1.6.4 Augusta – Richmond County HMPC Workshop – June 22, 2011

The Augusta - Richmond County Joint ESF11 Group held a HMP Update meeting on June 22, 2011, at the Julian Smith BBQ Pit, 1:00 PM to 5:00 PM to complete the Hazard Identification – Risk Assessment Worksheets (GEMA Worksheet # 1). The Meeting Presentation, is available at the following link: (https://sites.google.com/a/plansandmorellp.com/augustarichmondhmplanupdate/home/AugustapublicpresentationS.Bennettrequest.ppt?attredirects=0), view the Sign-in Sheet, at (https://sites.google.com/a/plansandmorellp.com/augustarichmondhmplanupdate/home/ATTENDANCEROSTER22JUN11.pdf?attredirects=0), and the meeting Minutes at: (https://sites.google.com/a/plansandmorellp.com/augustarichmondhmplanupdate/home/Meeting_Minutes_Hazard_Mitigation_Update_Plan_2011.doc?attredirects=0).

1.6.5 Augusta – Richmond County HMPC Public Shelter in Place Meeting – July 12, 2011

HMPC Chairman Chief Howard Willis, Deputy Chief Sharon Bennett introduced the audience and attendees to the HMP Update process. Sharon Bennett gave a presentation Hazard Mitigation Plan Update and explained the importance of the plan to Augusta Richmond County and the Cities of Blythe and Hephzibah and the community. Each encouraged the attendees and anyone they know to participate in the upcoming public meetings to give their comments and help with making sure this plan covers the community needs. The public meeting will be on July 25, 2011 in several locations throughout the community. The Augusta Municipal Building, Room 802, 6:00 P.M. – 7:00 P.M., the Carrie Mays Park located at 5th and Walton Way, 6:00 P.M. – 7:00, Warren Road Community Center, 6:00 P.M. – 7:00. All were invited to attend and to comment and support the Plan. All participants were informed that it is their plan for all that work or live in this community. The Sign-in Sheets, Meeting Minutes, and HMP Presentation are available on the following link at:
(https://sites.google.com/a/plansandmorellp.com/augustarichmondhmplanupdate/home/SIPCOMBINED.pdf?attredirects=0).

1.6.6 Augusta – Richmond County HMPC and Shelter in Place Meeting – July 12, 2011

The Augusta – Richmond County HMPC held a joint HMP Update and ESF11 Shelter in Place Meeting and presentation on July 12, 2011, at the Julian Smith Casino to gather input on the HMP.

1.6.7 Augusta – Richmond County HMPC Workshop – July 14, 2011

The Augusta – Richmond County HMPC held two meetings on July 14, 2011, at the

Augusta Municipal Building (9:00 A.M.) and at City Hall in Hephzibah (1:30 P.M.) to include both the Cities of Blythe and Hephzibah in the Plan update process. View the Sign-in Sheets, at: (https://sites.google.com/a/plansandmorellp.com/augustarichmondhmplanupdate/home/HMPCSigninsheet14july2011.pdf?attredirects=0), Public access to See Meeting Agenda, at (https://sites.google.com/a/plansandmorellp.com/augustarichmondhmplanupdate/home/AgendaforAugustaHMPCStakeholderMeeting14July2011.pdf?attredirects=0), View the Hephzibah - Blythe Meeting Minutes, available on the following link at: (https://sites.google.com/a/plansandmorellp.com/augustarichmondhmplanupdate/home/HazardMitigationMeetingHephzibah%26BlytheJuly14Minutes%281%29.pdf?attredirects=0), and View the Augusta Meeting Minutes, available on the following link at: (https://sites.google.com/a/plansandmorellp.com/augustarichmondhmplanupdate/home/HazardMitigationMeetingJuly14Minutes.pdf?attredirects=0), for the HMPC Meetings, held July 14, 2011. The Critical Facilities Database was completed, reviewed, and approved for entry in the GMIS online program during the meeting and is included in. The consulting team entered the data in GMIS.

1.6.8 Augusta – Richmond County HMPC Meeting and Public Hearings July 25, 2011

The Augusta – Richmond County HMPC held a Hazard Mitigation Plan Update Planning Committee/Stakeholders Committee meeting, at the Augusta Municipal Building, 9:00 A.M. – Noon, to review, comment and revise the HMP Update Draft.

The Augusta – Richmond County HMPC held three Public Hearings at 6:00 P.M. - 7:00 P.M. to roll out the draft plan to the community. The meetings were hosted by three facilitation teams comprised of a HMPC Officer and Consulting Team member:

Public Meeting #1 – Augusta Municipal Building
Facilitation Team: Sharon Bennett, HMPC Secretary and Mike Armstrong, Consulting Team;

Public Meeting #2 - Carrie Mays Community Center
Facilitation Team: Terri Turner, HMPC Vice-chair and Ranko Pudar, Consulting Team;

Public Meeting #3 - Warren Road Community Center
Facilitation Team: Chief Howard Willis, HMPC Chair and Sharon Caton, Consulting Team.

1.6.9 Augusta – Richmond County HMPC Workshop, August 15, 2011

The HMPC met on August 15, 2011 from 9:00 A.M. – Noon, at the Augusta Municipal Building, Room 803 to complete the GEMA STAPLEE Worksheets #4 (a) and (b). The STAPLEE worksheets were then ranked by the HMPC and forwarded to the Consulting Team for inclusion in the HMP.

1.6.9 Augusta – Richmond County HMPC Meeting (Electronic Meetings and Public Hearing, 28 August – 30 September, 2011

The Augusta – Richmond County HMPC held three Public Hearings at 6:00 P.M. -

7:00 P.M. on September 28, 2011 to receive comments from the community. The meetings were hosted by three facilitation teams comprised of a HMPC Officer and Consulting Team member:

Public Meeting #1 – Augusta Municipal Building
Facilitation Team: Sharon Bennett, HMPC Secretary and Mike Armstrong, Consulting Team;
Public Meeting #2 - Carrie Mays Community Center
Facilitation Team: Terri Turner, HMPC Vice-Chair and Ranko Pudar, Consulting Team;
Public Meeting #3 - Warren Road Community Center
Facilitation Team: Chief Howard Willis, HMPC Chair and Sharon Caton, Consulting Team.

The revised HMP Draft Plan was available for comments at the Planning Department in the City of Augusta Municipal Building, City of Blythe City Hall, and City of Hephzibah City Hall. The planning process timeline for the HMP Update pre GEMA

1.7 HMP AUTHORITY

The Draft HMP adoption by Augusta - Richmond County and the Cities of Blythe and Hephzibah occurred after the 30 day public review period and concurrent with submission to GEMA and FEMA for review and comment in accordance with the authority granted to cities and counties by the State of Georgia. The Final HMP was adopted by Augusta - Richmond County and the Cities of Blythe and Hephzibah after approval by GEMA and FEMA in as to form and content in accordance with the authority granted to cities and counties by the State of Georgia.

This Plan was updated in accordance with current State and Federal rules and regulations governing local hazard mitigation plans. The Plan shall be monitored and updated on a routine basis to maintain compliance with the following legislation and guidance:

- Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C., Section 322, Mitigation Planning, as enacted by Section 104 of the DMA2K (P.L. 106-390) and by FEMA Interim Final Rule published in the Federal Register on February 26, 2002, at 44 CFR Part 201;
- Georgia Emergency Management Act of 1981;
- Authorization of the Augusta - Richmond County and the Cities of Blythe, and Hephzibah Emergency Management Agency

The following FEMA and GEMA guides and reference documents were used to prepare this document:

- FEMA Publication 386-1: Getting Started, September 2002;
- FEMA Publication 386-2: Understanding Your Risks: Identifying Hazards and Estimating Losses, August 2001;
- FEMA Publication 386-3: Developing the Mitigation Plan, April 2003;

- FEMA Publication 386-4: Bringing the Plan to Life, August 2003;
- FEMA Publication 386-5: Using Benefits-Cost Review in Mitigation Planning, May 2007;
- FEMA Publication 386-6: Integrating Historic Property and Cultural Resource Considerations into Hazard Mitigation Planning, May 2005;
- FEMA Publication 386-7: Integrating Manmade Hazards into Mitigation Planning, September 2003;
- FEMA Publication 386-8: Multi-Jurisdictional Mitigation Planning, August 2006;
- FEMA Publication 386-9: Using the Hazard Mitigation Plan to Prepare Successful Mitigation Projects, August 2008;
- FEMA; Local Mitigation Plan Crosswalk with GEMA Highlights;
- GEMA; Georgia Mitigation Information System (GMIS) Critical Facilities Database;
- GEMA; Hazard Mitigation Worksheets 1 – 4; Hazard Frequency Table; County Sample Documents and Templates.

1.8 Chapters 2 - 3 – Hazard Identification, Risk Assessment, and Vulnerability (HRV)

In these chapters the historical hazards of Augusta - Richmond County and the Cities of Blythe, and Hephzibah were recorded and analyzed. The information was identified by using both primary and secondary research materials that included FEMA and GEMA resources and reports from local, state, and national agencies, media accounts, state and local weather records, and conversations with key personnel and residents in the county. The analysis explains the possible severity and magnitude, and the potential impact of damage within each governing jurisdiction from future hazards.

To facilitate the risk assessment effort, two distinct methodologies were used, i.e., quantitative and qualitative. The first utilizes HAZUS®MH (GIS based loss estimation software available from the Federal Emergency Management Agency).

The second uses the Georgia Mitigation Information System (GMIS), a GIS-based approach independent of the HAZUS®MH software. The consulting team is familiar in using both methodologies. The quantitative assessment focused on potential loss estimates, while the qualitative assessment is comprised of a scoring system built around values assigned by the HMPC to the likelihood of occurrence, potential consequence impact and of each hazard studied.

It is important to note the vulnerability determinations presented are developed using best available data, and the methodologies applied result in approximation of risk. These estimates are used to understand relative risk from hazards and potential losses that may occur; however, uncertainties are inherent in any loss estimation method.

<u>1.8.1 HAZARD IDENTIFICATION PROCESS:</u> The HMPC and the Consulting Team developed a description and prioritization of the natural hazards that occurred

within Augusta - Richmond County and the Cities of Blythe, and Hephzibah. The Hazard Risk Identification and Vulnerability Assessment Elements were developed using the State of Georgia Local Hazard Plan Update Template and FEMA "How To," Guides, Pub. Nos. 386 -1 through 9, FEMA Plan Review Crosswalk with GEMA Requirements, GEMA Highlights, Local Mitigation Plan Guidance, GEMA GMIS Program and Mitigation Information System Guide, and locally produced data, input, and reports. The planning process involved the following steps:

- Identification of Augusta - Richmond County and the Cities of Blythe, and Hephzibah Natural and Manmade Hazards;
- Hazard Profile;
- Assets Exposed to Hazard
    - Report and Mapped Exposure;
    - Estimation of Potential Losses;
- Land Use and Development Trends (including Special Character, Overlay, DCA, DNR, EPA or other Designated Areas);
- Multi-Jurisdictional Differences;
- Hazard Summary

1.8.2 BROAD HAZARD CATEGORIES: HMPC and the Consulting Team developed a description and prioritization of the natural hazards that occurred within Augusta - Richmond County and the Cities of Blythe and Hephzibah. The Risk Assessment Chapter natural hazards categories, are consistent with the State of Georgia HMP including, but are not limited to:

- Flood-Related Hazards (river flooding, erosion, dam failures as the result of winter storms and hurricanes) that include, at a minimum, flood hazard areas as defined by FEMA in the Digital Flood Insurance Rate Maps (DFIRMs) for the jurisdiction as well as state and local historical data and maps.
- Wind-Related Hazards (hurricanes, coastal storms, winter storms, tornadoes) based on information provided by the National Weather Service (NWS), GEMA HMP and local data.
- Fire-Related Hazards (drought, wildfires) based on local historical data, the NWS, GEMA HMP, and local sources.
- Geologic Hazards (earthquakes, landslides, sink holes) based on local historical information, GEMA HMP, state agency reports, and local sources.
- Other Hazards not listed above as determined by local history and experience. Consideration is given to man-made hazards, i.e. chemical spills and/or fires, based on GEMA HMP, state agency reports and local sources.

1.8.3 HAZARD MAPPING: Using the best available existing data, the HMPC and the Consulting Team coordinated development of a map series to illustrate areas affected by multiple natural hazards working with the Augusta - Richmond County HMPC and GIS personnel. In conjunction with mapping, the HMPC and the Consulting Team created a comprehensive inventory (entered in the GMIS Critical Facilities Database) for use in developing map data layers, of the following items:

- Critical facilities, including, but not limited to the following:
    - Emergency operations centers;
    - Police/fire stations;

    - Emergency Equipment Locations;
    - Hospitals and emergency shelters;
    - Water and wastewater treatment plants and associated pumping stations;
    - Power generation, transmission, and delivery facilities;
    - Special population centers, such as day-care facilities, nursing homes/elderly housing, correctional facilities;
    - Hazardous material facilities;
- Evacuation routes and equipment locations;
- Repetitive flood loss and substantial damage structures, as defined by FEMA;
- Maps that depict the location of structures, land use, and population with structure delineation by use (e.g. residential, commercial, industrial, institutional, other).

1.8.4 VULNERABILITY ASSESSMENT: Based on the previous information, the HMPC and the Consulting Team developed an overview of community vulnerability to specific hazards. Vulnerability assessment included:

- Types and numbers of buildings, infrastructure, and critical facilities located in the identified hazard areas;
- Existing multiple hazard protection measures within Augusta - Richmond County and Hephzibah (Blythe does not participate in the NFIP) including protective measures under the National Flood Insurance Program (NFIP);
- A description of each measure and the method of enforcement and/or the point of contact responsible for implementation of each measure;
- Historical performance of each measure and a description of improvements or changes needed; and
- General description of land uses and development trends to incorporate future land use decisions.

FEMA - GEMA List of Potential Hazards for Consideration

- Landslides and Mudslides
- Sinkholes
- Civil Disturbance
- Atmospheric Hazards
- Winter Storms
- Severe Thunderstorms/Windstorms
- Tropical Storms/Hurricanes
- Tornadoes
- Lightning
- Wildfires
- Hydrologic Hazards
- Flooding
    - Repetitive Loss Areas
    - Drainage Improvement Areas
    - HAZUS-MH Summary
- Drought
- Seismic Hazards

- Earthquakes
- Technological Hazards
- Dam/Levee Failures
- Cyber Crime
- Hazardous Material Spills
- Pandemics/Epidemic Incidents
- Terrorism
- Critical Facilities and Infrastructure

A HMPC meeting was held on June 14, 2011 at 9:00 AM at the Augusta - Richmond County Municipal Building, Room 802 and 803. Stakeholders joined the HMPC and the Consulting Team to begin the process of determining community risk to locally Identified Hazards in preparation for the Mitigation Strategies element of the Plan. View the Hazard Identification Questionnaire – GEMA Worksheet # 1 at: (https://sites.google.com/a/plansandmorellp.com/augustarichmondhmplanupdate/home/HazardIdentificationQuestionnaire.doc?attredirects=0) the HMPC used during the meeting.

1.9 Community Capability Assessment

The Consulting Team in concert with the HMPC performed an analysis and report of Community Capability after researching legal documents, authorities, ordinances and plans to determine the overall capability of Augusta - Richmond County and the Cities of Blythe and Hephzibah and the ability to conduct mitigation-related activities. The HMPC collaborated with the Tax Assessor's Office, Planning and Zoning, EMA, and citizens to collect and analyze data related to the NFIP and the Community Rating System (CRS), stormwater management, floodway regulations, and land use controls.

The HMPC and the Consulting Team coordinated with County/City departments, including Augusta - Richmond County and the Cities of Blythe and Hephzibah, Public Schools, hospitals, businesses and community stakeholders to assess their institutional and fiscal capabilities. It is anticipated the interviews, document research, and data will provide sufficient data to assess the overall fiscal and political capabilities of local government. The document review and interview process will include the following:

- Legal Capability;
- General Authority;
- Building Codes and Inspections;
- Land Use Planning;
- Zoning;
- Subdivision Ordinance;
- Acquisition;
- Taxation;
- Floodway Regulations;
- NFIP and Community Rating System;
- Stormwater Management;
- FEMA Floodplain Map Modernization Program;

- Emergency Management;
- Institutional Capability;
- Political Capability;
- Technical Capability; and
- Fiscal Capability

The **Consulting Team**, at the direction of the HMPC produced a Community Capability Report containing the following elements:

Community Capability and Capacity Report

- Analysis Conclusion;
- Legal Capability Conclusion;
- Institutional Capability Conclusion;
- Political Capability Conclusion; and
- Technical Capability Conclusion.

The resulting report and analysis informed the Natural Hazard Mitigation Strategy process, selection, and action steps to mitigate Natural Hazard affecting Augusta – Richmond County and the Cities of Blythe and Hephzibah.

1.10 Chapters 4 & 5 –Mitigation Strategies

The foundation of the HM Plan is the identification of strategies through which Augusta - Richmond County and the Cities of Blythe and Hephzibah can implement natural, human caused and technological hazard mitigation goals, objectives and actions. As identified in Chapters 2 – 4, Hazard Vulnerability Assessment, the Multi-Jurisdictional HMPC acquired a clear understanding of the community's hazards and risks. The next step was to develop a mitigation strategy. The multi-jurisdictional hazard mitigation goals, objectives and actions discussed in this chapter were prioritized under each hazard. The methodology used to determine the priority of projects and actions was based on repetition of hazard events, monetary loss, anticipated costs, and the potential for loss of life. For each of the hazards identified in Chapter 2 - 4, the Multi-Jurisdictional HMP outlines clear, directive goals and objectives as part of the mitigation strategy. Mitigation actions for Augusta - Richmond County and the Cities of Blythe and Hephzibah were incorporated in community goals, objectives and actions.

1.10.1 Natural and Technological Hazard Mitigation Goals and Objectives

The Consulting Team assisted the HMPC in developing local mitigation strategies specific to each community's exposure and impacts by identified natural hazards. The strategy included a list of mitigation goal statements focusing on reduction of risks from the identified natural hazards. Goal development and project prioritization were drafted by the Consulting Team in coordination with the HMPC.

HMPC and the Consulting Team drafted a prioritized project list and analysis of a range of specific mitigation actions and projects to reduce the

effect of each hazard, emphasizing new and existing buildings and infrastructure.

- Projects included non-structural, (e.g., planning, regulatory measures, property acquisition, retrofitting, elevation) or structural, (e.g., dams, dikes) solutions;
- Prioritized projects list based on cost effective hazard mitigation projects, HMPC and public input was developed, including:
    - An analysis of proposed mitigation projects focused on several key areas, including but not limited to: economic (including benefits and cost), engineering, technical, legal, environmental, social, and political feasibility. Selected options were the best fit for Augusta - Richmond County and the Cities of Blythe and Hephzibah need to meet the criteria of feasibility analysis;
    - Coordination with relevant Federal, State and Local agencies for input and technical assistance included FEMA, GEMA, Regional Representatives, HMPC, and other entities identified by Augusta - Richmond County and the Cities of Blythe and Hephzibah;
    - Previous Hazard Mitigation Accomplishments.

Augusta - Richmond County and the Cities of Blythe and Hephzibah made previous efforts to mitigate hazards in the community. Some of these strategies are significant and potentially beneficial in reducing loss of life and property from disasters.

Using the STAPLEE criteria and local input the Consulting Team, working with the HMPC, determined the effectiveness of mitigation strategies identified in the effective HMP**.** In short, the product is a concise report of whether the strategies and/or projects worked and recommendations for improvements to existing strategies, deletions of ineffective strategies, and effective new strategies to accomplish the Goals and Objectives of the Plan in a cost effective manner.

1.11 Chapter 6 – Executing the Plan (HMP Maintenance and Update Process)

Local hazard mitigation planning is a process of organizing community resources, identifying and assessing hazard risks, and determining how to minimize or manage those risks. This process results in a HM Plan that identifies specific mitigation actions, each designed to achieve both short-term objectives and a long-term community vision. To ensure the functionality and feasibility of mitigation actions, responsibility was assigned to a specific agency, department or individual, along with a schedule for implementation. Plan maintenance procedures were established to monitor implementation progress and the evaluation and enhancement of Plan. These plan maintenance procedures enable Augusta - Richmond County and the Cities of Blythe and Hephzibah to maintain a living, dynamic and effective planning document over time and offers the following benefits:

- Save lives and property;

- Decrease costs of hazards;
- Facilitate and guide disaster recovery;
- Reduce vulnerability with sound development practices and post-disaster recovery and reconstruction;
- Expedite applications of pre- and post-disaster grant funding; and
- Demonstrate a commitment to improved community health and safety.

MONITOR, EVALUATE, AND UPDATE: The Consulting Team drafted a plan to assist HMPC in monitoring, evaluating and updating the Plan.

INCORPORATE HM PLAN INTO EXISTING PLANNING MECHANISMS: The HMPC and Consulting Team drafted recommendations for the implementation and incorporation of the Plan goals in local planning processes including the Comprehensive Plan, Zoning Ordinance, Subdivision Regulations, and Development Review and Permitting Processes.

IMPLEMENTATION SCHEDULE: The HMPC and the Consulting Team drafted an implementation schedule with procedures for ensuring the plans' implementation, update and revision every five years or as needed.

CONTINUED PUBLIC INVOLVEMENT: The HMPC and the Consulting Team drafted a Participation Program for continued public involvement and outreach.

1.12 Chapter 7 – Conclusions and HMP Adoption and Approval

LOCAL ADOPTION: The Consulting Team assisted the HMPC with the Plan adoption process by governing bodies after holding public hearings for input and comments on the Plan.

PLAN APPROVAL: The Consulting Team assisted the HMPC in Plan submission to GEMA on or before the deadline date for initial review and forwarding to FEMA Region IV for final review and approval.

1.13 HMP Appendices

APPENDIX A: HAZARD IDENTIFICATION, RISK ASSESSMENT (HRV)
APPENDIX B: GROWTH and DEVELOPMENT TRENDS
APPENDIX C: OTHER PLANNING DOCUMENTS
APPENDIX D: WORKSHEETS USED IN PLANNING PROCESS
APPENDIX E: COPIES OF REQUIRED PLANNING DOCUMENTS
APPENDIX F: GLOSSARY
APPENDIX G: COMMUNITY PROFILE

CHAPTER 2: LOCAL NATURAL HAZARDS, RISK, & VULNERABILITY (HRV)

Chapter 2 of the HMP describes the Natural Disaster Hazard, Risk, and Vulnerability (HRV) summary undertaken by Augusta - Richmond County and the Cities of Blythe and Hephzibah. This section consists of the following subsections:

- INTRODUCTION AND UPDATE SUMMARY
- TORNADO/WINDSTORM/HAIL
- FLOODING
- DROUGHT/EXTREME HEAT
- SEVERE WINTER STORM
- WILDFIRE
- EARTHQUAKE

INTRODUCTION AND UPDATE SUMMARY

A key step in the mitigation of disaster losses in Augusta - Richmond County and the Cities of Blythe and Hephzibah lie in developing a comprehensive understanding of the hazards posing risks to its communities. The following terms define the process of Hazard Identification and Risk Assessment and are found throughout the Plan.

> **Hazard:** Event or physical conditions that have the potential to cause fatalities, injuries, agricultural loss, property damage, infrastructure damage, damage to the environment, interruption of business, other types of harm.
> **Risk:** Product of a hazard's likelihood of occurrence and its consequences to society.
> **Vulnerability:** Degree of susceptibility and resilience of the community and environment to hazards. (Source: Federal Emergency Management Agency, 2001).

The Local Hazard, Risk, and Vulnerability (HRV) summary process methodology evaluates risk defined by probability and frequency of occurrence. An assessment of each hazard event, human and property exposure to the hazard, and the consequences of that exposure form the basis of community hazard investigation. Distinct methodologies used to record community exposure include qualitative and quantitative data.

Augusta - Richmond County and the Cities of Blythe and Hephzibah are vulnerable to a broad range of natural hazards that threaten life and property. The Augusta

Richmond County Hazard Mitigation Planning and Stakeholder Committee (HMPC) identified hazards to include in the HRV summary were determined to pose actual, potential threat to Augusta Richmond County and the Cities of Blythe and Hephzibah. Hazards identified are consistent with those identified by the Georgia Emergency Management Agency (GEMA) and the Federal Emergency Management Agency (FEMA) for the Northeast region of the state and this region of the country. The natural hazards for this 2011 Plan update include:

- TORNADO/WINDSTORM/HAIL
- FLOODING
- DROUGHT/EXTREME HEAT
- SEVERE WINTER STORM
- WILDFIRE
- EARTHQUAKE

Natural hazards can be potentially interrelated, (Ex: A tornado may produce rain, hail, wind damage, and localized flooding), therefore an assessment of those hazards identifies commonalities during the HRV process. Where specific hazard risk and exposure categories intersect, risk hazard categories are not duplicated to control data skewing.

Existing Plan Review and Update Process. The HMPC reviewed the effective 2006 HMP during the first HMPC Workshop on June 14, 2011. The consensus of the HMPC and public attendees was to rewrite Chapter 2 after a thorough review of hazard data and community risks. Chapter 2 revisions, additions, and changes were accomplished through an intensive Hazard Identification process using GEMA Worksheet #1 with a FEMA Questionnaire addition, GMIS data and maps, HAZUS data and reports, Hazard Ranking Survey, analysis of independent data from FEMA, NOAA, NWS, USGS, GA Forestry, local knowledge of hazard events, news articles, and other sources of hazard information. Table U-2 below provides update information.

Table U – 2: Updates to Chapter 2

A: 2006 HMP Chapter 2 Sections	B: Updates to Sections
2.1 Floods and Related Hazards	2.2 Natural Hazard B: Flooding. Section moved and renamed.
2.1.1 Events, Frequency & Probability	2.2.1: Flooding Identity, Renamed and moved. Minor section revisions. 2.2.2 Flooding Events, Frequency & Probability, Added Section.
2.1.2 Assets Exposed & Potential Losses	2.2.3 Inventory of Assets Exposed to Flooding. Section moved. Section completely re-written. 2.2.4 Estimation of Losses Due to Flooding, Section added.
2.1.3 Land Use and Development Trends	2.2.5 Land Use and Development Trends related to Flooding. Minor revisions made to section.
2.1.4 Multi-Jurisdictional Differences	2.2.6 Multi-jurisdictional Differences related to Flooding. Minor revisions made
2.1.5 Summary: Exposure to Flood	2.2.7 Flooding HRV Summary. Section re-written.

Hazards	
2.2 Wind Hazards 2.2.1 Events, Frequency & Probability 2.2.2 Assets Exposed & Potential Losses 2.2.3 Land Use and Development Trends 2.2.4 Multi-Jurisdictional Differences 2.2.5 Summary: Wind Hazards	2.1 NATURAL HAZARD A: Tornado/Windstorm/Hail Section moved and renamed. 2.1.1 Tornado Identity. Renamed and moved. Section completely re-written. 2.1.1.2 Tornado Profile; 2.1.2: Windstorm Identity; 2.1.2.1 Windstorm Profile; 2.1.3: Hail Identity; 2.1.3.1 Hail Profile Sections added. 2.1.3 Inventory of Assets Exposed to Tornado/Windstorm/Hail. Section renamed, moved, re-written. 2.1.4 Estimation of Losses Due to Tornado/Windstorm/Hail Section added. 2.1.5 Land use & development trends Tornado/Windstorm/Hail Section moved and renamed. Minor revisions. 2.1.6 Multi-Jurisdictional Differences in Tornado/Windstorm/Hail. Section moved and renamed. Minor revisions. 2.1.7 Tornado/Windstorm/Hail HRV Summary. Section moved and renamed. Section completely revised.
2.3 Severe Winter Storms 2.3.1 Events, Frequency & Probability 2.3.2 Assets Exposed & Potential Losses 2.3.3 Land Use and Development Trends 2.3.4 Multi-Jurisdictional Differences 2.3.5 Summary: Winter Storms	2.4: Natural Hazard D – Severe Winter Storms. Section moved and renamed. Completely re-written 2.4.1 Severe Winter Storm Identity. Section added. 2.4.2: Severe Winter Storm Events, Frequency & Probability. Section renamed and completely re-written. 2.4.3 Inventory of Assets Exposed to Severe Winter Storms. Section renamed. Completely re-written. 2.4.4 Estimation of Losses Due to Severe Winter Storms. Section added. 2.4.5 Land Use and Development Trends Severe Winter Storms. Section renamed. Completely re-written. 2.4.6 Multi-jurisdictional Differences related to Winter Storms. Section renamed. Minor revisions. 2.4.7 Severe Winter Storm HRV Summary. Section renamed. Minor revisions.
2.4 Drought 2.4.1 Events, Frequency & Probability 2.4.2 Assets Exposed & Potential Losses 2.4.3 Land Use and Development Trends 2.4.4 Multi-Jurisdictional Differences 2.4.5 Summary: Drought	Section moved and renamed 2.3: Natural Hazard C - Drought/Extreme Heat. Section re-written. 2.3.1 Drought Identity added. 2.3.2 Drought/Extreme Heat Events, Frequency & Probability. Section re-written. 2.3.3 Inventory of Assets Exposed to Drought/Extreme Heat. Section renamed, re-written. 2.3.4 Estimation of Losses Due to Drought/Extreme Heat. Section added. 2.3.5 Land Use and Development Trends Drought/Extreme Heat. Section renamed. Minor revisions. 2.3.6 Multi-jurisdictional Differences Drought/Extreme Heat. Section renamed . Section re-written. 2.3.7 Drought/Extreme Heat HRV Summary. Section renamed. Re-written to include Extreme Heat HRV.
2.5 Urban Wildland Interface Fire	2.5: Natural Hazard E – Wildfires. Section renamed. Minor revisions.

2.5.1 Events, Frequency & Probability 2.5.2 Assets Exposed & Potential Losses 2.5.3 Land Use and Development Trends 2.5.4 Multi-Jurisdictional Differences 2.5.5 Summary: Urban Wildland Interface Fire	2.5.1: Wildfire Identity. Section added. 2.5.2: Wildfire Events, Frequency & Probability. Renamed. Completely revised. 2.5.3 Inventory of Assets Exposed to Wildfires. Section renamed. Completely re-written. 2.5.4 Estimation of Losses Due to Wildfires. Section added. 2.5.5 Land Use and Development Trends related to Wildfires. Section renamed. Completely re-written. 2.5.6 Multi-jurisdictional Differences related to Wildfires. Section renamed. Minor revisions. 2.5.7 Wildfire HRV Summary. Section renamed. Minor revisions.
N/A	Entire 2.6 Section Added to Plan. 2.6: Natural Hazard F – Earthquakes 2.6.1: Earthquakes Identity 2.6.2: Earthquakes Events, Frequency & Probability 2.6.3 Inventory of Assets Exposed to Earthquakes 2.6.4 Estimation of Losses Due to Earthquakes 2.6.5 Land Use and Development Trends related to Earthquakes 2.6.6 Multi-jurisdictional Differences related to Earthquakes 2.6.7 Earthquakes HRV Summary
N/A	2.7: Natural Hazards G – All Hazards. Section added.

Table 2.1 documents the decision - making process used by the Augusta – Richmond County HMPC in re-evaluating those identified, analyzed, and addressed in updating the HRV summary. Identified Hazards were continued, deleted, or changed, and newly identified hazards were added.

Table 2.1: Evaluation of Natural Hazards to Include in 2011 HRV Summary

2006 HAZARD	STATUS	NOTES	2011 HAZARD
Flood and Related Hazards	Changed	N/A	Flooding
Wind Hazards	Changed	Renamed	Tornado/Windstorm/Hail
Severe Winter Storm	Continued	N/A	Severe Winter Storm
Drought	Changed	Renamed	Drought/Extreme Heat
Urban Wildland Interface Fire	Changed	Renamed 'Wildfire' (Includes Wildfires, and Urban Wildland Interface Fires)	Wildfire
N/A	Added	Earthquake Hazard Added	Earthquake

Figure 2.1: NATURAL HAZARD IDENTIFICATION RANKING SURVEY RESULTS

(Where 1 = Highest Risk and 6 = Lowest Risk)

1 TORNADO/WINDSTORM/HAIL
2 FLOODING
3 DROUGHT EXTREME HEAT
4 SEVERE WINTER STORM
5 WILDFIRE

6 EARTHQUAKE

TECHNOLOGICAL/MANMADE HAZARD RANKING

(Where 1 = Highest Risk and 4 = Lowest Risk)

1 CHEMICAL LEAK/SPILL CHEMICAL RELEASE (AIRBORNE)
2 TERRORISM
3 NUCLEAR PLANT INCIDENT
4 DAM/LEVEE FAILURE

HMPC Hazard Ranking Survey Sub-committee (Sub-committee enabled by the HMPC on July 14, 2011 at the HMPC Workshop) raw numeric data is reported below in Table 2.2 below:

TABLE 2.2: HAZARD IDENTIFICATION RANKING SURVEY

RANK	NATURAL HAZARDS	RAW NUMBER	# RESPONDENTS
1	Tornado/Windstorm/Hail	50	31
2	Flood	75	31
3	Drought/Extreme Heat	105	31
4	Winter Storm	111	31
5	Wildfire	135	31
6	Earthquake	175	31
RANK	MANMADE/TECHNOLOGICAL HAZARDS		31
1	Chemical Leak/Spill; Chemical Release Airborne	44	31
2	Terrorism	82	31
3	Nuclear Incident	94	31
4	Dam/Levee Failure	95	31
Notes: Respondent numeric results are assigned value with the Hazards in each category ranked where the raw lowest score = the highest risk.			

In the Natural Hazards category respondents ranked Tornado/Windstorm/Hail as the highest community risk, followed by Flooding, Drought/Extreme Heat, Severe Winter Storms, Wildfires, and Earthquakes.

In the Manmade/Technological Hazards category respondents ranked Chemical Leak/Spill; Chemical Release Airborne as the highest community risk, followed by Terrorism, Nuclear Incident, and Dam/Levee Failure.

The HMPC Risk Assessment element of the plan is predicated on a Risk Factor (RF) formula where the HMPC Hazard Identification Questionnaire, Hazard Identification Ranking Survey, and HMPC Qualitative Commentary Report are assigned a 30% (.30) weighted RF value in the overall HMP risk analysis. The HI - RA RF formula for the HMP Update is:

HMPC RA = (.30) + Historic Hazard Event - Declarations (.30) + FEMA HAZUS® - MH and other Risk Analysis Processes (.40).

The HI – RA results were forwarded to the HMPC for review, input, and adoption on 14 July, 2011 at the HMPC – Stakeholders Meeting, 9:00 AM – Noon, Augusta Municipal Building, in Room 803. The HMPC Hazard Ranking Subcommittee incorporated appropriate revisions, clarifications, and community input, and the final HMPC HI - RA was adopted on July 17, 2011.

To refine the list of identified hazards for the HMP, Table 2.3 contains a list of disaster declarations for Augusta – Richmond County from 1953 to date as reported by FEMA. This list presents the foundation for identifying hazards posing the greatest risk within Augusta - Richmond County and the Cities of Blythe and Hephzibah.

Table 2.3: Presidential Disaster and Emergency Declarations Augusta - Richmond County, GA

DECLARATION #	DATE	EVENT DETAILS
FEMA-DR-1209-GA	03/11/1998	Severe Storms, Tornadoes and Flooding
FEMA-DR-880-GA	10/19/1990	Flooding, Severe Storm
FEMA-EM-3218-GA	09/05/2005	Hurricane Katrina Evacuation
FEMA-EM-3044-GA	07/20/1977	Georgia Drought

Source: (FEMA, 2011)

Risk Factor (RF) Approach. Hazards were ranked in order to provide structure, prioritization, and feasibility of proposed mitigation goals and actions. Ranking was both quantitative and qualitative. First, the quantitative analysis considered all the GIS and HAZUS data available. Then, a Risk Factor (RF), qualitative approach, was used to provide additional insights on the specific risks and exposure associated with each hazard. This process is a valuable cross - check or validation of the quantitative analysis performed.

The RF approach combines historic hazard data, local knowledge, and consensus risk assessment evaluations to produce numerical values to compare identified hazards in determining community vulnerability. During the planning process, the Augusta - Richmond County HMPC contrasted the results of the hazard profiles with local knowledge to generate the ranking criteria. The criteria were used to evaluate the hazards in order to determine the degree of risk for each.

The process allows identified hazards to be comparatively ranked (higher RF values = greater hazard risk). RF values are obtained by assigning degrees of risk in five categories for each hazard: *probability, impact, spatial extent, warning time*, and *duration*. Each degree of risk is assigned a value range of 1 to 4 and a weighting factor for each category agreed upon by the HMPC. The HMPC adjusted the weighting scheme based on unique concerns or circumstances in the planning area. To calculate RF value for each hazard, risk values are multiplied by the weighting factor. The sum of the five categories equals the final RF value, revealed in the RF Value equation and Chart 2-1 below:

RF Value = [(Probability x .30) + (Impact x .30) + (Spatial Extent x .20) + (Warning Time x .10) + (Duration x .10)]

Chart 2 – 1: HMPC HRV RF Criteria

Chart 2-1: AUGUSTA HMPC HAZARD, RISK AND VULNERABILITY (HRV) RISK FACTOR CRITERIA				
RISK ASSESSMENT CATEGORY	LEVEL	DEGREE OF RISK LEVEL	INDEX	WEIGHT
PROBABILITY What is the likelihood of a hazard event occurring in a given year?	UNLIKELY	LESS THAN 1% ANNUAL PROBABILITY	1	30%
	POSSIBLE	BETWEEN 1 & 10% ANNUAL PROBABILITY	2	
	LIKELY	BETWEEN 10 &100% ANNUAL PROBABILITY	3	
	HIGHLY LIKELY	100% ANNUAL PROBABILTY	4	
IMPACT *In terms of injuries, damage, or death, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?*	MINOR	VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES.	1	30%
	LIMITED	MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE DAY.	2	
	CRITICAL	MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE WEEK.	3	
	CATASTROPHIC	HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR 30 DAYS OR MORE.	4	
SPATIAL EXTENT *How large of an area could be impacted by a hazard event? Are impacts localized or regional?*	NEGLIGIBLE	LESS THAN 1% OF AREA AFFECTED	1	20%
	SMALL	BETWEEN 1 & 10% OF AREA AFFECTED	2	
	MODERATE	BETWEEN 10 & 50% OF AREA AFFECTED	3	
	LARGE	BETWEEN 50 & 100% OF AREA AFFECTED	4	
WARNING TIME *Is there usually some lead time associated with the hazard event? Have warning measures been implemented?*	MORE THAN 24 HRS	SELF DEFINED	1	10%
	12 TO 24 HRS	SELF DEFINED	2	
	6 TO 12 HRS	SELF DEFINED	3	
	LESS THAN 6 HRS	SELF DEFINED	4	
DURATION *How long does the hazard event usually last?*	LESS THAN 6 HRS	SELF DEFINED	1	10%
	LESS THAN 24 HRS	SELF DEFINED	2	
	LESS THAN 1 WEEK	SELF DEFINED	3	
	MORE THAN 1 WEEK	SELF DEFINED	4	

In applying the default weighting scheme, the highest possible RF value is 4.0. The methodology illustrated above contains the categories used to calculate the variables for the RF value.

Additional Sources of Risk Assessment Data

The Social Vulnerability Index (SOVI™) measures the social vulnerability of U.S. counties to environmental hazards. The index is a comparative metric that facilitates the examination of the differences in social vulnerability among counties. SOVI™ is a valuable tool for policy makers and practitioners. It graphically illustrates the geographic variation in social vulnerability. It shows where there is uneven capacity for preparedness and response and where resources might be used most effectively to reduce the pre-existing vulnerability. SOVI™ also is useful as an indicator in determining the differential recovery from disasters.

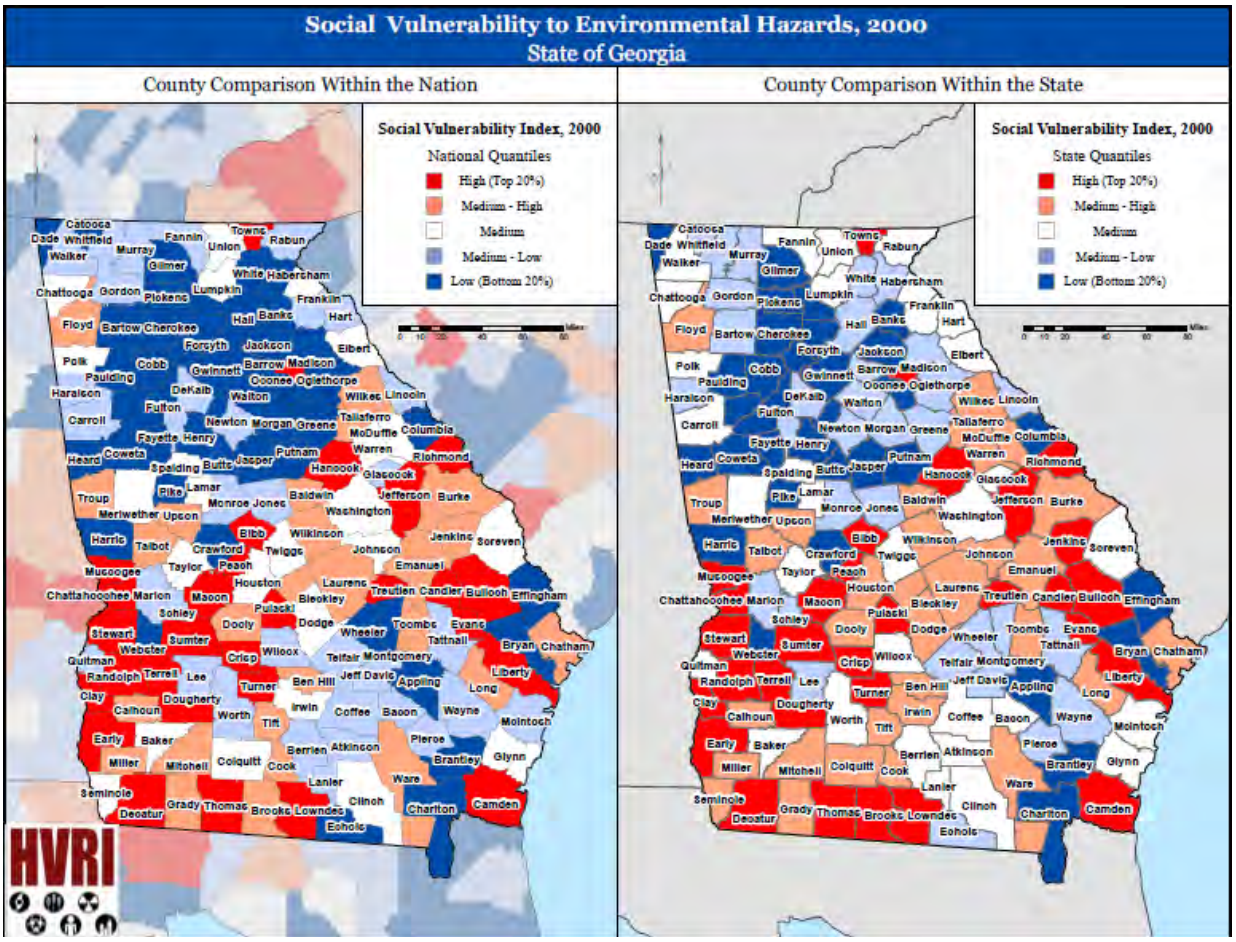
The index synthesizes 32 socioeconomic variables, which the research literature suggests contribute to reduction in a community's ability to prepare for, respond to, and recover from hazards. The data were culled from national data sources, primarily those from the United States Census Bureau. The data were compiled and processed by the Hazards and Vulnerability Research Institute (HVRI) at the University of South Carolina. The data were standardized and placed into a principal components analysis to reduce the initial set of variables into a smaller set of statistically optimized components. Adjustments were made to the components' cardinality (positive (+), negative (-), or absolute value (ll) to insure that positive component loadings were associated with increasing vulnerability, and negative component loadings with decreasing vulnerability.

Once the cardinalities of the components were determined, the components were added together to determine the numerical social vulnerability score for each county. For SOVI™ 2000, there are 9 significant components explaining 76% of the variance in the data. Among them are socioeconomic status, elderly and children, rural agriculture, housing density, black female-headed households, gender, service industry employment, unemployed Native Americans, and infrastructure employment.

To visually compare the SOVI™ scores at a national level, they are mapped using quantiles. Scores in the top 20% of the United States are more vulnerable counties (red) and scores in the bottom 20% of the United States indicate the least vulnerable counties (blue)," (Hazards & Vulnerability Research Institute, 2011).

Figure 2.2 below reveals the Richmond County SoVI designation of High Category (Top 20%) compared to the national and state rankings.

Figure 2.2: SoVI Richmond County Comparison to Nation and State



The HVRI SoVI for Richmond County is displayed below in Figure 2.3. The data reveals the county has an SoVI Score of 4.40638 is higher than 89.2% of the nation as a whole using 42 variables including built environment, and a SoVI Score of 4.34983 or 93.8% compared to the nation as a whole, using 32 variables that do not include the built environment.

Figure 2.3: HVRI SoVI

HVRI HAZARDS AND VULNERABILITY RESEARCH INSTITUTE

Home Maps and Data Applications FAQ

Social Vulnerability Index (SoVI) for the United States - Data

Below, you can find data created through Social Vulnerability Index at the county level. Four elements are presented here:

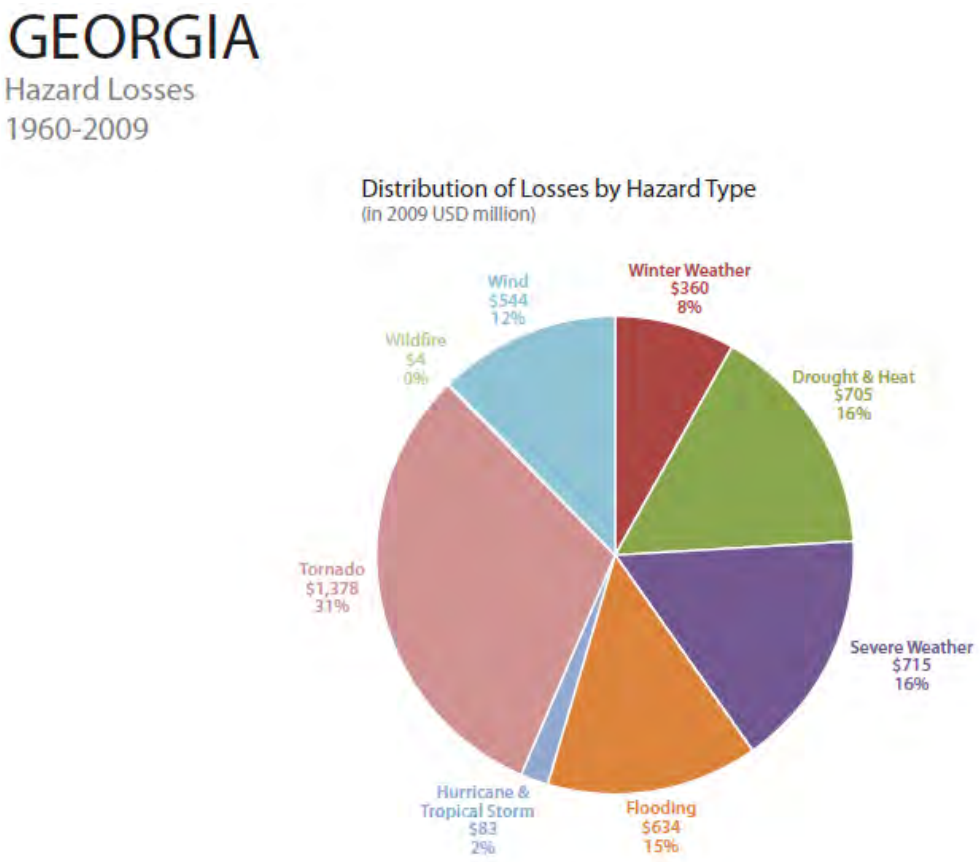
1. **SoVI Score (42)**: The score using the previous version of SoVI with 42 variables. This calculation includes built environment variables.
2. **National Percentile (42)**: Where the county's SoVI 42 score ranks in comparison with the rest of the nation. For example: Armstrong County, PA's SoVI 42 score is higher than 61.2% (.612 x 100) of the nation.
3. **SoVI Score (32)**: The score using the current version of SoVI with 32 variables. This calculation does not include built environment variables.
4. **National Percentile (32)**: Where the county's SoVI 32 score ranks in comparison with the rest of the nation.

Select State Georgia

ID	State	County	SoVI Score (42)	National Percentile (42)	SoVI Score (32)	National Percentile (32)
505	Georgia	Richmond County	4.40638	0.892	4.34983	0.938

Distributions of state economic losses due to hazard events during the period of 1960 -2009 are illustrated in Figure 2.4 below.

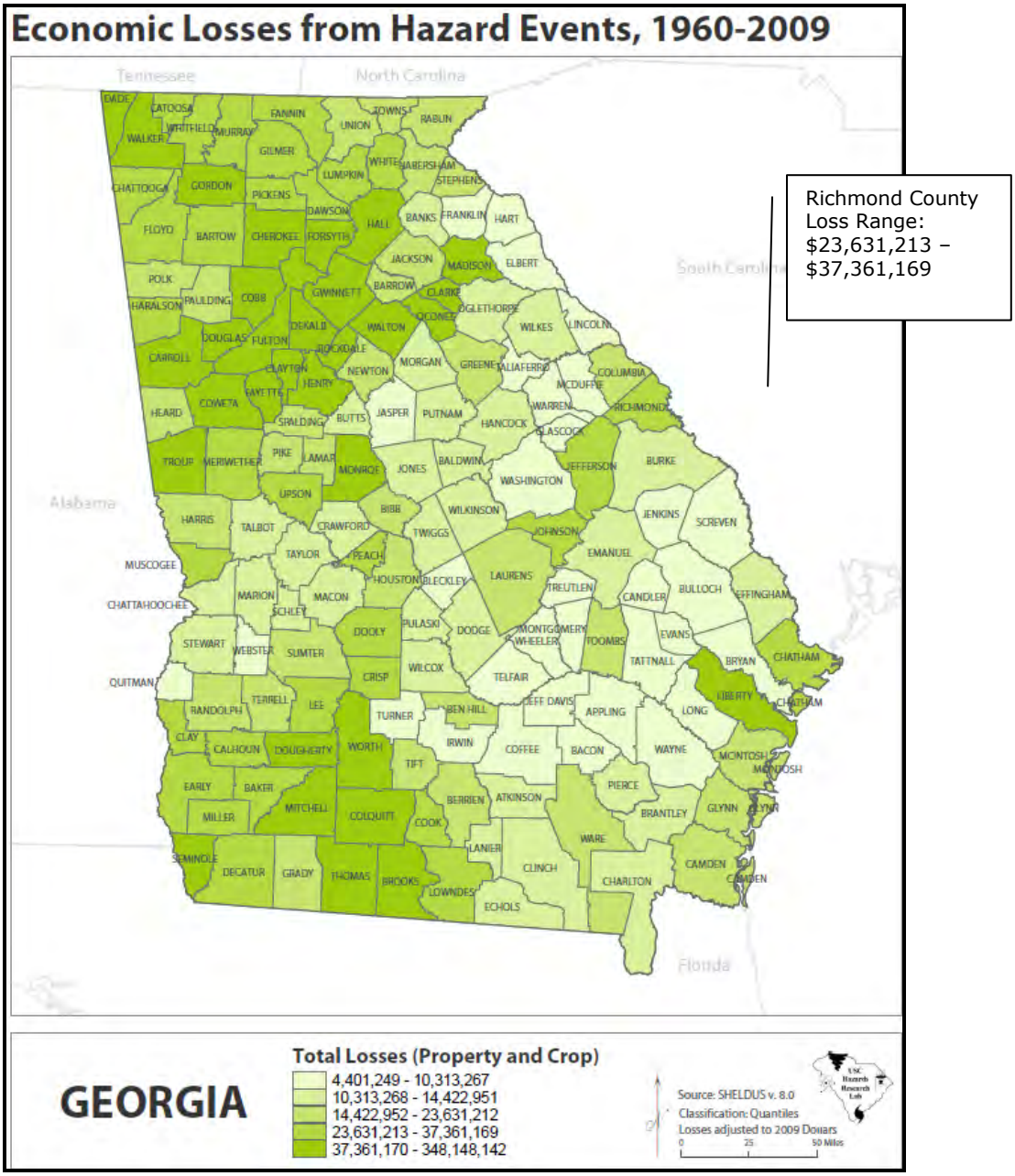
Figure 2.4: Distribution of Georgia Hazard Losses, 1960 – 2009



The data reveals hazards losses ranked in the following order, Tornado, $1,378 million or 31%; Severe Weather $715 million or 16%; Drought/Extreme Heat, $705 million or 16%; Flooding, $634 million or 15%; Wind, $544 million or 12%; Winter Weather, $360 million or 8%; Hurricane and Tropical Storm, $83 million or 2%; and Wildfire, $4 million or 0%.

SHELDUS data illustrated in Figure 2.5 below for Richmond County reveal the state economic losses from hazards events during the period 1960 – 2009 were between $23,631,213 and $37,361,169 (Hazards and Vulnerability Research Institute, 2011).

Figure 2.5: Georgia Economic Losses by County



RANKING RESULTS

The natural hazard with the highest risk potential based on the RF analysis is Tornado/Windstorm/Hail, with a value of 3.0; followed by Flooding, with a value of 2.9; Drought/Extreme Heat, with a value of 2.1, Severe Winter Storms, with a value of 2.0; Wildfire, with a value 1.4; and Earthquakes, with a value of 1.3.

Conclusions drawn from the qualitative and quantitative assessments, combined with the final RF determinations by the HMPC, were categorized into 3 risk

designations (High, Moderate or Low) to produce a summary of hazard risks. Table 2.4 below reveals the analysis results and ranking.

Table 2.4 Augusta – Richmond County HMPC RF

NATURAL HAZARDS	PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION	RF RATING (PRIORITY)
Natural Hazard A: Tornado/Windstorm/Hail	**1.2**	**.9**	**.4**	**.4**	**.1**	**3.0**
Natural Hazard B: Flooding	**.6**	**.9**	**.9**	**.1**	**.4**	**2.9**
Natural Hazard C: Drought/Extreme Heat	**.9**	**.3**	**.4**	**.1**	**.4**	**2.1**
Natural Hazard D: Winter Storm	**.9**	**.3**	**.4**	**.1**	**.3**	**2.0**
Natural Hazard E: Wildfire	**.3**	**.3**	**.2**	**.2**	**.4**	**1.4**
Natural Hazard F: Earthquake	**.3**	**.3**	**.2**	**.4**	**.1**	**1.3**
HIGH RISK (3.0 or higher)						

Table 2.5 below reveals community ranked hazards and lists them in the three categories of High, Moderate, and Low.

Table 2.5: HMPC RF Natural Hazard Risk Conclusions

HIGH RISK (3.0 or higher)	**Tornado/Windstorm/Hail**
MODERATE RISK (2.0 – 2.9)	**Flooding, Drought/Extreme Heat, Winter Storm**
LOW RISK (0.1 – 1.9)	**Wildfire, Earthquake**

2.1 NATURAL HAZARD A: Tornado/Windstorm/Hail

The HMPC ranked Tornado/Windstorm/Hail as the greatest community hazard risk. Because the three events frequently occur simultaneously and the human and critical facility exposure is widespread, the choice is logical and supported by independent risk analysis. HMPC members reviewed Federal, State, Regional, and Local data sources to inform the profile process and completed the RF analysis to reach the hazard ranking determination.

2.1.1 Tornado Identity

One of the most spectacular and destructive natural disasters are tornados. Each year approximately 1,500 tornadoes touch down across the United States causing an estimated $1.1 billion in damages and over 80 deaths. NOAA's tornado climatology data reveals the central plain region of the United States, stretching from Texas to South Dakota, experiences the greatest number of tornadoes on Earth. This area is frequently referred to as tornado alley (NOAA, 2011).

A tornado is a relatively short-lived storm composed of an intense rotating column of air, extending from a thunderstorm cloud system. Average winds in a tornado, although never accurately measured, are thought to range between 100 and 200 miles per hour; extreme tornadoes may have winds exceeding 300 miles per hour. The following definitions are used by the NWS:

- **Tornado** is a violently rotating column of air that is touching the ground. The Enhanced Fujita Scale and associated enhanced F Scale Damage Indicators classify tornados by wind speed and degree of damage (Table 2.6 below.)

Table 2.6: Enhanced Fujita Scale for Tornado Damage[1]

FUJITA SCALE			DERIVED EF SCALE		OPERATIONAL EF SCALE	
F Number	Fastest 1/4-mile (mph)	3 Second Gust (mph)	EF Number	3 Second Gust (mph)	**EF Number**	**3 Second Gust (mph)**
0	40-72	45-78	0	65-85	**0**	**65-85**
1	73-112	79-117	1	86-109	**1**	**86-110**
2	113-157	118-161	2	110-137	**2**	**111-135**
3	158-207	162-209	3	138-167	**3**	**136-165**
4	208-260	210-261	4	168-199	**4**	**166-200**
5	261-318	262-317	5	200-234	**5**	**Over 200**

[1] **IMPORTANT NOTE ABOUT ENHANCED F-SCALE WINDS:** *The Enhanced F-scale still is a set of wind estimates (not measurements) based on damage.* Its uses three-second gusts estimated at the point of damage based on a judgment of 8 levels of damage to the 28 indicators listed below. These estimates vary with height and exposure. **Important**: The 3 second gust is not the same wind as in standard surface observations. Standard measurements are taken by weather stations in open exposures, using a directly measured, "one minute mile" speed.

2.6 (a) Enhanced Fujita Scale Damage Indicators[2]		
NUMBER	DAMAGE INDICATOR	ABBREVIATION
1	Small barns, farm outbuildings	SBO
2	One- or two-family residences	FR12
3	Single-wide mobile home (MHSW)	MHSW
4	Double-wide mobile home	MHDW
5	Apt, condo, townhouse (3 stories or less)	ACT
6	Motel	M
7	Masonry apt. or motel	MAM
8	Small retail bldg. (fast food)	SRB
9	Small professional (doctor office, branch bank)	SPB
10	Strip mall	SM
11	Large shopping mall	LSM
12	Large, isolated ("big box") retail bldg.	LIRB
13	Automobile showroom	ASR
14	Automotive service building	ASB
15	School - 1-story elementary (interior or exterior halls)	ES
16	School - Jr. or Sr. high school	JHSH
17	Low-rise (1-4 story) bldg.	LRB
18	Mid-rise (5-20 story) bldg.	MRB
19	High-rise (over 20 stories)	HRB
20	Institutional bldg. (hospital, govt. or university)	IB
21	Metal building system	MBS
22	Service station canopy	SSC
23	Warehouse (tilt-up walls or heavy timber)	WHB
24	Transmission line tower	TLT
25	Free-standing tower	FST
26	Free standing pole (light, flag, luminary)	FSP
27	Tree - hardwood	TH
28	Tree - softwood	TS

[2] **Note:** A 95 page PDF file explaining the development and makeup of the Enhanced F-scale now is available, both here at SPC and from the Texas Tech server.

- **Funnel cloud** is a rapidly rotating column of air that does not touch the ground.
- **Downburst winds** are strong downdrafts, initiated by a thunderstorm, which induce an outburst of straight-line winds on or near the ground. They may last anywhere from a few minutes in small-scale microbursts to periods of up to 20 minutes in larger, longer macro-bursts. Wind speeds in downbursts can reach 150 miles per hour and therefore can result in damages similar to tornado damages.

Tornados, windstorms, and hail events can occur anywhere in the nation, state, and local planning area with limited warning of potential danger. Integrated first response by local emergency management is critically important for search and rescue, evacuation, and recovery operations. Improved coordination of personnel and resources by local emergency response agencies, hospitals, relief agencies, and community volunteers can mitigate the impact of the event. During the aftermath of a large scale incident, State and Federal agencies respond when local resources are insufficient to meet community need. Local emergency personnel and agencies must quickly convey information and resource gaps to State and Federal agencies to lessen community impact.

2.1.1.1 Tornado Profile

Table 2.7 below reveals the costs of tornados in the United States between the years 2000 through 2010.

Table 2.7 Annual U.S. Tornado Summary

Year	Fatalities	Injuries	Property Damage (million $)	Crop Damage (million $)	Total Damage (million $)
2000	41	882	537.97	8.76	546.83
2001	40	743	787.63	9.25	796.88
2002	55	968	1001.63	1.00	1002.63
2003	54	1087	1518.72	19.08	1537.80
2004	35	396	328.41	14.16	642.57
2005	38	537	476.63	92.77	569.41
2006	67	990	827.53	7.37	834.90
2007	81	659	1498.81	7.24	1506.05
2008	124	1711	1827.90	20.80	1848.70
2009	21	351	583.36	19.03	602.39
2010	45	699	1,106.92	27.64	1,134.56

Source: (NOAA, 2011)[3].

Georgia historical hazard data reveals an average of 22 tornados impact the state each year. Augusta – Richmond County experienced 9 tornados from 1950 to date, an average occurrence far below that of the state. Because of the loss of life and widespread damage caused by tornados, data is readily available and current.

[3] *Normalized to 2010 Dollars using Bureau of Labor Statistics, Consumer Price Index [CPI]*

In Augusta – Richmond County, tornado information supplied by NOAA reveals nine tornados were reported in the planning area between 1950 and 2011, causing 26 injuries, and resulting in 8.1 million dollars of property damage. The most severe event occurred in April 2009, with a Fujita Tornado Scale Magnitude of F3 causing 5 million dollars in damages. Table 2.8 below reports the tornado incidents in the planning area.

Table 2.8: 9 TORNADO(s) Reported - 01/01/1950 **and** 03/31/2011

County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 RICHMOND	08/17/1954	1430	Tornado	F1	0	0	25K	0
2 RICHMOND	02/24/1961	1730	Tornado	F1	0	0	25K	0
3 RICHMOND	05/08/1978	1920	Tornado	F1	0	0	2.5M	0
4 RICHMOND	04/23/1983	1717	Tornado	F0	0	0	250K	0
5 RICHMOND	01/29/1990	1543	Tornado	F2	0	6	250K	0
6 Augusta	05/19/1993	1225	Tornado	F0	0	0	50K	0
7 Augusta	12/17/2000	12:10 AM	Tornado	F2	0	8	0	0
8 Hephzibah	06/12/2001	02:30 PM	Tornado	F0	0	0	0	0
9 Ft Gordon	04/10/2009	21:36 PM	Tornado	F3	0	12	5.0M	0K
TOTALS: Source: (NOAA, National Oceanic and Atmospheric Administration, 2011).					0	26	8.100M	0

2.1.2: Windstorm Identity

High Winds/Severe Storms.

The term "severe storms" is used to describe weather events that exhibit all or some of these characteristics: high winds, heavy rainfall, lightning, and hail. Thunderstorms are convective storms produced when warm moist air is overrun by dry cool air. As the warm air rises, thunderhead clouds form and generate strong winds, lightning, thunder, hail and rain. Generally, thunderstorms form on warm-season afternoons and are local in effect. Storms that form in association with a cold front or other regional-scaled atmospheric disturbance can become severe, thereby producing strong winds, frequent lightning, hail, downbursts and even tornadoes.

The Beaufort Wind Scale was invented by Admiral Beaufort in 1805. Experienced users of the scale can estimate wind force with reasonable accuracy (The Engineering Toolbox, 2011). The Beaufort wind scale is divided into series of values, from zero for calm winds, up to twelve and above for hurricanes. Each value represents a specific range and a classification of wind velocity with accompanying descriptions of the effects on surface features. Windstorms are measured using S.1: Beaufort Wind Scale below:

S.1: BEAUFORT WIND SCALE

Force	Wind (Knots)	WMO Classification	Appearance of Wind Effects	
			On the Water	On Land
0	Less than 1	Calm	Sea surface smooth and mirror-like	Calm, smoke rises vertically
1	1-3	Light Air	Scaly ripples, no foam crests	Smoke drift indicates wind direction, still wind vanes
2	4-6	Light Breeze	Small wavelets, crests glassy, no breaking	Wind felt on face, leaves rustle, vanes begin to move
3	7-10	Gentle Breeze	Large wavelets, crests begin to break, scattered whitecaps	Leaves and small twigs constantly moving, light flags extended
4	11-16	Moderate Breeze	Small waves 1-4 ft. becoming longer, numerous whitecaps	Dust, leaves, and loose paper lifted, small tree branches move
5	17-21	Fresh Breeze	Moderate waves 4-8 ft. taking longer form, many whitecaps, some spray	Small trees in leaf begin to sway
6	22-27	Strong Breeze	Larger waves 8-13 ft., whitecaps common, more spray	Larger tree branches moving, whistling in wires
7	28-33	Near Gale	Sea heaps up, waves 13-20 ft., white foam streaks off breakers	Whole trees moving, resistance felt walking against wind
8	34-40	Gale	Moderately high (13-20 ft.) waves of greater length, edges of crests begin to break into spindrift, foam blown in streaks	Whole trees in motion, resistance felt walking against wind
9	41-47	Strong Gale	High waves (20 ft.), sea begins to roll, dense streaks of foam, spray may reduce visibility	Slight structural damage occurs, slate blows off roofs
10	48-55	Storm	Very high waves (20-30 ft.) with overhanging crests, sea white with densely blown foam, heavy rolling, lowered visibility	Seldom experienced on land, trees broken or uprooted, "considerable structural damage"
11	56-63	Violent Storm	Exceptionally high (30-45 ft.) waves, foam patches cover sea, visibility more reduced	
12	64+	Hurricane	Air filled with foam, waves over 45 ft., sea completely white with driving spray, visibility greatly reduced	

Source: NOAA. Beaufort Wind Scale. http://www.spc.noaa.gov/faq/tornado/beaufort.html.

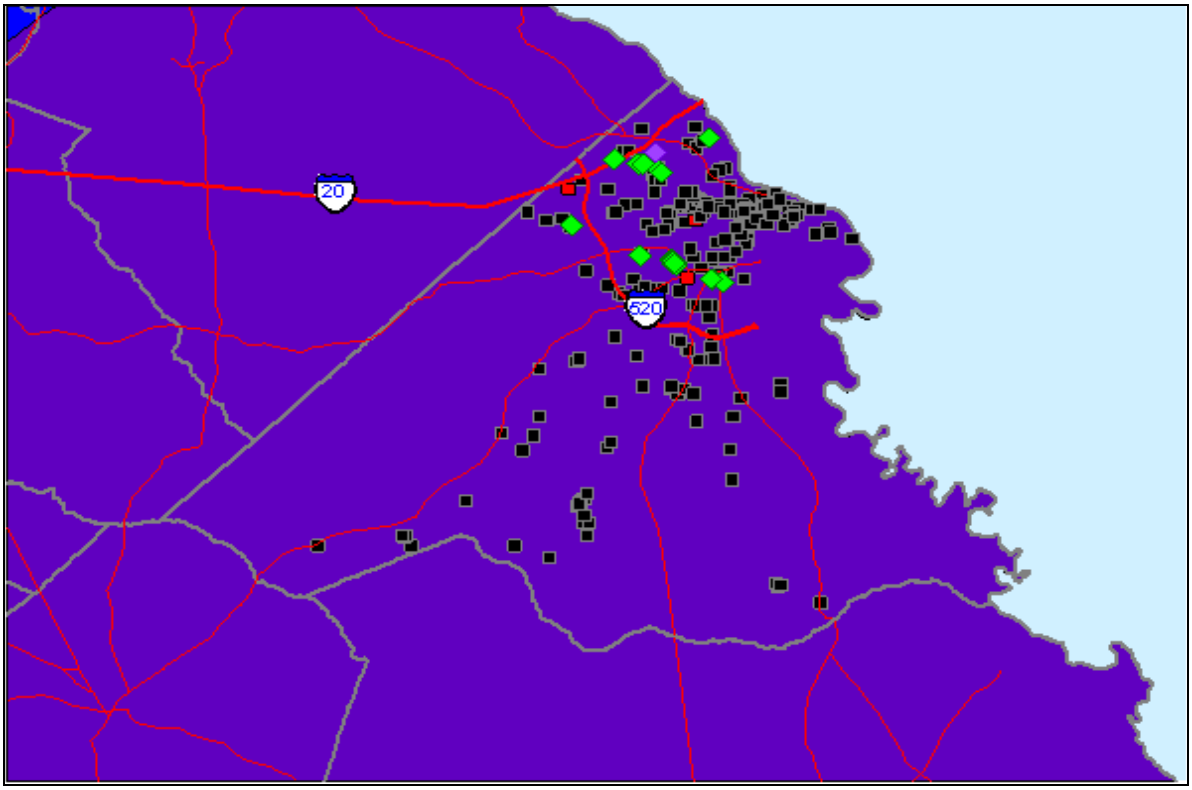
2.1.2.1 Windstorm Profile

Two high wind events were reported for the Augusta – Richmond County planning area during the period between 1950 and 2011. The most severe occurred on 11 December, 1993. High winds, gusting to as high as 50 mph for at least four straight hours caused power outages and blocked roads across North Georgia including Richmond County. County Sheriffs reported downed power lines and toppled trees that damaged cars and buildings were widespread throughout North Georgia. The high winds caused power outages through early evening in virtually every county throughout North Georgia including Richmond County. The second occurred on 24 October, 2008, with a Force 10 Wind, according to the Beaufort Wind Scale, toppling trees and power lines. One death, 2 injuries and property damage of $520,000 were associated with the events. Table 2.9 reveals the high wind event history for the planning area.

Table 2.9: 2 HIGH WINDS event(s) - 01/01/1950 and 03/31/2011

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 GAZ001>065	12/11/1993	1000	High Winds	0 kts.	1	2	500K	0
2 GAZ064 - 065	10/24/2008	15:00 PM	High Wind	50 kts.	0	0	20K	10K
Source: (NOAA, National Oceanic and Atmospheric Administration, 2011).				**TOTALS:**	**1**	**2**	**520K**	**10K**

Wind Map Produced in GMIS



2.1.3: Hail Identity

Hail accompanies some thunderstorms; in the U.S., hail causes nearly $1 billion in damage to property and crops each year. Hailstorms are violent and spectacular phenomena of atmospheric convection, always associated with heavy rain, gusty winds, thunderstorm, and lightning. Hail is a product of strong convection and occurs only in connection with a thunderstorm where the high velocity updrafts carry large raindrops into the upper atmosphere where the temperature is well below the freezing point of water. Hail stones grow in size when the frozen droplet is repeatedly blown into the higher elevations. The hailstone ascends as long as the updraft velocity is high enough to hold the hailstone. As soon the size and weight of the hailstone overcomes the lifting capacity of updraft, it begins to fall freely under the influence of gravity. The effects of hail are measured using the TORRO Hailstorm Intensity Scale below:

Table 2.9.1: TORRO Hailstorm Intensity Scale

	Intensity Category	Typical Hail Diameter (mm)*	Probable Kinetic Energy, J-m^2	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

* Approximate range (typical maximum size in bold), since other factors (e.g. number and density of hailstones, hail fall speed and surface wind speeds) affect severity.

Source: The Tornado & Storm Research Organisation. http://www.torro.org.uk/site/hscale.php.

2.1.3.1 Hail Profile

Table 2.10 below reveals national hail data from the years 2000 - 2010.

Table 2.10: National Hail Data					
Year	**Deaths**	**Injuries**	**Property Damage (million $)**	**Crop Damage (million $)**	**Total Damage (million $)**
2000	2	57	566.42	158.62	725.04
2001	0	32	2960.38	338.00	3298.38
2002	0	125	406.50	192.25	598.75
2003	0	121	627.00	132.00	759.00
2004	0	4	541.71	85.41	627.12
2005	1	8	542.97	63.39	606.36
2006	0	18	1726.34	146.19	1872.53
2007	0	25	597.87	165.50	763.37
2008	1	13	482.91	180.55	663.47
2009	0	70	1483.20	360.16	1843.36
2010	0	42	924.11	99.82	1,023.93
Source: (NOAA, NOAA Economics, 2011)					

Hail Impact and Loss Estimates in the Augusta – Richmond County Planning Area

62 hail events were reported causing $10,000 in property damage. Table 2.11 below reveals the hail data. The most severe hail event occurred on April 22, 1997 with 1.75" hail reported. Using a Conversion Calculator from Metric-Conversions.org to convert inches to millimeters, (Source: http://www.metric-conversions.org/length/inches-to-millimeters.htm), 1.75" = 44.45 mm, the event ranks on the TORRO Hailstorm Intensity Scale illustrated in Table 2.9.1 above as H6, Destructive Intensity.

Table 2.11: 62 HAIL event(s) Reported - 01/01/1950 and 03/31/2011								
Location or County	**Date**	**Time**	**Type**	**Mag**	**Dth**	**Inj**	**PrD**	**CrD**
1 RICHMOND	05/12/1955	1900	Hail	0.75 in.	0	0	0	0
2 RICHMOND	05/28/1962	1430	Hail	1.00 in.	0	0	0	0
3 RICHMOND	05/21/1967	1615	Hail	1.75 in.	0	0	0	0
4 RICHMOND	05/12/1971	1345	Hail	0.75 in.	0	0	0	0
5 RICHMOND	06/28/1972	0915	Hail	0.75 in.	0	0	0	0
6 RICHMOND	10/04/1979	1603	Hail	1.75 in.	0	0	0	0
7 RICHMOND	02/16/1982	1942	Hail	1.00 in.	0	0	0	0

8 RICHMOND	02/16/1982	2003	Hail	0.75 in.	0	0	0	0
9 RICHMOND	06/10/1982	1445	Hail	1.00 in.	0	0	0	0
10 RICHMOND	07/15/1983	1400	Hail	1.00 in.	0	0	0	0
11 RICHMOND	04/14/1984	1335	Hail	1.75 in.	0	0	0	0
12 RICHMOND	04/14/1984	1400	Hail	1.25 in.	0	0	0	0
13 RICHMOND	04/14/1984	1400	Hail	1.75 in.	0	0	0	0
14 RICHMOND	04/14/1984	1820	Hail	1.75 in.	0	0	0	0
15 RICHMOND	04/14/1984	1835	Hail	1.75 in.	0	0	0	0
16 RICHMOND	04/17/1984	1407	Hail	1.75 in.	0	0	0	0
17 RICHMOND	06/02/1985	1435	Hail	1.50 in.	0	0	0	0
18 RICHMOND	06/02/1985	1512	Hail	1.00 in.	0	0	0	0
19 RICHMOND	06/26/1986	1330	Hail	1.50 in.	0	0	0	0
20 RICHMOND	07/30/1988	1516	Hail	0.75 in.	0	0	0	0
21 RICHMOND	01/29/1990	1535	Hail	0.75 in.	0	0	0	0
22 Augusta	03/31/1993	1625	Hail	1.00 in.	0	0	0	0
23 Augusta	01/02/1996	5:40 PM	Hail	1.75 in.	0	0	0	0
24 Augusta Airport	01/02/1996	5:45 PM	Hail	1.00 in.	0	0	0	0
25 Augusta	03/15/1996	4:52 PM	Hail	0.75 in.	0	0	0	0
26 Hephzibah	03/17/1996	7:05 AM	Hail	1.75 in.	0	0	0	0
27 Augusta	05/07/1996	8:53 PM	Hail	0.75 in.	0	0	0	0
28 Augusta	04/22/1997	7:40 PM	Hail	1.75 in.	0	0	10K	0K
29 Augusta	04/03/1998	11:20 PM	Hail	0.75 in.	0	0	0	0
30 Augusta	04/08/1998	10:46 PM	Hail	1.00 in.	0	0	0	0
31 Augusta	04/22/1998	01:55 PM	Hail	0.75 in.	0	0	0	0
32 Hephzibah	06/10/1998	04:56 PM	Hail	0.75 in.	0	0	0	0
33 Augusta	06/10/1998	05:10 PM	Hail	0.75 in.	0	0	0	0
34 Augusta	06/16/1998	03:58 PM	Hail	1.75 in.	0	0	0	0
35 Augusta	06/19/1998	01:20 PM	Hail	0.88 in.	0	0	0	0
36 Augusta	06/19/1998	02:12 PM	Hail	0.88 in.	0	0	0	0
37 Augusta	03/31/2002	01:30 PM	Hail	0.75 in.	0	0	0	0
38 Augusta	03/31/2002	01:38 PM	Hail	1.75 in.	0	0	0	0
39 Augusta	03/31/2002	02:20 PM	Hail	0.75 in.	0	0	0	0
40 Hephzibah	05/03/2002	05:20 PM	Hail	1.75 in.	0	0	0	0
41 Augusta	05/03/2002	05:40 PM	Hail	1.75 in.	0	0	0	0

42 Augusta	06/03/2002	06:58 PM	Hail	1.75 in.	0	0	0	0
43 Augusta	05/06/2003	04:00 PM	Hail	1.00 in.	0	0	0	0
44 Ft Gordon	02/21/2005	04:30 PM	Hail	1.75 in.	0	0	0	0
45 Augusta	02/21/2005	04:36 PM	Hail	0.88 in.	0	0	0	0
46 Ft Gordon	02/21/2005	09:42 PM	Hail	0.75 in.	0	0	0	0
47 Augusta	04/22/2005	03:35 PM	Hail	0.75 in.	0	0	0	0
48 Hephzibah	05/10/2005	03:48 PM	Hail	0.75 in.	0	0	0	0
49 Ft Gordon	05/10/2005	03:55 PM	Hail	0.75 in.	0	0	0	0
50 Ft Gordon	05/20/2005	01:30 PM	Hail	0.88 in.	0	0	0	0
51 Hephzibah	07/29/2005	01:16 PM	Hail	0.75 in.	0	0	0	0
52 Ft Gordon	12/04/2005	05:14 PM	Hail	0.88 in.	0	0	0	0
53 Hephzibah	12/28/2005	07:59 PM	Hail	0.88 in.	0	0	0	0
54 Augusta	02/13/2007	17:58 PM	Hail	0.88 in.	0	0	0K	0K
55 Hephzibah	02/13/2007	18:15 PM	Hail	1.75 in.	0	0	0K	0K
56 Augusta	06/12/2007	20:15 PM	Hail	1.00 in.	0	0	0K	0K
57 Mc Bean	03/15/2008	17:44 PM	Hail	0.88 in.	0	0	0K	0K
58 Hephzibah	05/20/2008	14:53 PM	Hail	1.75 in.	0	0	0K	0K
59 Augusta	05/20/2008	15:20 PM	Hail	1.25 in.	0	0	0K	0K
60 Mc Bean	08/16/2008	17:36 PM	Hail	0.88 in.	0	0	0K	0K
61 Augusta	08/11/2009	16:46 PM	Hail	0.75 in.	0	0	0K	0K
62 Augusta	07/31/2010	15:35 PM	Hail	0.88 in.	0	0	0K	0K
Source: (NOAA, National Oceanic and Atmospheric Administration, 2011).				TOTALS:	0	0	10K	0

Additional impacts in this category are related to thunderstorms winds. Information obtained from NOAA, reveals 140 thunderstorm wind events occurred in the Augusta – Richmond County planning area during the period of 1950 to 2010. Nine deaths, 19 injuries, $77.24 million in property damage and $50 million in crop damage were reported as shown in Table 2.12.

Table 2.12: 140 THUNDERSTORM WINDS Event(s) Reported 01/01/1950 & 03/31/2011.

County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 RICHMOND	05/22/1955	1500	Tstm Wind	58 kt.	0	0	0	0
2 RICHMOND	05/24/1955	1945	Tstm Wind	0 kts.	0	0	0	0
3 RICHMOND	08/06/1955	1330	Tstm Wind	0 kts.	0	0	0	0
4 RICHMOND	06/29/1956	1530	Tstm Wind	0 kts.	0	0	0	0

5 RICHMOND	07/15/1956	1600	Tstm Wind	58 kts.	0	0	0	0
6 RICHMOND	07/27/1956	1900	Tstm Wind	0 kts.	0	0	0	0
7 RICHMOND	06/11/1961	1700	Tstm Wind	65 kts.	0	0	0	0
8 RICHMOND	07/03/1966	1930	Tstm Wind	0 kts.	0	0	0	0
9 RICHMOND	05/08/1967	1338	Tstm Wind	65 kts.	0	0	0	0
10 RICHMOND	05/25/1968	1525	Tstm Wind	0 kts.	0	0	0	0
11 RICHMOND	07/08/1969	1911	Tstm Wind	50 kts.	0	0	0	0
12 RICHMOND	07/03/1970	1655	Tstm Wind	50 kts.	0	0	0	0
13 RICHMOND	07/16/1970	1530	Tstm Wind	0 kts.	0	0	0	0
14 RICHMOND	07/16/1970	1553	Tstm Wind	53 kts.	0	0	0	0
15 RICHMOND	03/02/1972	1609	Tstm Wind	53 kts.	0	0	0	0
16 RICHMOND	03/16/1972	1127	Tstm Wind	75 kts.	0	0	0	0
17 RICHMOND	07/05/1972	1423	Tstm Wind	0 kts.	0	0	0	0
18 RICHMOND	03/21/1974	0535	Tstm Wind	58 kts.	0	0	0	0
19 RICHMOND	08/07/1974	1313	Tstm Wind	57 kts.	0	0	0	0
20 RICHMOND	05/16/1975	1345	Tstm Wind	0 kts.	0	0	0	0
21 RICHMOND	07/22/1977	1400	Tstm Wind	0 kts.	0	0	0	0
22 RICHMOND	10/02/1977	1300	Tstm Wind	54 kts.	0	0	0	0
23 RICHMOND	08/19/1978	1645	Tstm Wind	0 kts.	0	0	0	0
24 RICHMOND	08/29/1978	1500	Tstm Wind	0 kts.	0	0	0	0
25 RICHMOND	08/29/1978	1515	Tstm Wind	54 kts.	0	0	0	0
26 RICHMOND	10/04/1979	1610	Tstm Wind	0 kts.	0	0	0	0
27 RICHMOND	07/09/1980	1405	Tstm Wind	0 kts.	0	0	0	0
28 RICHMOND	07/26/1980	1910	Tstm Wind	60 kts.	0	0	0	0
29 RICHMOND	08/07/1980	1545	Tstm Wind	0 kts.	0	0	0	0
30 RICHMOND	03/16/1981	1300	Tstm Wind	50 kts.	0	0	0	0
31 RICHMOND	08/10/1981	2000	Tstm Wind	0 kts.	0	0	0	0
32 RICHMOND	08/12/1981	1700	Tstm Wind	0 kts.	0	0	0	0
33 RICHMOND	02/16/1982	1957	Tstm Wind	0 kts.	0	0	0	0
34 RICHMOND	04/26/1982	2130	Tstm Wind	0 kts.	0	0	0	0
35 RICHMOND	06/10/1982	1445	Tstm Wind	0 kts.	0	0	0	0
36 RICHMOND	04/23/1983	1830	Tstm Wind	0 kts.	0	0	0	0
37 RICHMOND	06/05/1983	1230	Tstm Wind	0 kts.	0	0	0	0
38 RICHMOND	07/05/1983	1630	Tstm Wind	0 kts.	0	0	0	0

39 RICHMOND	07/15/1983	1335	Tstm Wind	0 kts.	0	0	0	0
40 RICHMOND	08/24/1983	1410	Tstm Wind	0 kts.	0	0	0	0
41 RICHMOND	04/14/1984	1335	Tstm Wind	0 kts.	0	0	0	0
42 RICHMOND	04/14/1984	1400	Tstm Wind	0 kts.	0	0	0	0
43 RICHMOND	05/03/1984	1600	Tstm Wind	0 kts.	0	0	0	0
44 RICHMOND	07/22/1985	1650	Tstm Wind	0 kts.	0	0	0	0
45 RICHMOND	05/24/1988	1530	Tstm Wind	0 kts.	0	0	0	0
46 RICHMOND	07/30/1988	1435	Tstm Wind	0 kts.	0	0	0	0
47 RICHMOND	04/04/1989	1710	Tstm Wind	0 kts.	0	0	0	0
48 RICHMOND	05/05/1989	1620	Tstm Wind	0 kts.	0	0	0	0
49 RICHMOND	05/05/1989	1720	Tstm Wind	0 kts.	0	0	0	0
50 RICHMOND	02/10/1990	0722	Tstm Wind	0 kts.	0	0	0	0
51 RICHMOND	02/22/1990	1300	Tstm Wind	0 kts.	0	1	0	0
52 RICHMOND	06/09/1990	1515	Tstm Wind	52 kts.	0	0	0	0
53 RICHMOND	03/01/1991	1800	Tstm Wind	0 kts.	0	0	0	0
54 RICHMOND	07/12/1992	1345	Tstm Wind	0 kts.	0	0	0	0
55 RICHMOND	09/03/1992	1600	Tstm Wind	0 kts.	0	0	0	0
56 Augusta	05/13/1993	1515	Thunderstorm Winds	0 kts.	0	0	5K	0
57 Augusta	05/19/1993	1225	Thunderstorm Winds	0 kts.	0	0	5K	0
58 Augusta	05/19/1993	1240	Thunderstorm Winds	0 kts.	0	0	50K	0
59 Hephzibah	06/17/1994	1943	Tstm Winds	0 kts.	0	0	5K	0
60 Mcbean	06/26/1994	1320	Thunderstorm Winds	0 kts.	0	0	1K	0
61 Augusta	06/28/1994	1800	Thunderstorm Winds	0 kts.	0	0	5K	0
62 Augusta	06/28/1994	2115	Tstm Winds	0 kts.	0	0	5K	0
63 Augusta	05/14/1995	1215	Thunderstorm Winds	0 kts.	0	4	2K	0
64 Richmond	06/09/1995	1845	Thunderstorm Winds	0 kts.	0	0	0	0
65 Augusta	06/12/1995	1305	Thunderstorm Winds	0 kts.	0	0	500	0
66 South Augusta	06/12/1995	1307	Thunderstorm Winds	0 kts.	0	0	18K	0

67 Hephzibah	07/16/1995	1842	Tstm. Winds	0 kts.	0	0	600	0
68 Augusta	07/24/1995	1855	Thunderstorm Winds	0 kts.	0	0	500	0
69 GAZ001>17 19>23>30>34 >41>46>52> 57 66>70>78>80 89>93 102>106 120 122	10/05/1995	0600	Thunderstorm Winds	0 kts.	8	7	75.0M	50.0 M
70 Augusta	11/07/1995	1515	Thunderstorm Winds	0 kts.	0	0	0	0
71 Augusta	11/11/1995	1513	Thunderstorm Winds	0 kts.	0	0	0	0
72 West Augusta	01/24/1996	08:22 AM	Tstm Wind	50 kts.	0	0	0	0
73 Goeshen	03/07/1996	04:54 AM	Tstm Wind	75 kts.	0	0	2.0M	0
74 Augusta	05/28/1996	01:25 AM	Tstm Wind	50 kts.	0	0	0	0
75 Gracewood	04/22/1997	07:55 PM	Tstm Wind	60 kts.	0	0	7K	0K
76 Blythe	04/22/1997	08:00 PM	Tstm Wind	60 kts.	0	2	15K	0K
77 Hephzibah	04/22/1997	08:05 PM	Tstm Wind	55 kts.	0	0	3K	0K
78 Augusta	05/03/1997	11:20 AM	Tstm Wind	50 kts.	0	0	0	0
79 Blythe	07/27/1997	03:22 PM	Tstm Wind	50 kts.	0	0	0	0
80 Hephzibah	06/10/1998	04:50 PM	Tstm Wind	50 kts.	0	0	0	0
81 Augusta	06/19/1998	01:15 PM	Tstm Wind	55 kts.	0	0	0	0
82 Hephzibah	09/08/1998	05:45 PM	Tstm Wind	50 kts.	0	0	0	0
83 Augusta	04/15/1999	04:22 PM	Tstm Wind	50 kts.	0	0	0	0
84 Augusta	08/23/1999	04:35 PM	Tstm Wind	50 kts.	0	0	0	0
85 Hephzibah	06/22/2000	04:30 PM	Tstm Wind	50 kts.	0	0	0	0
86 Augusta	08/18/2000	05:30 PM	Tstm Wind	50 kts.	0	0	0	0
87 Augusta	06/03/2001	05:13 PM	Tstm Wind	50 kts.	0	0	0	0
88 Augusta	06/03/2001	05:30 PM	Tstm Wind	50 kts.	0	0	0	0
89 Augusta	06/22/2001	04:15 PM	Tstm Wind	50 kts.	0	0	0	0
90 Augusta	07/08/2001	07:25 PM	Tstm Wind	50 kts.	0	0	0	0
91 Ft Gordon	12/17/2001	08:10 PM	Tstm Wind	50 kts.	0	0	0	0
92 Augusta	05/03/2002	05:15 PM	Tstm Wind	70 kts.	0	0	0	0

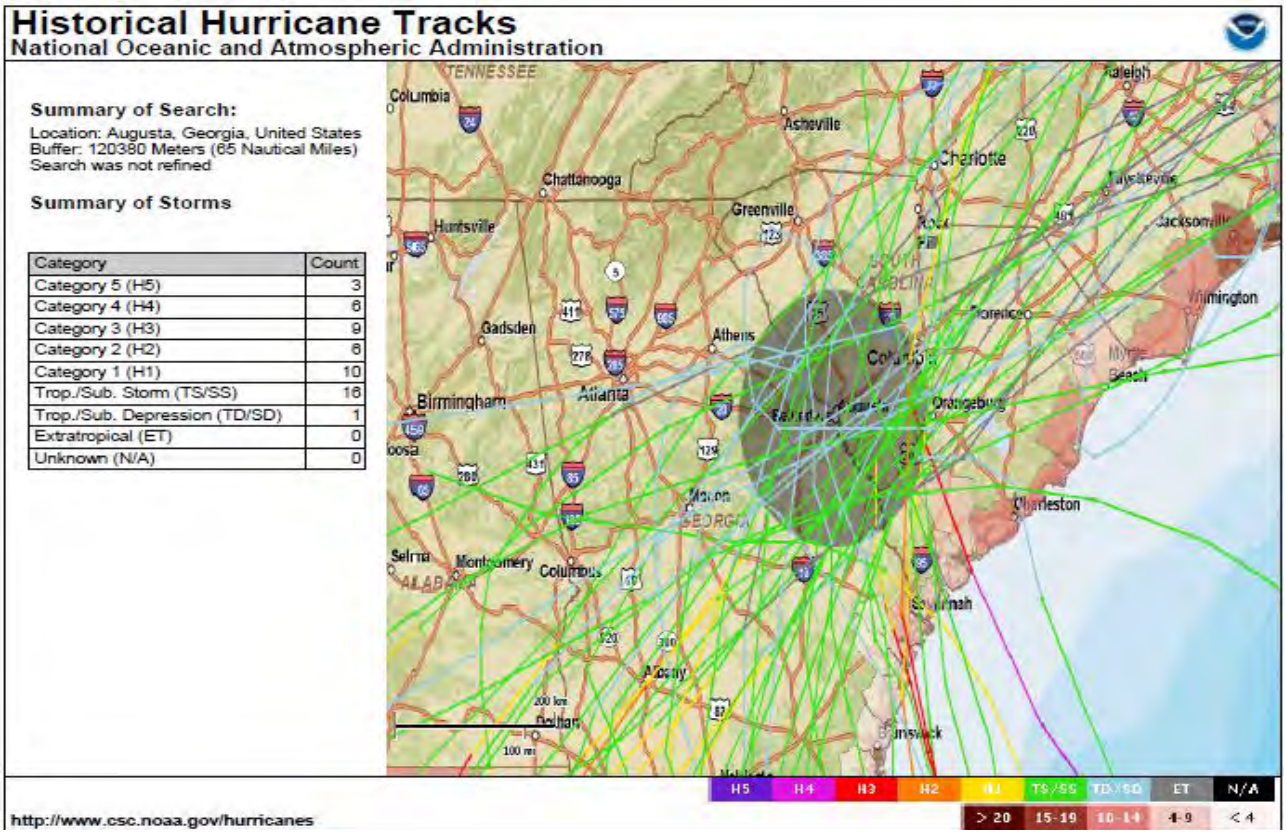
93 Augusta	05/03/2002	05:20 PM	Tstm Wind	70 kts.	0	0	0	0
94 Augusta	05/03/2002	05:48 PM	Tstm Wind	50 kts.	0	0	0	0
95 Countywide	05/13/2002	05:43 PM	Tstm Wind	60 kts.	0	0	0	0
96 Augusta	05/29/2002	05:30 PM	Tstm Wind	55 kts.	0	1	18K	0
97 Augusta	07/30/2002	05:40 PM	Tstm Wind	55 kts.	0	0	0	0
98 Augusta	08/18/2002	04:05 PM	Tstm Wind	50 kts.	0	0	0	0
99 Augusta	09/18/2002	01:00 PM	Tstm Wind	50 kts.	0	0	0	0
100 Countywide	12/24/2002	10:05 AM	Tstm Wind	50 kts.	0	0	0	0
101 Augusta	02/22/2003	11:15 AM	Tstm Wind	55 kts.	0	0	0	0
102 Central Portion	05/02/2003	08:30 PM	Tstm Wind	60 kts.	0	0	0	0
103 Augusta	05/18/2003	06:45 PM	Tstm Wind	50 kts.	0	0	0	0
104 Augusta	07/11/2003	02:55 PM	Tstm Wind	55 kts.	0	0	0	0
105 Augusta	11/19/2003	05:20 AM	Tstm Wind	50 kts.	0	0	0	0
106 Augusta Bush Arpt	05/02/2004	03:26 PM	Tstm Wind	64 kts.	0	0	0	0
107 Augusta	05/02/2004	03:34 PM	Tstm Wind	55 kts.	0	0	0	0
108 Augusta	04/22/2005	03:35 PM	Tstm Wind	60 kts.	0	0	0	0
109 Augusta	05/20/2005	01:35 PM	Tstm Wind	60 kts.	0	0	0	0
110 Augusta	08/04/2005	07:05 PM	Tstm Wind	50 kts.	0	0	0	0
111 Augusta	07/15/2006	03:27 PM	Tstm Wind	60 kts.	0	0	0	0
112 Augusta	07/20/2006	08:47 PM	Tstm Wind	55 kts.	0	0	0	0
113 Ft Gordon	07/22/2006	03:00 PM	Tstm Wind	55 kts.	0	0	0	0
114 Hephzibah	02/13/2007	18:15 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
115 Ft Gordon	03/01/2007	20:40 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
116 Hephzibah	03/02/2007	01:38 AM	Tstm Wind	55 kts.	0	0	0K	0K
117 Blythe	04/14/2007	18:25 PM	Thunderstorm Wind	55 kts.	0	0	0K	0K
118 (ags)bush Fld August	06/18/2007	18:11 PM	Thunderstorm Wind	58 kts.	0	0	0K	0K
119 Ft Gordon	06/18/2007	18:15 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
120 Augusta	07/11/2007	14:40 PM	Thunderstorm Wind	60 kts.	1	4	0K	0K

121 Augusta	03/04/2008	20:05 PM	Tstm. Wind	70 kts.	0	0	0K	0K
122 National Hills	03/15/2008	17:35 PM	Thunderstorm Wind	61 kts.	0	0	0K	0K
123 (ags)bush Fld August	05/20/2008	15:01 PM	Thunderstorm Wind	58 kts.	0	0	0K	0K
124 Augusta	05/20/2008	17:03 PM	Thunderstorm Wind	65 kts.	0	0	0K	0K
125 Augusta	06/22/2008	13:30 PM	Thunderstorm Wind	60 kts.	0	0	0K	0K
126 Ft Gordon	07/31/2008	14:12 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
127 Blythe	08/07/2008	17:15 PM	Thunderstorm Wind	55 kts.	0	0	0K	0K
128 South Nellieville	06/12/2009	16:21 PM	Thunderstorm Wind	55 kts.	0	0	0K	0K
129 Augusta	06/18/2009	17:53 PM	Thunderstorm Wind	55 kts.	0	0	6K	0K
130 Ft Gordon	06/18/2009	18:10 PM	Thunderstorm Wind	50 kts.	0	0	35K	0K
131 (ags)bush Fld August	07/30/2009	13:32 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
132 Augusta	08/11/2009	16:50 PM	Thunderstorm Wind	50 kts.	0	0	2K	0K
133 Augusta	12/09/2009	06:32 AM	Tstm Wind	50 kts.	0	0	4K	0K
134 Augusta Daniel Arpt	01/24/2010	22:58 PM	Thunderstorm Wind	50 kts.	0	0	5K	0K
135 Augusta	06/15/2010	16:00 PM	Thunderstorm Wind	60 kts.	0	0	40K	0K
136 South Nellieville	06/25/2010	16:07 PM	Thunderstorm Wind	55 kts.	0	0	6K	0K
137 (ags)bush Fld August	07/27/2010	17:11 PM	Thunderstorm Wind	60 kts.	0	0	0K	0K
138 Augusta	07/31/2010	15:44 PM	Thunderstorm Wind	55 kts.	0	0	4K	0K
139 Augusta	10/25/2010	10:45 AM	Thunderstorm Wind	50 kts.	0	0	0K	0K
140 Augusta Daniel Arpt	03/09/2011	16:05 PM	Thunderstorm Wind	50 kts.	0	0	1K	0K
Source: (NOAA, National Oceanic and Atmospheric Administration, 2011). TOTALS:					9	19	77.241M	50.000M

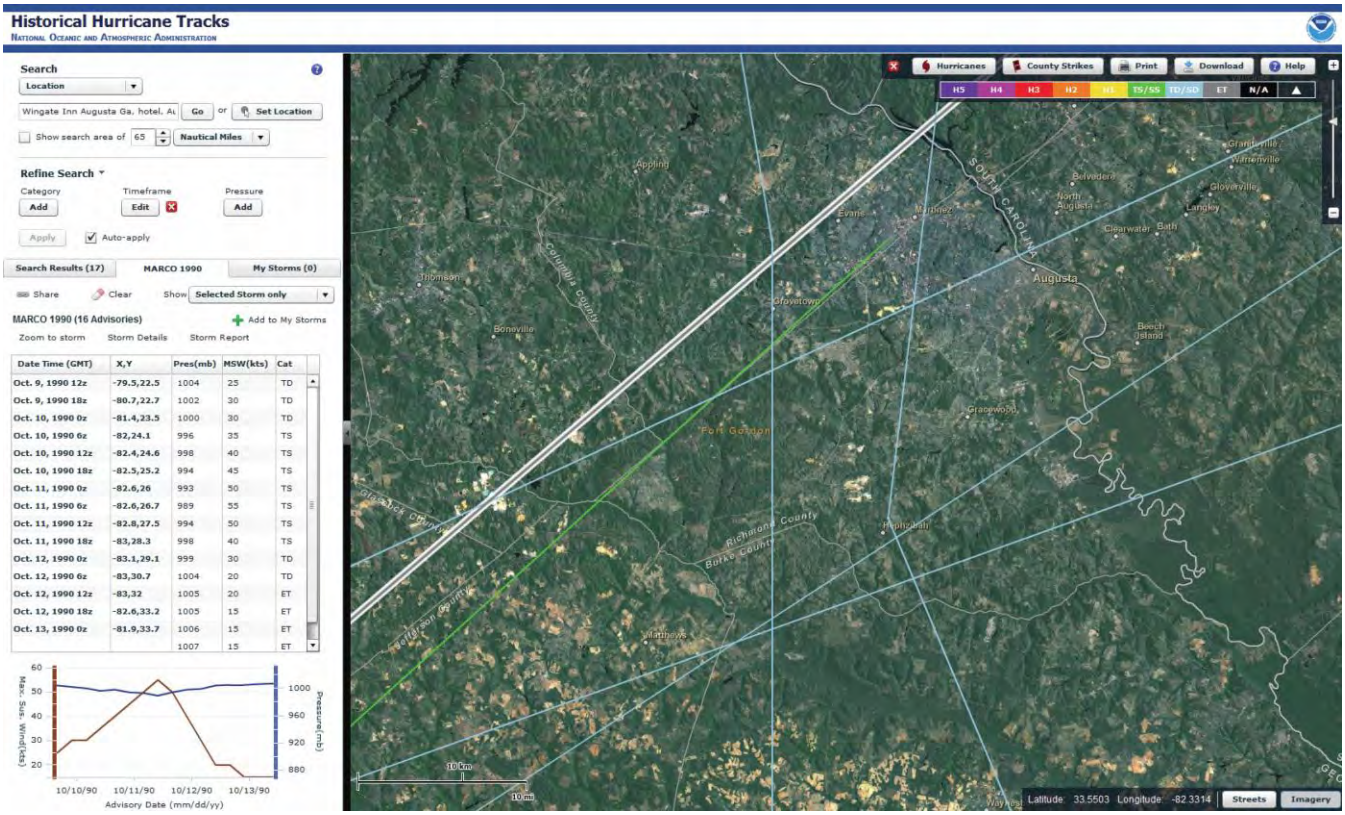
For any given season, predictions of hurricane activity are prepared annually by the members of the Colorado State University Hurricane Forecast Team. The forecasts include individual monthly predictions of activity and seasonal and monthly U.S. hurricane landfall probabilities. The predictions vary each year based on several atmospheric and oceanic factors and are available at http://typhoon.atmos.colostate.edu/forecasts. In the Augusta – Richmond County planning area no hurricanes or tropical storms were reported by NOAA during the period of 1950 – 2010 (NOAA, National Oceanic and Atmospheric Administration, 2011) however FEMA declared an emergency for Richmond County (See FEMA-EM-3218-GA) for the Hurricane Katrina evacuation.

Maps 1 and 1 (a) below show the tracks of hurricanes and tropical storms that passed over or within 65 miles of Augusta between 1950 and 2010. In order to estimate the frequency of occurrence, the number of storms that have come close to the Augusta area (51) is compared to the length of the period of record, the 60 years from 1950-2010. Based on this record, on average 0.85 hurricanes or tropical storms occur somewhere in the area each year. The recurrence interval based on this record is an estimate of the amount of time, on average, during which one occurrence of a storm of a given magnitude will take place. It is important to note that, in reality, a storm can occur multiple times during one recurrence interval, and that the recurrence interval is only an estimated average time period.

Map 1: Historical Hurricane Tracks



Map 1–a: Planning Area Historical Hurricane Tracks



Tornado, Thunderstorm Wind, High Wind, and Hail data was entered in the GEMA Hazard Frequency Table and calculated using the preloaded formulas. The results were averaged for four categories to determine the frequency of occurrence of the Tornado-Windstorm-Hail Hazard. The results are:

1. Tornado
    a. Historic Recurrence Interval = 6.78 (years)
    b. Historic Frequency Chance/year= 14.75%
2. Thunderstorm Wind
    a. Historic Recurrence Interval = 0.40 (years)
    b. Historic Frequency Chance/year = 250.00%
3. Hail
    a. Historic Recurrence Interval = 0.98 (years)
    b. Historic Frequency Chance/year = 101.64%
4. High Wind
    a. Historic Recurrence Interval = 30.50
    b. Historic Frequency Chance/year = 3.28%

The entries were averaged to produce frequency and recurrence data results. The Historic Recurrence Interval for the Tornado/Windstorm/Hail Hazard is 9.66 years and the Historic Frequency Chance per year is 92.42% (Source: Georgia Emergency Management Agency (GEMA), 2003).

2.1.4 Inventory of Assets Exposed to Tornado/Windstorm/Hail

All buildings and structures are within the Augusta – Richmond County planning areas are exposed to the effects of tornados, windstorms, and hail. There were reported losses in excess of 9 million dollars over the recorded history of these events there is substantial evidence of the impact on the planning area (NOAA, National Oceanic and Atmospheric Administration, 2011).

2.1.5 Estimation of Losses Due to Tornado/Windstorm/Hail

High winds can damage roofs, ranging from loss of roofing materials to total loss of the roof structure. A great deal of wind damage is due to wind-borne debris that breaks windows and opens building envelopes to additional wind damage as well as the entry of wind-driven rains that soak contents and interiors. Debris can inflict injuries on people who have not sought shelter, or even in result death. High winds dislodge manufactured homes that are not adequately anchored, and bring down electric and telephone lines and poles.

In general, older structures are expected to be more susceptible to wind damage in part because their construction pre-dated building codes but also because older structures may not have been maintained. The type of construction also influences the likelihood of damage, with shingled, overhanging roofs (common on residences) more vulnerable to wind damage than are flat asphalt roofs (common on non-residential buildings).

Using HAZUS-MH, an analysis was performed to assess the relative vulnerability of structures to high wind hazards. Tropical storms, thunderstorms, and tornadoes were the types of events considered most probable to have a widespread effect on the county. Wind vulnerability of structures is dependent on several factors including:

- Level of engineering design (code compliance);
- Quality of materials and construction;
- Structure exposure and height;
- Beneficial or adverse effects of nearby trees and structures;
- Age and condition; and
- Degree of rainfall or water penetration.

The high wind scenario was simulated for a Category 1 hurricane (where 1-minute sustained wind speeds range from 74-95 mph) that passes directly through or within close proximity of the county. This scenario is reasonable because two storms of this magnitude have passed within 65 miles of Augusta between 1950 and 2003. It was assumed that all parts of the area are equally likely to experience similar wind speeds.

The HAZUS analysis for this scenario analysis indicates that on the order of 50 buildings will suffer minor damage and at least 1 building will incur moderate damage. It is highly unlikely that any buildings would be completely destroyed. No households are expected to be displaced due to the hurricane, and consequently,

no one is expected to seek temporary shelter in public shelters. The total economic loss is estimated at $2.8 million or approximately 0.02 percent of the total replacement value of the entire building stock of the area.

Perhaps the more significant consequence of a high wind event that affects the whole area is due to debris and the associated costs to manage and dispose of the material. HAZUS-MH projects that as much as 331 tons of woody debris could be generated throughout the area, including forested and undeveloped areas. Thus, it is important to qualify this estimate because a large portion of the area is forested, and thus the amount of debris that would need to be cleared from streets and developed areas after a storm is considerably less.

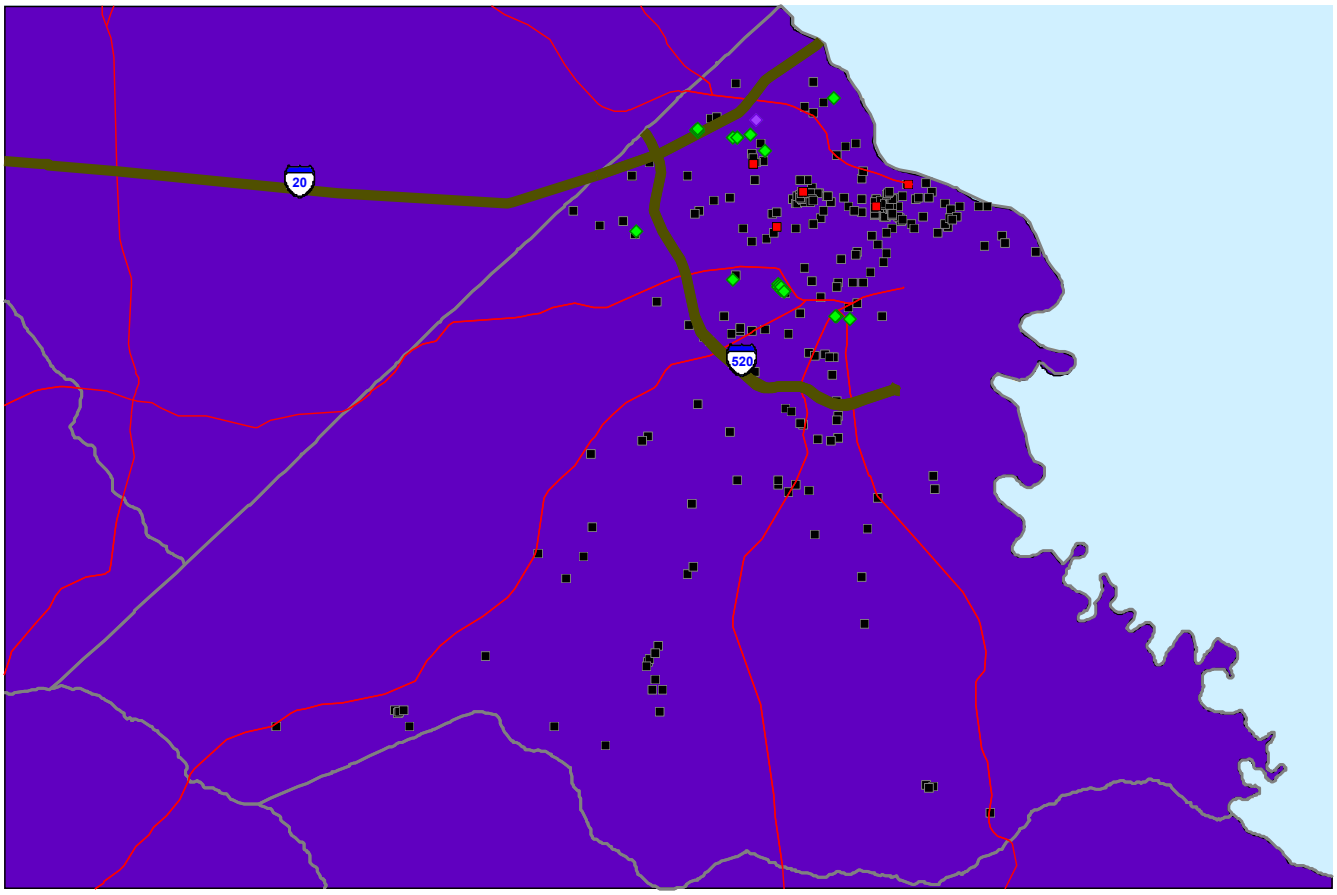
The costs of managing debris are not included in regular budgets. When events prompt massive debris cleanup, staff from the Engineering, Environmental Services, Public Services, and Recreation & Parks Departments are diverted from other work, often causing delays. In recent years, events with large quantities of debris have prompted the City to waive landfill fees, thus reducing potential income.

Tornado Loss Estimation. There are no standard loss estimation models and tables for tornadoes. Except for structures such as "safe rooms" that are engineered as refuges, buildings are not designed to resist the effects of tornadoes. Therefore, when buildings are in the path of a tornado, it is expected that the damage will be total. Tornados are not location specific, that is, within a geographic area as small as a county, there are no factors that suggest that tornados will affect one area more than another.

GMIS estimates the damages during a high wind event for each community as:

1. Blythe: Hazard Score = 2; Building Damage by Square Feet, 57,729 sq. ft.; Replacement Costs of Damaged Structures, $1,938,000; Replacement Costs for Contents, $129,000; with 430 person affected by the hazard event.
2. Hephzibah: Hazard Score = 2; Building damage by square feet, 338,139 sq. ft.; Replacement Costs of Damaged Structures, $13,142,859; Replacement Costs for Contents, $290,300 Functional Value Loss, $1,008,500, with 3,097 persons affected by the hazard event.
3. Augusta – Richmond County: Hazard Score = 2; Building damage by square feet, 19,692,499 sq. ft.; Replacement Costs of Damaged Structures, $1,951,908,136; Replacement Costs for Contents, $329,985,275; Functional Value Loss, $5,000; Displacement Costs, $56,135; with 65,360 persons affected by the hazard event. GMIS Graphic 1 below depicts the Critical Facilities exposed to Wind Hazards.

GMIS 1 Tornado Damage Map



GMIS total damage estimates for the planning region are: Hazard Score = 2; Replacement Costs of Damaged Structures, $1,966,988,995; Replacement Costs for Contents, $330,404,575; Functional Value Loss, $1,013,500, Displacement Costs, $56,135; with 68,887 persons affected by the hazard event (Georgia Emergency Management Agency (GEMA), 2003). The GMIS Hazard Frequency Table is located in Appendix A of the plan.

Hurricane

HAZUS-MH is a regional multi-hazard loss estimation model that was developed by the Federal Emergency Management Agency and the National Institute of Building Sciences. The primary purpose of HAZUS-MH is to provide a methodology and software application to develop multi -hazard losses at a regional scale. These loss estimates would be used primarily by local, state and regional officials to plan and stimulate efforts to reduce risks from multi-hazards and to prepare for emergency response and recovery. The hurricane loss estimates provided in this report are based on a region that includes 1 county from the following state: Georgia

The geographical size of the region is 328.59 square miles and contains 40 census tracts. There are over 73 thousand households in the planning area and a total

population of 199,775 people (2000 Census Bureau data). The distribution of population by State and County is provided in Appendix B.

There are an estimated 77 thousand buildings in the region with a total building replacement value (excluding contents) of 12,743 million dollars (2002 dollars). Approximately 92% of the buildings (and 70% of the building value) are associated with residential housing.

General Building Stock and Building Inventory

HAZUS-MH estimates that there are 77,917 buildings in the region that have an aggregate total replacement value of 12,743 million (2002 dollars). Table A below presents the relative distribution of the value with respect to the general occupancies. The report included in Appendix A provides a general distribution of the building value by State and County.

Table A: Building Exposure by Occupancy Type

Occupancy	Exposure ($1000)	Percent of Tot
Residential	8,967,798	70.4%
Commercial	2,707,355	21.2%
Industrial	495,189	3.9%
Agricultural	26,011	0.2%
Religious	312,465	2.5%
Government	96,570	0.8%
Education	137,831	1.1%
Total	**12,743,219**	**100.0%**

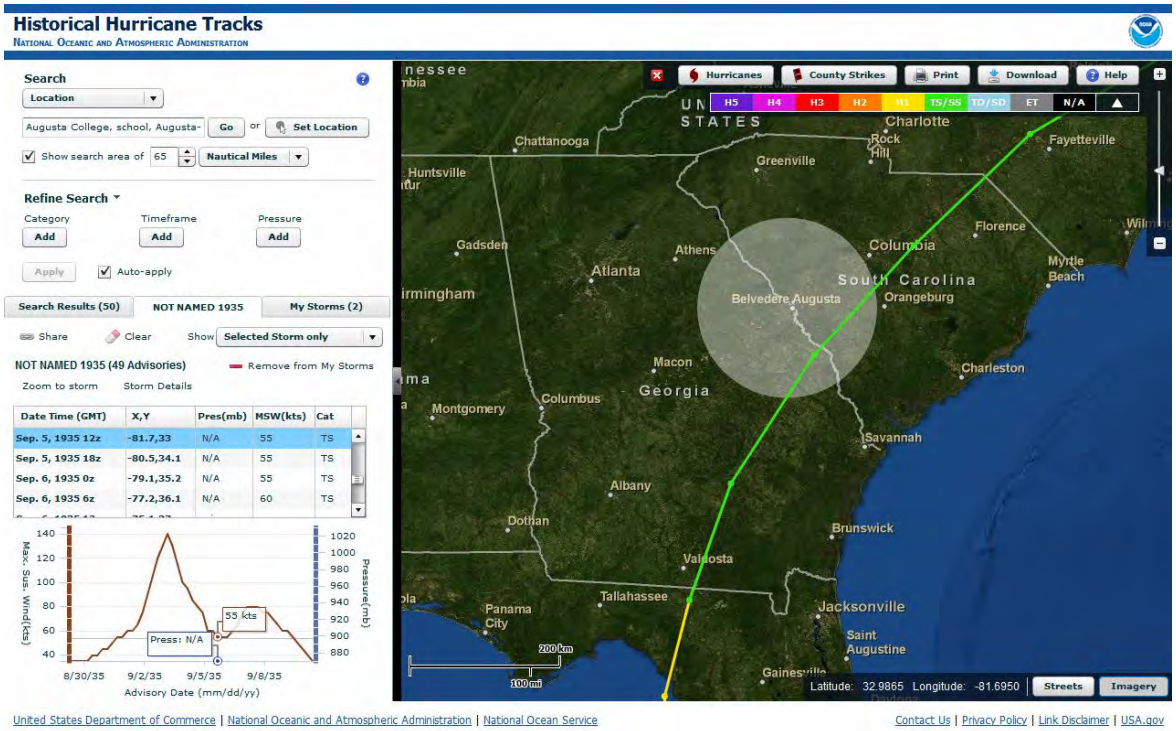
Essential Facility Inventory

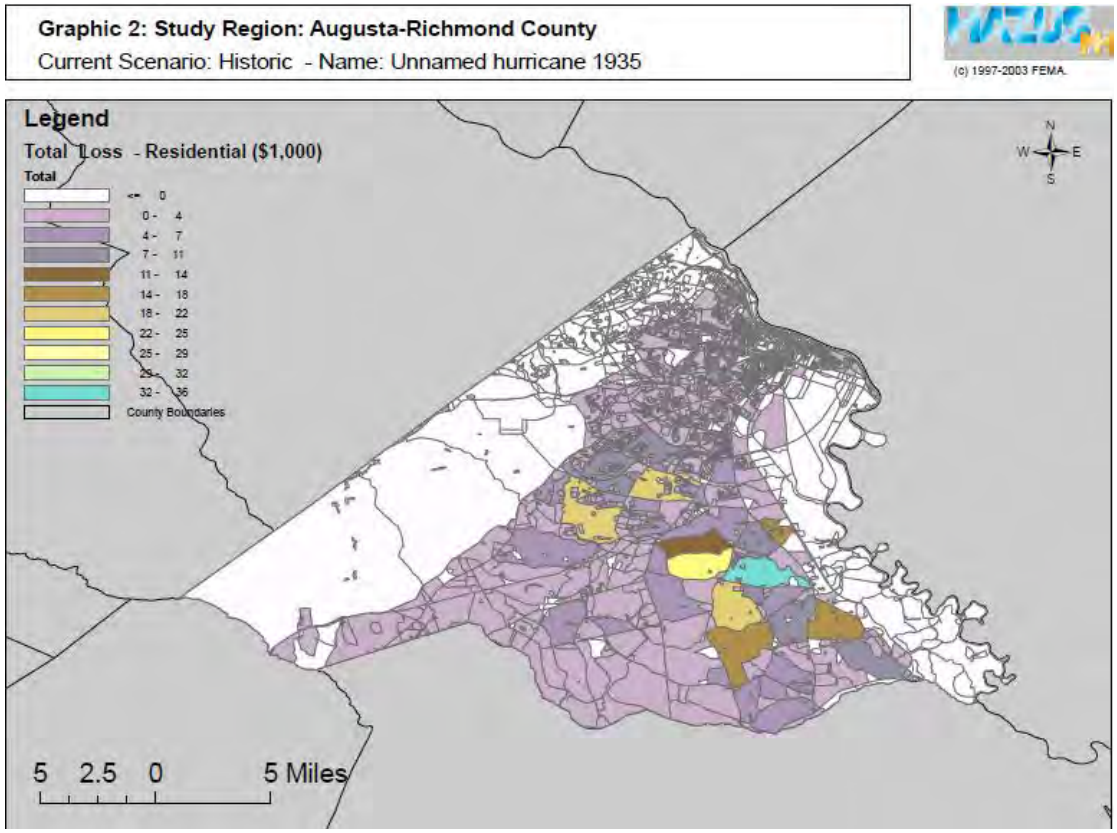
The essential facilities in the region are 8 hospitals with a total bed capacity of 2,353 beds. There are 75 schools, 2 fire stations, 4 police stations and no emergency operation facilities.

Hurricane Scenario. HAZUS-MH used the following set of information to define the hurricane parameters for the hurricane loss estimate provided in this report. Graphics, 1, 2, and 3 below depicts the unnamed hurricane and the 2 Plat courses for the event used for the model.

Max Peak Gust in Study Region: 69 mph; **Scenario Name:** UN-NAMED-1935-2; **Type:** Historic

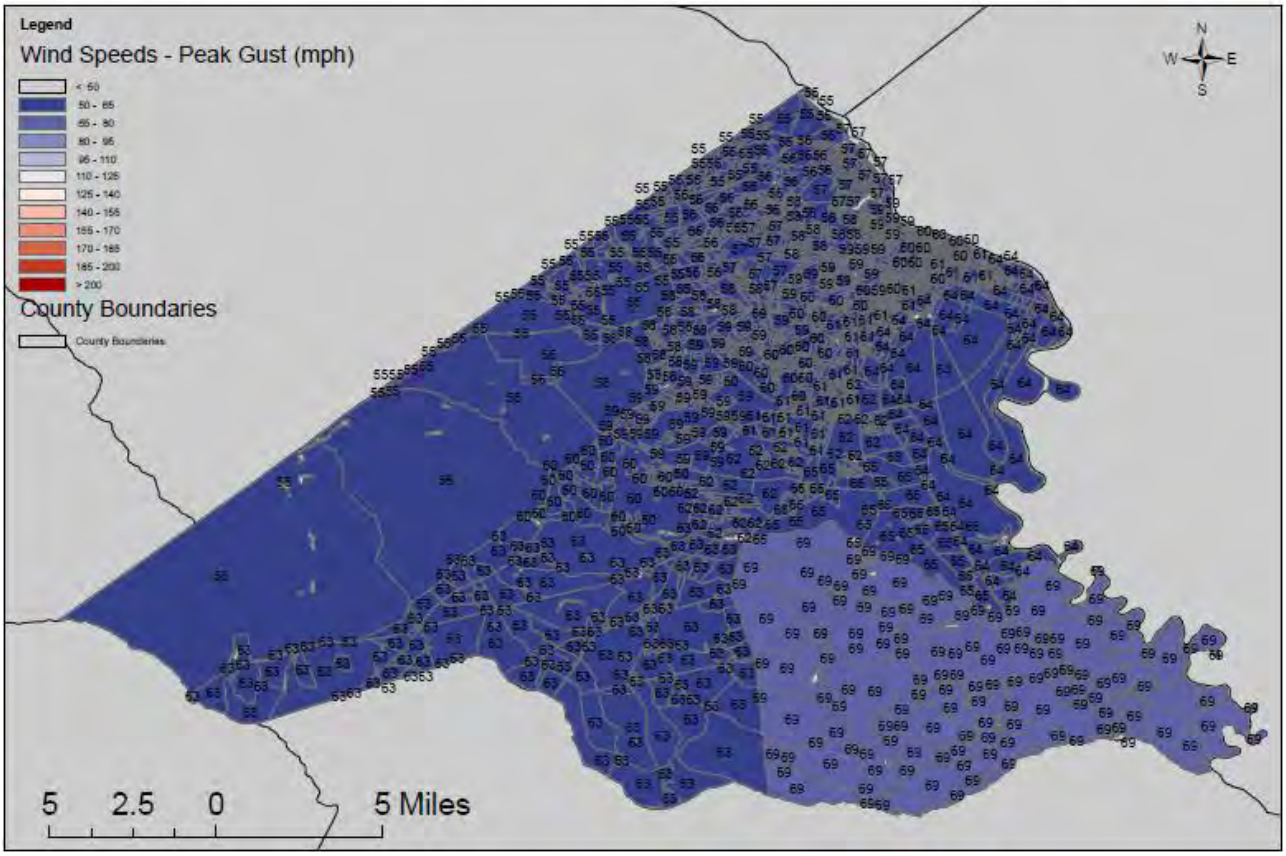
Graphic 1


Historical Hurricane Tracks
National Oceanic and Atmospheric Administration
Search
Location
Augusta College, school, Augusta-
Go
or
Set Location
Show search area of 65
Nautical Miles
Refine Search
Category
Timeframe
Pressure
Add
Apply
Auto-apply
Search Results (50)
NOT NAMED 1935
My Storms (2)
Share
Clear
Show
Selected Storm only
NOT NAMED 1935 (49 Advisories)
Remove from My Storms
Zoom to storm
Storm Details
Date Time (GMT) X,Y Pres(mb) MSW(kts) Cat
Sep. 5, 1935 12z -81.7,33 N/A 55 TS
Sep. 5, 1935 18z -80.5,34.1 N/A 55 TS
Sep. 6, 1935 0z -79.1,35.2 N/A 55 TS
Sep. 6, 1935 6z -77.2,36.1 N/A 60 TS
Max. Sus. Wind(kts)
Pressure(mb)
55 kts
Press: N/A
8/30/35
9/2/35
9/5/35
9/8/35
Advisory Date (mm/dd/yy)
Hurricanes
County Strikes
Print
Download
Help
H5 H4 H3 H2 H1 TS/SS TD/SD ET N/A
Chattanooga
Huntsville
Greenville
Charlotte
Rock Hill
Fayetteville
Gadsden
Athens
Atlanta
Columbia
Florence
Myrtle Beach
South Carolina
Orangeburg
Belvedere
Augusta
Macon
Georgia
Columbus
Montgomery
Charleston
Savannah
Albany
Dothan
Brunswick
Valdosta
Tallahassee
Panama City
Jacksonville
Saint Augustine
Gainesville
200 km
100 mi
Latitude: 32.9865 Longitude: -81.6950
Streets
Imagery
United States Department of Commerce | National Oceanic and Atmospheric Administration | National Ocean Service
Contact Us | Privacy Policy | Link Disclaimer | USA.gov


Graphic 2: Study Region: Augusta-Richmond County
Current Scenario: Historic - Name: Unnamed hurricane 1935
(c) 1997-2003 FEMA
Legend
Total Loss - Residential ($1,000)
Total
<= 0
0 - 4
4 - 7
7 - 11
11 - 14
14 - 18
18 - 22
22 - 25
25 - 29
29 - 32
32 - 36
County Boundaries
N
W
E
S
5 2.5 0 5 Miles

Graphic 3: Study Region: Augusta-Richmond County

Current Scenario: Historic - Name: Unnamed Hurricane 1935



(c) 1997-2003 FEMA.

General Building Stock Damage

HAZUS-MH estimates that about 0 buildings will be at least moderately damaged by hurricane winds. This is over 0% of the total number of buildings in the region. There are an estimated 0 buildings that will be completely destroyed. The definition of the 'damage states' is provided in Volume 1: Chapter 6 of the HAZUS Hurricane technical manual. Table 2 below summarizes the expected damage by general occupancy for the buildings in the region. Table B summarizes the expected damage by general building type.

Table B: Expected Building Damage by Occupancy

Occupancy	None		Minor		Moderate		Severe		Destruction	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	196	99.76	0	0.24	0	0.00	0	0.00	0	0.00
Commercial	4,189	99.69	13	0.31	0	0.00	0	0.00	0	0.00
Education	145	99.71	0	0.29	0	0.00	0	0.00	0	0.00
Government	129	99.69	0	0.31	0	0.00	0	0.00	0	0.00
Industrial	958	99.68	3	0.32	0	0.00	0	0.00	0	0.00
Religion	514	99.76	1	0.24	0	0.00	0	0.00	0	0.00
Residential	71,733	99.95	36	0.05	0	0.00	0	0.00	0	0.00
Total	**77,863**		**54**		**0**		**0**		**0**	

Table C: Expected Building Damage by Building Type

Building Type	None		Minor		Moderate		Severe		Destruction	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Concrete	370	99.59	2	0.41	0	0.00	0	0.00	0	0.00
Masonry	6,152	99.72	17	0.28	0	0.00	0	0.00	0	0.00
MH	7,476	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Steel	2,216	99.65	8	0.35	0	0.00	0	0.00	0	0.00
Wood	56,908	99.98	10	0.02	0	0.00	0	0.00	0	0.00

Essential Facility Damage

Before the hurricane, the region had 2,353 hospital beds available for use. On the day of the hurricane, the model estimates that 2353 hospital beds (100.00%) are available for use. After one week, 100.00% of the beds will be in service. By 30 days, 100.00% will be operational. Table D below reveals the estimated damages.

Table D: Expected Damage to Essential Facilities

		# Facilities		
Classification	Total	Probability of at Least Moderate Damage > 50%	Probability of Complete Damage > 50%	Expected Loss of Use < 1 day
Fire Stations	2	0	0	2
Hospitals	8	0	0	8
Police Stations	4	0	0	4
Schools	75	0	0	75

Induced Hurricane Damage - Debris Generation

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

The model estimates that a total of 9,531 tons of debris will be generated. Of the total amount, Brick/Wood comprises 0% of the total, Reinforced Concrete/Steel comprises of 0% of the total, with the remainder being Tree Debris. If the building debris tonnage is converted to an estimated number of truckloads, it will require 0 truckloads (@25 tons/truck) to remove the debris generated by the hurricane.

Social Impact - Shelter Requirement

HAZUS estimates the number of households that are expected to be displaced from their homes due to the hurricane and the number of displaced people that will require accommodations in temporary public shelters.

The model estimates 0 households to be displaced due to the hurricane. Of these, 0 people (out of a total population of 199,775) will seek temporary shelter in public shelters.

Economic Loss

The total economic loss estimated for the hurricane is 1.4 million dollars, which represents 0.01 % of the total replacement value of the region's buildings.

Building-Related Losses

The building related losses are broken into two categories: direct property damage losses and business interruption losses. The direct property damage losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the hurricane. Business

interruption losses also include the temporary living expenses for those people displaced from their homes because of the hurricane.
The total property damage losses were 1 million dollars. 0% of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies which made up over 97% of the total loss.

Table E below provides a summary of the losses associated with the building damage.

Table E: Building-Related Economic Loss Estimates

(Thousands of dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
Property Damage						
	Building	1,392.55	19.90	22.35	5.68	1,440.49
	Content	0.00	0.00	0.00	0.00	0.00
	Inventory	0.00	0.00	0.00	0.00	0.00
	Subtotal	**1,392.55**	**19.90**	**22.35**	**5.68**	**1,440.49**
Business Interruption Loss						
	Income	0.00	0.00	0.00	0.00	0.00
	Relocation	0.26	0.14	0.00	0.04	0.44
	Rental	0.00	0.00	0.00	0.00	0.00
	Wage	0.00	0.00	0.00	0.00	0.00
	Subtotal	**0.26**	**0.14**	**0.00**	**0.04**	**0.44**
Total						
	Total	**1,392.80**	**20.04**	**22.35**	**5.72**	**1,440.92**

2.1.6 Land use and development trends related to Tornado/Windstorm/Hail

All new buildings must be designed and constructed to meet current building code requirements, including wind loads. Manufactured homes are to be installed on permanent foundations with tie-downs in compliance with engineered designs provided by the manufacturer. Accessory buildings are required to be anchored; reroofing projects are subject to permit and code compliance. It is not cost-effective to require buildings to withstand tornadic winds. The effects of high winds and the exposure of the built-environment to high winds are not influenced by land use and development trends.

2.1.7 Multi-Jurisdictional Differences in Tornado/Windstorm/Hail Events

There are no differences in exposure to high winds associated with jurisdictional boundaries between Augusta - Richmond, and the Cities of Blythe and Hephzibah.

2.1.8 Tornado/Windstorm/Hail HRV Summary

The entire planning region is vulnerable to the Tornado/Windstorm/Hail hazard. Most high winds accompany large storms such as hurricanes; the exception is

microbursts. Large storms are tracked and predicted with reasonable accuracy and advance warning. An overall summary of vulnerability to wind-related hazards is relatively straightforward because every building in the planning area is equally likely to be exposed to high winds. The most significant consequence associated with high winds are due to downed trees, falling limbs, accumulated woody debris on roads and private property, and power outages. Buildings are damaged by falling tree limbs and may be destroyed by tornados; roof damage due to winds is unusual. Primarily because of frequency (not the anticipated extent or severity of damage for any single event), the relative risk ranking of wind hazards was determined to be "high" (see Table 2.5 for a summary of relative risks).

Using NOAA data for reported hazard events for tornados, high wind events, and hail occurrences together with HAZUS data for Hurricane scenarios that duplicate tornado, windstorm, and hail events, the community defined overall vulnerability to the hazard. Actual damages, damage estimates, GMIS Critical Facility exposure charts, and reveal the Tornado/Windstorm/Hail hazard vulnerability is high. Damages reported from these events are greater than those reported for any other natural hazard. The entries were averaged to produce frequency and recurrence data results. The Historic Recurrence Interval for the Tornado-Windstorm-Hail Hazard is 9.66 years and the Historic Frequency Chance per year is 92.42% (Source: Georgia Emergency Management Agency [GEMA], 2003).

GMIS total damage estimates for the planning region are: Hazard Score = 2; Replacement Costs of Damaged Structures, $1,966,988,995; Replacement Costs for Contents, $330,404,575; Functional Value Loss, $1,013,500, Displacement Costs, $56,135; with 68,887 persons affected by the hazard event (Georgia Emergency Management Agency (GEMA), 2003). The GMIS Hazard Frequency Table is located in Appendix A of the plan.

2.2 Natural Hazard B: Flooding

Currently and historically floods are the most frequent, destructive, and costly natural hazard in the State of Georgia. Most of the State's damage reported for major disasters is associated with floods.

Since 1990, Augusta has been impacted by significant flood events, although not all qualified for major disaster declarations. Localized flooding concerns among citizens are the impacts to homes, yards and streets. Augusta and Hephzibah participate in the National Flood Insurance Program (NFIP), with 3055 flood policies in place.

2.2.1: Flooding Identity

The floodplain maps of the Augusta area have been prepared by FEMA in a basic digital format known as "FEMA Q3 Flood Data." Using the City's Geographic Information System (GIS) and available data layers and databases, specific information about flood-prone buildings can be developed. For the HMP, the City uses these maps and data as the best available data, rather than the flood hazard

map and report generated by GEMA's online tool for critical and essential facilities (Appendix C).

GIS is a computer software application that relates physical features on the ground in mapping applications and analyses. The Augusta Information Technology (IT) Department manages the GIS functions. When rainfall runoff collects in rivers, creeks, and streams and exceeds the capacity of channels, floodwaters overflow onto adjacent lands. Floods result from rain events, whether short and intense or long and gentle. In recent years, most flooding in Augusta – Richmond County and the Cities of Blythe and Hephzibah is associated with large regional storms, some that originate as hurricanes and tropical storms that subsequently move inland. Flood hazards are categorized as follows:

- **Flash floods** not only occur suddenly, but also involve forceful flows that can destroy buildings and bridges, uproot trees, and scour out new channels. Most flash flooding is caused by slow-moving thunderstorms, repeated thunderstorms in a local area, or heavy rains from hurricanes and tropical storms. Although flash flooding occurs often along mountain streams, it is also common in urban areas, where much of the ground is covered by impervious surfaces and drainage ways are designed for smaller flows. Flood

Insurance Rate Maps typically show the 1%-annual-chance (100-year) floodplain for waterways with at least 1 square mile of drainage area. The flood hazard area for waterways with less than one square mile of drainage area typically is not shown.

- **Riverine floods** are a function of precipitation levels and water runoff volumes, and occur when water rises out of the banks of the waterway. Flooding along waterways that drain larger watersheds often can be predicted in advance, especially where it takes 24 hours or more for the flood crest (maximum depth of flooding) to pass. In Augusta – Richmond County and the City of Hephzibah, riverine flooding is caused by large rainfall systems and thunderstorm activity associated opportunity for large amounts of rain to fall over large areas. The Flood Insurance Rate Maps show the 1%-annual-chance floodplains.

- **Urban drainage flooding** occurs where development has altered hydrology through changes in the ground surface and modification of natural drainage ways. Urbanization increases the magnitude and frequency of floods by increasing impervious surfaces, increasing the speed of drainage collection, reducing the carrying capacity of the land, and, occasionally, overwhelming sewer systems. Localized urban flooding is not usually shown on the Flood Insurance Rate Maps in areas with less than one square mile of contributing drainage area. The Flood Insurance Rate Maps (FIRMs) prepared by FEMA offer the best overview of flood risks. FIRMs are used to regulate new development and to control the substantial improvement and repair of substantially damaged buildings.

Augusta's revised Flood Insurance Study (FIS), 07/18/11, is a combination of FIS and maps prepared separately for the City of Augusta and Richmond County prior to consolidation of governments in 1996. Figure 2.6 below reveals the flood areas.

Hephzibah's FIRM, dated 07/18/11, shows that the city is "minimally flood prone" and flood hazard areas do not have flood elevations determined using engineering methods. Blythe was found not to have flood hazards and a FIRM was not prepared.

Table Figure 2.6 reveals the waterways included in Augusta's FIRM. Figure 2.6 shows the extent of mapped Special Flood Hazard Areas in Augusta (i.e., the 100-year floodplain or the 1% annual chance of flood). At 58.77 square miles, the SFHA makes up nearly 25% of the total land area. Much of the land predicted to flood is on the east side of the City and includes the extensive wetlands of the Phiziny Swamp. Figure 2.7 shows the mapped floodplain in Hephzibah.

FEMA's maps show four types of flood zones:

- **AE Zones** lie along rivers and streams where detailed engineering methods were used to determine Base Flood Elevations. AE Zones (or A1-30 Zones) are shaded in gray. Waterways that are mapped using detailed methods that result in designated floodways are listed in Table 2.13 below.
- **A Zones** are 'approximate' flood zones, where detailed information has not been developed. Waterways that are shown with A Zones are listed in Table 2.13. Hephzibah's flood zones are A Zones.
- **Shaded X Zones**, which are areas of "moderate" flood hazard, typically associated with the 500-year flood (or 0.2% annual chance).
- **Unshaded X Zones** are areas of "minimal" flood hazard, typically considered to be "out of the floodplain." Although local drainage problems and ponding may still occur, these minor flood problems typically are not shown on the FIRM. It is notable that many smaller streams are shown but do not have mapped flood hazard areas.

Table 2.13: Waterways on Augusta's FIRM.	
Savannah River Little Spirit Creek	Savannah River Little Spirit Creek
Butler Creek and Tributaries No. 1, 2 Rock Creek	Butler Creek and Tributaries No. 1, 2 Rock Creek
Rocky Creek and Tributaries No. 1-11 Augusta Canal	Rocky Creek and Tributaries No. 1-11 Augusta Canal
Beaver Dam Ditch McBean Creek	McBean Creek
Spirit Creek and Tributary No. 1 -	-
No Name Creek -	-
Oates Creek and Tributary No. 1 -	-
Horsepen Branch -	-
Crane Creek -	-
Rae's Creek and Tributaries. 1-3 -	-
Beaver Dam Ditch McBean Creek	-
Spirit Creek and Tributary No. 1 -	-
No Name Creek -	-

Figure 2.6: Augusta – Richmond County Flood Map

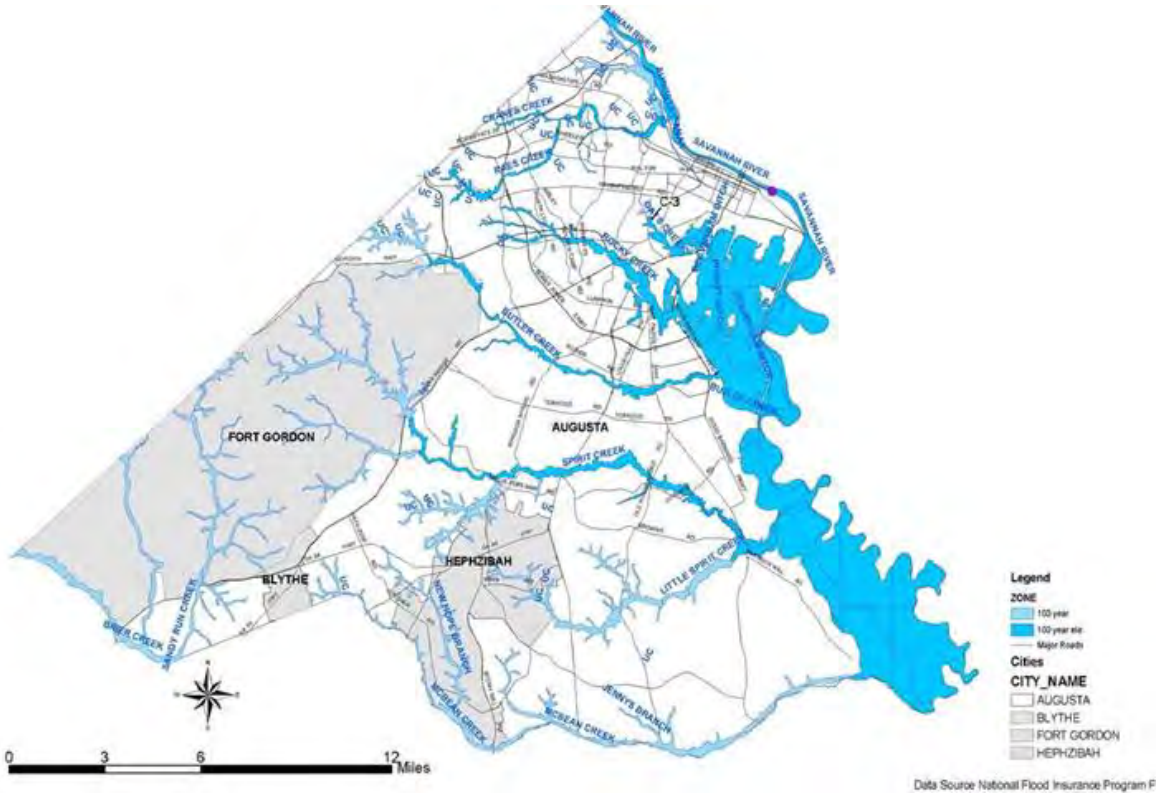
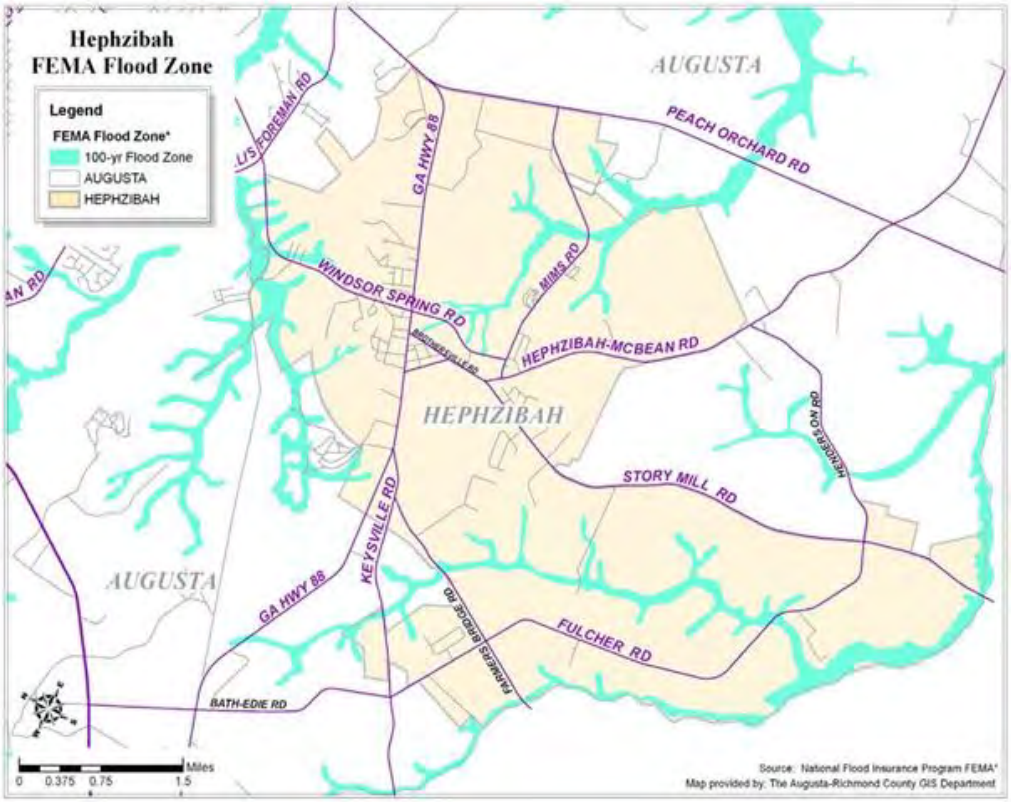


Figure 2.7: Hephzibah Flood Map



Savannah River. Discharges on the Savannah River are controlled by three flood control dams that create the J. Strom Thurmond/Clarks Hill Reservoir, the Hartwell Reservoir, and the Richard B. Russell Reservoir. The urban center of the City of Augusta is protected from Savannah River flooding by the Augusta Levee. Development on the river side of the Levee remains exposed to flood hazards, especially extreme flooding that occurs less frequently than the 1%-annual chance flood (100-year flood or 1% annual chance of flooding). The 1999 revision of the FEMA flood map lowered the predicted water elevations for the 100-year flood:

- Approximately 50 houses in the Water's Edge community (upstream of 13th Street) all appear to be out of the 100-year floodplain, although the water level predicted for the 500-year flood is likely to be under the buildings.
- For the most part, the buildings on Prep Phillips/Riverfront Drive appear to be subject to water depths ranging from 3 feet to 4 feet above the ground due to the 100-year flood. Property owners include the City, the Augusta-Richmond County Port Authority, and the Georgia Department of Transportation/Ports Authority. One or two privately-owned buildings appear to be located on City-owned property.
- The 48+ townhouses on Riverfront Drive and River Bend Drive (Goodale Landing, just east of Sand Bar Ferry Road) are all within the 100-year floodplain and the sites appear to be subject to several feet of flooding.
- The vacant lots and improved lots with 12+ homes on Albeclauss (8 are in the floodway) appear to be subject to from 2-feet to 7-feet of water.
- On both sides of Sand Bar Ferry Road there are several clusters of buildings that appear to be in areas where flood depths are likely to be 2- to 6-feet deep.
- Below the downstream limit of the Augusta Levee, at the confluence of Butler Creek at New Savannah Bluff, the floodplain of the Savannah River is extensive, ranging from 5,000 to 10,000 feet wide. For the most part, there is little development in this area and there are no NFIP flood insurance policies in-force.

Urban Watersheds. The urban area of Augusta, including Butler Creek and northward, encompasses the former City and surrounding areas. Much of the area is densely developed, with the notable exception of the Phinizy Swamp on the eastern side. As shown on Figure 2.3, most of the federal flood insurance policies are for buildings in the urban watersheds, with most of them constructed before floodplain regulations were adopted.

Table 2-1 lists the urban waterways, all of which have been studied using detailed methods (Rock Creek, upper reaches of other streams, and small tributaries were evaluated using approximate methods). As part of a study underway by the U.S. Army Corps of Engineers (see Section 4.1.4), the FIRMs may be revised; preliminary results indicate that the areas subject to flooding will increase in many places. Generally, the floodplains of these streams can be described as follows:

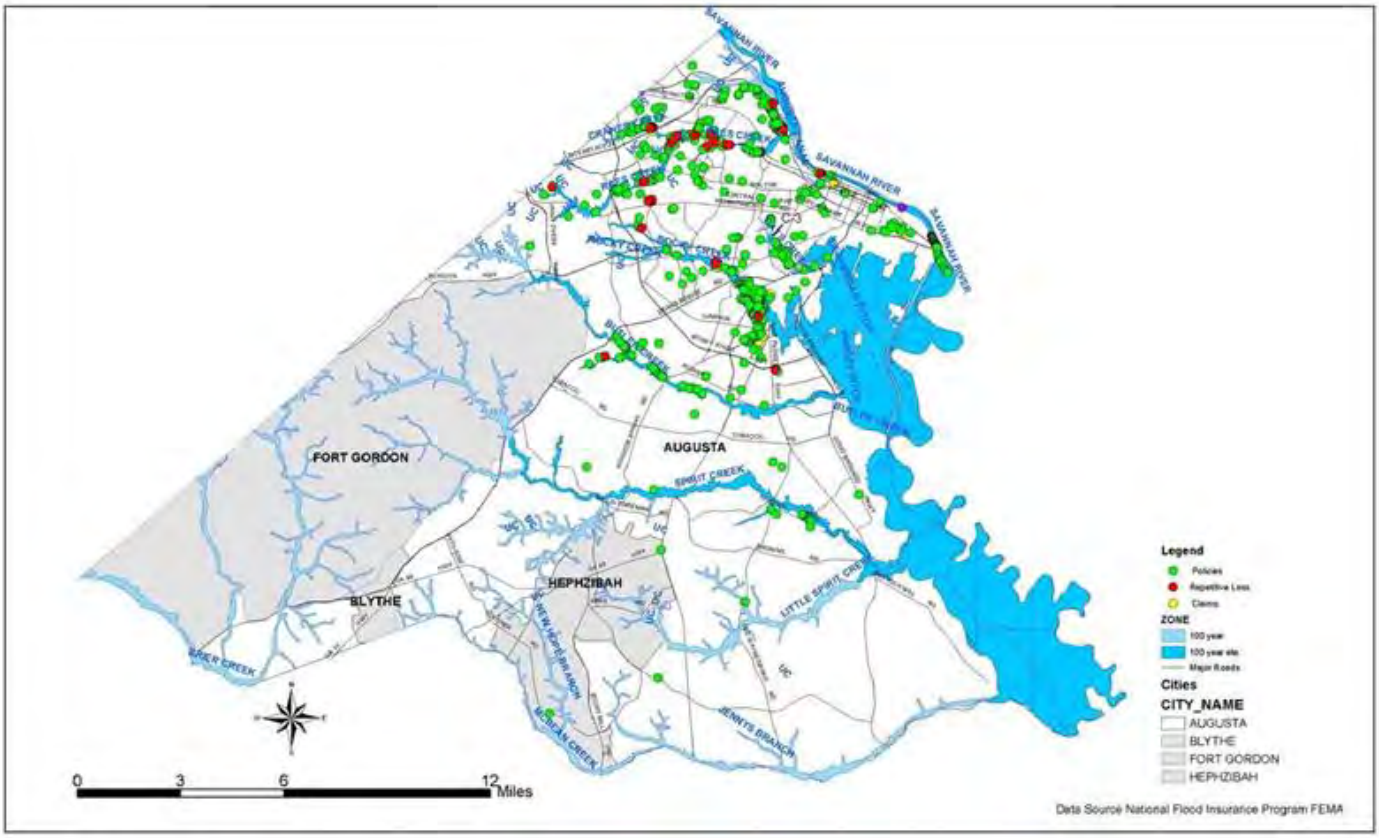
- Rock Creek – 200-400 feet wide (restudied by the Corps of Engineers);
- Rae's Creek – 200-500 feet wide (restudied by the Corps of Engineers; City flood control project);
- Crane Creek, a major tributary to Rae's Creek – 100-300 feet wide;

- Oates Creek – highly modified, 100-500 feet wide, with a number of ponding areas;
- Upper and Lower Rocky Creek – 100-200 feet wide and 500-2,000 feet wide, respectively (restudied by the Corps of Engineers); and
- Butler Creek – 500-700 feet wide.

The Augusta Canal is a source of the City's potable water. It also is the 'collector' into which the other urban streams drain (except Butler Creek). From the Columbia County boundary, the Canal and its floodplain parallel the Augusta Levee. At its juncture with Rae's Creek, a gate allows flows to discharge to the Savannah River (the mechanical gate is closed if high water is predicted on the River). The Canal is included in waterways that are being restudied by the Corps of Engineers; preliminary maps indicate that areas prone to flooding are more extensive than shown on the FIRM.

The extensive flood-prone areas found on Augusta's east side are associated with Butler Creek, Rocky Creek, and drainage from all streams in the urban district (former City). The area, also known as Phinizy Swamp, is generally flat and is predicted to experience relatively shallow flooding. There are few buildings that encroach into the floodplain, although a number of industries were built on fill prior to adoption of the Flood Damage Prevention Ordinance, and there are a number of active clay mining sites.

Figure 2.3: Flood Map of Richmond County Flood Policies



The Rocky Creek watershed was the focus on research conducted by the (former) Public Works and Engineering Department in 1998, as supporting documentation for mitigation grant funds. The estimates in Table 2-2 are based on newspaper accounts, local climatological reports, and personal interviews. It is notable that the U.S. Army Corps of Engineers has independently developed a preliminary estimate of average annual damages in Rocky Creek of $1,450,000 (not including damage to industrial properties).

Rural Watersheds. The southern half of Augusta, below Butler Creek, is rural in character with dispersed development. As shown on Figure 2.3, few flood insurance policies are in-force in this area, primarily because floodplains are relatively narrow and easily avoided. As of the end of 2011, there are no flood insurance policies on buildings in Hephzibah.

Most of the streams shown on the Flood Insurance Rate Maps have been evaluated using approximate methods to delineate the flood hazard area, including: Little Spirit Creek, McBean Creek along the southern border, tributaries to Spirit Creek, and various other streams. The extent of flood hazard areas is limited (watershed boundaries are shown on Figure 2-4):

- Upper Spirit Creek and Johnson Branch – 200-400 feet wide;
- Lower Spirit Creek – 600-800 feet wide;
- Little Spirit Creek and Boggy Branch – 200-600 feet wide;
- McBean Creek – 500-1,000 feet wide;
- Tributaries to McBean – 100-300 feet wide; and
- Many small streams and tributaries do not have mapped floodplains.

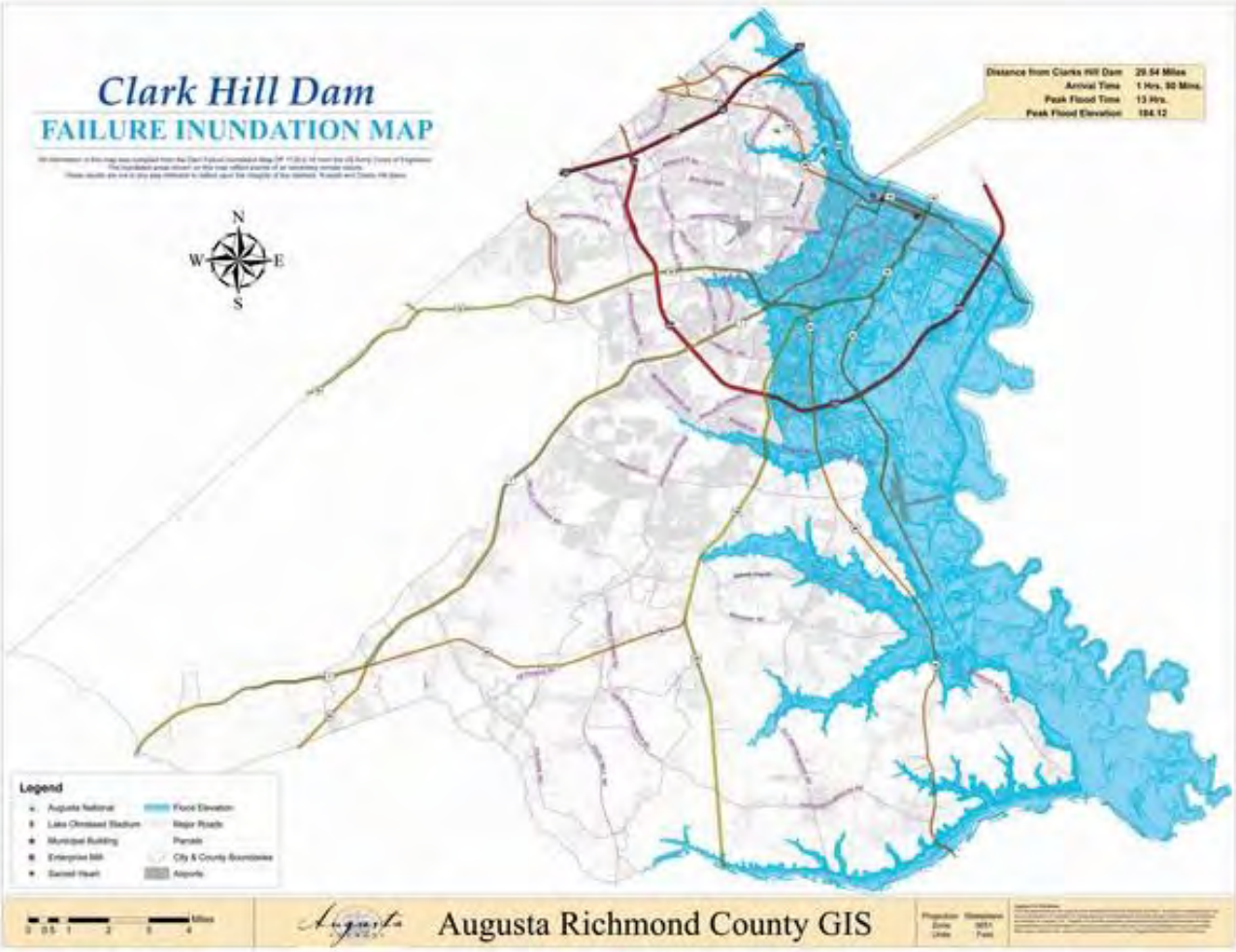
Dams and Flooding. FEMA and the U.S. Army Corps of Engineers maintain the National Inventory of Dams (1998), a database of high and significant hazard dams. For the most part, data is provided by state agencies responsible for regulation and inspection of dams or by the Corps of Engineers. Figure 2-4 is based on that inventory and shows that seven high hazard dams (and 3 significant hazard dams) are located in Augusta and one high hazard dam is located outside the City in the upper portion of Spirit Creek.

High hazard dams are those of specific height or volume of impounded water that, if failure occurred, there would be a high likelihood of loss of life and substantial property damage. Table 2-3 lists information on the high hazard dams. There is no requirement for owners to develop emergency action or maintenance plans, although high hazard dams are required to be brought up to state specifications to protect public safety and property.

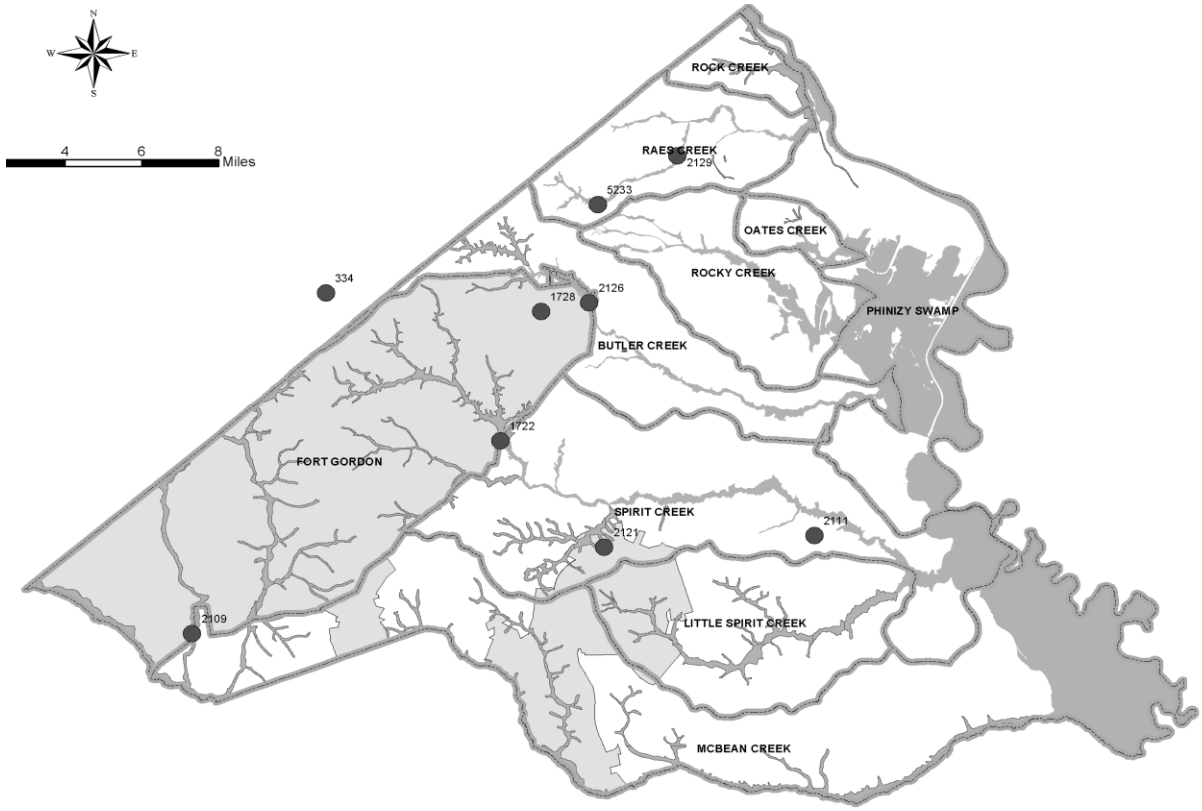
The Augusta Emergency Management Agency reports that the three Savannah River dams are the only high hazard dams for which a response plan and inundation maps are on-file (updated July 1994; DP 1130-2-16). The U.S. Army Corps of Engineers dams, not shown in Figure 2-4, are the Hartwell, Richard B. Russell, and J. Strom Thurmond/Clarks Hill Dams. The Corps document considered several dam failure scenarios and predicts the arrival times ranging from 4.5 to 13 hours, and peak flood elevations at various locations.

The Corps' Savannah District operates the dams, monitors flood conditions, and notifies emergency management officials in downstream jurisdictions if flooding is predicted. The Augusta Emergency Management Agency has prepared an Emergency Evacuation Plan based on the Corps' report and maintains a response plan for closing the levee openings, performed on a biennial schedule. Map Series 1 A & B below are inundation and high hazard dam maps produced by the Augusta – Richmond County GIS Department and the National Inventory of Dams, (Source: National Inventory of Dams, 1998).

Map Series 1 – A: Clark Hill Dam Inundation Map



Map Series 1 – B:



In recent years, stormwater detention ponds have failed during storms that produce flooding conditions. For this reason, and because the consequence of a dam or pond failure is downstream flooding, such events are considered under the broader category of flood hazards rather than as a separate hazard. Without the benefit of analyses of failures of the high hazard dams shown on Map Series 1 - B, the impacts associated with such events cannot be estimated.

2.2.2 Flooding Events, Frequency & Probability

FEMA declared two flooding disasters in the area; the first FEMA-DR-1209-GA, occurred on 03/11/1998, and the second FEMA-DR-880-GA, occurred on 10/19/1990. The Augusta City Website provides the following narrative report detailing FEMA-DR-880-GA, "On October 12, 1990, Augusta experienced some of the worst flooding ever when 15 inches of rain fell during a 100-year storm event causing millions of dollars in property damage." In Augusta, 2.79 inches (71 mm) of rainfall fell in one hour, which forced the evacuation of about 300 people. Some roads in eastern Georgia were flooded up to 6 feet (1.8 m) deep, and police officers in Augusta rescued people in flooded cars. The flooding resulted in some power outages. In the deluge, five people drowned, and 450 were left homeless, making it the most severe flooding event in the planning areas history (Wikipedia, 2011).

A USGS Water Supply Paper titled, *Summary of Floods in the United States During 1990 and 1991,* reporting flood data on October 12, 1990, reveals the event was a

100 yr. flood event and the flood stage feet at 139.1 ft. or 9.60 ft. over flood stage. There were at six streams within a 50-mile radius of Augusta that experienced maximum discharges equal to or greater than those having a l00-year recurrence interval (USGS, 2008). Flood damage estimates exceeded 150 million dollars.

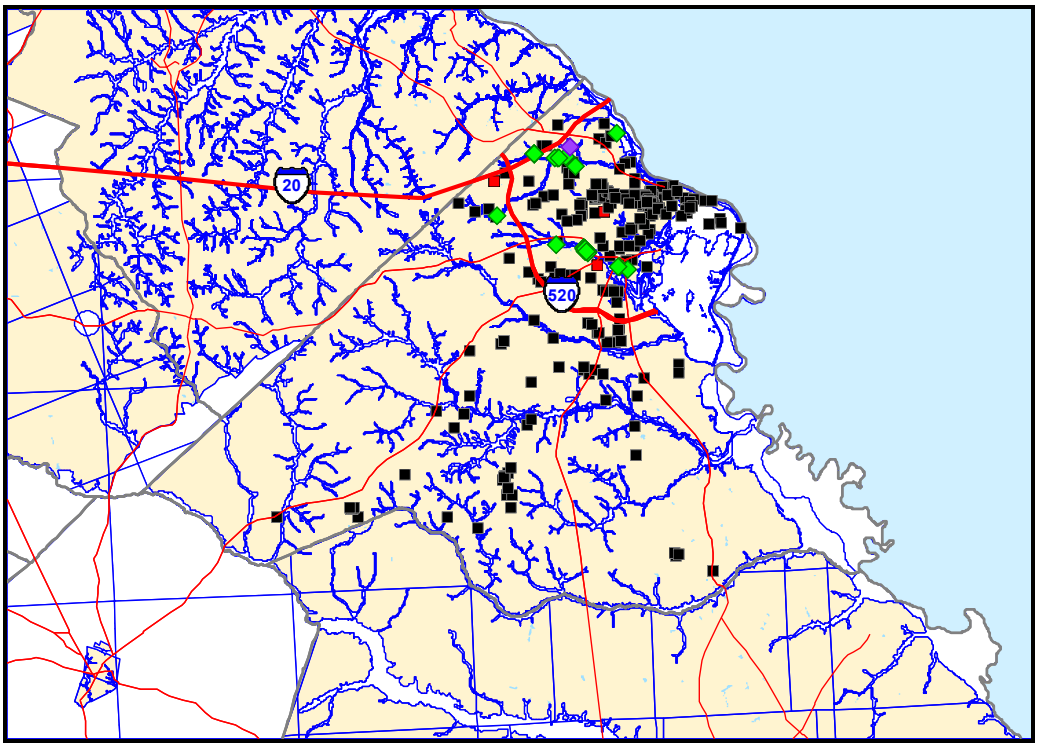
Thirteen flooding events were reported in the Augusta – Richmond County planning area by NOAA, with $520k in reported damages The NOAA Flooding Event Narrative for September 54, 1995 reports the following data, "rainfall nearly 10 inches in some areas near Augusta caused flooding. About 50 families were evacuated. Some reported up to three feet of water in their homes. A pond behind a mobile home park flooded, sweeping a home off of its foundation and damaging several others. At least 40 roads were closed and some will require repairs," (NOAA, 2011).

The NOAA Flooding Event Narrative for March 7, 1996 reports the following, "Training thunderstorms in the Augusta area send several streams over their banks and into homes. The flash flooding also closed several major highways which were under water. Rainfall amounts of 2-4 inches occurred in a six to nine hour period over southern Columbia and northern Richmond counties." Flooding in the Augusta area results both from widespread and prolonged rainfall (e.g., from large systems associated with hurricanes and tropical storms) or locally-intense downpours. Augusta's more significant flooding events since 1990 are listed in Table 2.14. The data indicates that 13 damaging floods occurred in 16 years; thus the frequency of flooding is slightly less than once per year.

Table 2.14 12 FLOOD event(s) Reported - 01/01/1950 **and** 03/31/2011**.**

Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 Augusta	10/12/1994	1416	Flood	N/A	0	0	1K	0
2 Augusta	09/24/1995	0630	Flash Flood	N/A	0	0	100K	0
3 124	10/04/1995	0100	Flash Flood	N/A	0	0	0	0
4 Northern Half	03/07/1996	08:25 AM	Flash Flood	N/A	0	0	400K	0
5 Augusta	12/24/1997	02:45 PM	Flash Flood	N/A	0	0	2K	0
6 Augusta	03/08/1998	12:35 PM	Flash Flood	N/A	0	0	0	0
7 Augusta	09/03/1998	03:00 PM	Flash Flood	N/A	0	0	0	0
8 Countywide	06/20/2000	10:14 PM	Flash Flood	N/A	0	0	0	0
9 Countywide	05/30/2002	08:16 PM	Flash Flood	N/A	0	0	0	0
10 Augusta	05/18/2003	06:50 PM	Flash Flood	N/A	0	0	0	0
11 Augusta	08/08/2003	07:20 PM	Flash Flood	N/A	0	0	0	0
12 (ags)bush Fld August	01/25/2010	01:28 AM	Flash Flood	N/A	0	0	20K	0K
(NOAA, National Oceanic and Atmospheric Administration, 2011).				TOTALS:	0	0	523K	0

Map of FLOOD RISK produced in GMIS Graphic 2



Flood Risks – Buildings. Augusta's Information Technology (IT) Department coordinates and maintains the Geographic Information System (GIS). The system allows staff in many departments to access numerous digital map products and electronic data files. Among the data and maps is a digital map of the floodplain prepared as an overlay for the property parcel maps (derived from the Flood Insurance Rate Maps). Other GIS layers include county/city boundaries, waterways and watershed boundaries, and ground contours and building footprints from aerial photography data acquired in 2007, parcel boundaries, and National Wetlands Inventory data, from which a wide variety of maps and analyses can be prepared.

There are a numerous methods to characterize buildings and potential development that is subject to flooding:

- Using GIS to compare the flood map with the locations of buildings yields an estimate that 3,755 buildings (greater than 400 square feet in footprint) are located "in" the City's mapped floodplains. It is important to recognize that this number underestimates the total number of buildings that might experience flooding, as evidenced by recent flood damage and the fact that nearly half of the buildings with flood insurance policies are shown to be "out" of the mapped flood hazard area.
- GIS analysis did not identify any buildings located in Hephzibah's mapped floodplain areas.
- U.S. Census data is used to develop a median value for residential buildings ($87,900), yielding estimates of the total value of buildings that plot within the mapped floodplain (Table 2.15). Use of the median value to characterize

risk is not intended to imply that every flood-prone building is likely to be a "total loss" due to flooding. It is notable that there are several clusters of non-residential buildings; those higher-values structures are reflected in the table as well.

- Augusta's GIS, using the flood hazard overlay to the property parcel data layer, determined that approximately 1,049 undeveloped/vacant parcels of land in Augusta and Hephzibah are wholly or partially affected by mapped floodplains. The development potential is, at least in part, a function of the available land subject to flooding.
- The addresses of buildings that have flood insurance policies and for which flood claims have been filed can be used to identify buildings in mapped floodplains (where lenders require insurance) and where flooding has occurred (where owners are sufficiently concerned that they purchase flood insurance even if not required). This characterization of flood risk is described in the following text.

Manufactured Housing. Manufactured housing units are known to be highly vulnerable to flood damage. The same amount of water inside a site-built home causes considerably less damage (as a percent of total value of the home). One cluster of manufactured homes and three manufactured housing parks are affected by mapped flood hazards and some damage has been reported in the local press:

- Some units along Kissingbower Road and Haynie Drive, north of Cherokee Plaza are in the floodplain fringe of Rocky Creek.
- Durand Trailer Court, south of Gordon Highway on Wylds Road just below the confluence with Tributary No. 7 was affected in June 2000. The City's GIS maps indicate that one parcel of the property is marginally affected, but another parcel has perhaps 10 units shown within the mapped floodplain.
- Gaskins Trailer Park, north of Gordon Highway on private roads (between Sibley Road and Wheeless Road) was flooded by Tributary No. 6 in June 2000. A newspaper account indicated that some units were shifted off their foundations. Because the FEMA mapped floodplain area was artificially terminated in this area, only 6-8 units are in the mapped floodplain. However, it is apparent that many other units are similarly flood-prone.
- Gibbs Park, south of Wrightsboro Road near Maddox Drive, has a portion of the site within the floodplain of Rae's Creek, but the units are shown as outside the flood area.

Historic Resources. The Historic Preservation Commission, assisted by staff of the Augusta-Richmond County Planning Commission, evaluates activities that impact historic properties. There are no known reports of flood damage sustained by designated historic properties. The U.S. Army Corps of Engineers, as part of its flood reduction study, identified a small number of flood-prone historic structures in selected watersheds (other watersheds not examined):

- **Augusta Canal.** In addition to the Canal itself, 13 National Register individually listed buildings, 3 historic districts, and 12 archaeological sites have been identified. The extent to which specific buildings are at-risk has not been determined.

- **Rae's Creek.** Fruitlands (Augusta National Golf Club) is the only listed property affected; 7 archeological sites have been identified.
- **Rocky Creek.** No nationally listed properties are affected by flooding; 7 archaeological sites may be in the floodplain, primarily where the creek merges with Phinizy Swamp.
- **Phinizy Swamp.** No nationally-listed properties, but there is a recognized high potential for prehistoric and archeological resources in flood-prone areas.

Flood Risks – Public Properties. Using the City's database of 137 buildings and structures owned by the City and the Richmond County Board of Education (and over 500 vacant parcels of land owned by the City), it was determined that nine buildings are located in the floodplain.

The following description of public properties identified as being at some risk of flooding reveals only two facilities were identified as at-risk using GEMA's tool (Fleming Athletic Office and The Boathouse).

Several City-owned buildings are located on the riverside of the Levee. Using only the digital topography available in the GIS and the Base Flood Elevation (100-year), predicted flood depths at these buildings ranges from 3.5-feet to as much as 8-feet. While most of the buildings would be unlikely to sustain major damage at that depth, the actual damage may be more related to velocity (which is not approximated). Contents damage may be more significant in terms of financial impacts on the occupants. Some City-owned buildings are occupied by private entities.

The HMPC requested that certain departments determine if any facilities were in the mapped floodplain (most City offices have access to the Geographic Information System which includes a floodplain layer). This exercise not only identifies vulnerable facilities, but ensures that facility managers are aware that specific buildings are not flood-prone.

Although not part of City government structure, the Richmond County Board of Education and all telephone, electric and gas utility providers were included in the request:

- The Board of Education reported no public schools in the floodplain; one building has experienced drainage problems; and
- Georgia Power Company reported that no buildings or electric substations are in the floodplain (other utilities did not respond).

City Buildings. A small number of City buildings and facilities have sustained limited damage due to flooding in the past and, for the most part, are unlikely to experience significant future damage. The following statements of potential flooding are based on the Flood Insurance Rate Maps and ground elevations interpolated from the City's topographic maps:

- The Traffic Engineering building, located on the river side of the Augusta Levee, may have 3-5 feet of water during the 100-year flood;

- The Augusta Marina Store, also located on the river side of the Augusta Levee, may have 4-5 feet of water during the 100-year flood.

Public & Private Schools. Using data collected for GEMA's critical facilities, a GIS analysis was prepared to determine whether mapped floodplains affect school sites and/or school buildings:

- Nine public schools have at least a portion of the site affected; one building appears to be within the 500 yr. floodplain (Jenkins-White Elementary); and
- Nine private schools have at least a portion of the site affected; one building appears to be within the floodplain (C.H. Terrell Academy).

Recreation & Parks Facilities. The Augusta Recreation and Parks Department is responsible for numerous facilities throughout the City: 7 community centers, 15 neighborhood parks, a soccer complex, skate park, BMX track, tennis center, and the municipal golf course. The Department coordinates many programs, including: community athletics, aquatics, boating and fishing, after school, and summer day camps.

The Department uses many factors when selecting sites for new park facilities, primarily population and demand. The presence of mapped floodplain is a factor in site selection, although acceptable if there is sufficient land for the facility. The Diamond Lakes Regional Park, built in 1997, includes wetlands and floodplain areas. The site plan required avoidance of the floodplain and all improvements are on high ground.

With respect to floodplains and flood hazards, the Department reports the following:

- New Savannah Bluff Lock & Dam Park is owned by the Corps of Engineers and leased to the City. The City is responsible for buildings, including maintenance and repair. The entire 50-acre site is flat and has flooded 5-6 times since the initial lease. Damage to grounds includes erosion and debris; costs incurred to clear debris and for stabilization. Due to topography, there is no land outside the flood-prone area. The wood playground equipment is constructed of flood resistant materials;
- City parkland on Lake Olmstead is flood-prone although the buildings are on high ground. Damage due to the flood in 1990 included picnic tables and trails. The Master Plan proposed new playground equipment in the floodplain constructed of flood-resistant materials;
- Julian Smith pavilion, located above the Lake Olmstead floodplain, sustained water damage in 1999; the 2000 flood caused less damage due to the way the water was managed;
- The "Boat House" Community Center is on the bank of the Savannah River. Because the main level of the building is elevated, it is not expected to be flooded during the 100-year event. However, the lower level is more susceptible; it is used for boat storage and a portion is finished space overlooking the river; and
- Other parklands are located in flood-prone areas, but have not experienced flood-related damage.

Flood Risks – Utilities. Augusta Utilities is responsible for the City's potable water and wastewater treatment services. The department provides project management, construction inspection and land acquisition services for water and wastewater projects associated with commercial developments, some subdivisions, Georgia DOT projects, and the City's Capital Improvement Program. To facilitate its workload, the department is establishing a computerized maintenance management and work order system for both the wastewater collection system and the water distribution system.

Potable Water Service. The Utility provides potable water to 67,500 customers (including 6,000 commercial/industrial users). The system includes 1,100 miles of water distribution lines. The Raw Water Pumping Station withdraws water from the Savannah River to provide 75% of the City's potable water. The remaining capacity is provided by the Highland Avenue Surface Water Treatment Plant and three groundwater treatment plants. The New Tobacco Road Surface Water Treatment Plant came online sometime after 2005. The City is phasing out groundwater withdrawal due to available surface water capacity (groundwater sources will be maintained for drought contingency).

Wastewater Service. The Utility provides wastewater collection and treatment services for 40,000 customers. The system includes 650 miles of wastewater collection lines; many more miles of private lines feed the system. Treatment is provided at the Spirit Creek Plant and the J.B. Messerly Plant where constructed wetlands at the Phinizy Swamp Nature Park provide effluent treatment prior to discharge to Butler Creek.

Using the City's GIS, the Augusta Utilities Department compared the physical location of its assets with the floodplain map and determined the following:

- Wastewater treatment plants: the City's two plants, JB Messerly and Spirit Creek, are not within the 1% annual chance floodplain;
- Sewage lift stations: the department is acquiring the GPS locations of the City's 24 lift stations. At this time the specific location within mapped floodplains is undetermined; however there is no record of flood damage or outages associated with flooding;
- Sewer manholes: 1,265 manholes plot within the mapped floodplain, an expected outcome given that many sewer lines follow waterways to take advantage of gravity flow;
- Water wells: of the 24 wells, three are located close to areas delineated as approximate floodplain (along Boggy Branch, a tributary to Little Spirit Creek); and
- Water storage tanks: by the nature of their function, water tanks typically are located on high ground; the City's 12 ground level and 13 elevated water tanks are not located within the 1% annual chance floodplain.

With respect to flooding and flood impacts, Augusta Utilities reports the following:

- The Department is responsible for operation and maintenance of the control gates for the Augusta Canal and the Augusta/Savannah River Levee;
- The preferred construction method for water and sewer lines that run under creeks is jack and bore; there are some aerial crossings mounted on bridges;
- Wastewater treatment flow volumes (and consequently treatment costs) increase during storms and flooding due to infiltration through joints in the collectors and inflow through manholes;
- It is estimated that 70% of the wastewater infiltration problem is on private property caused by illegal connections of roof drains. Private property owners are responsible for installing sewer lines from buildings to the right-of-way;
- Through the waste distribution system backflow prevention program the department enforces current requirements for new construction;
- The department addresses backflow problems by educating the public and by planning installations for residential customers and any non-residential customers that are to install backflow devices; and
- In 2004, three wet-weather overflows released a total of approximately 43,500 gallons; despite more rainfall events in 2005, only one wet-weather overflow released 15,000 gallons.

Flood Risks – Roads. With respect to roads and flood risks there are two important aspects to consider:

- Nationwide, flooded roads pose the greatest threat to people during floods – most of the more than 200 people who die in floods each year are lost when they try to drive across flooded roads;
- Flood-damaged roads require expenditures of local, state and federal funds for repair and replacement, and traffic flow can be disrupted during the time required to design and construct new crossings. Based on the roads data contained in Augusta's GIS combined with the floodplain map layer indicates that there is a total of 1,391 miles of road in Augusta: Interstate highways (43 mi), state roads (85 mi), major county roads (196 mi), and other roads (1,067 mi). With 206 miles falling within mapped flood hazard areas, approximately 15% of all roads in the City are subject to some degree of flooding. This statement is not intended to imply that such flood-prone roads are likely to be damaged or pose significant risk to the public. The City does not have a definitive list of list of the more susceptible flood-prone roads; and
- The City owns and maintains the majority of road miles within its bounds. Factors that are considered for upgrading roads include safety, traffic loads and capacity. While drainage is rarely a primary factor that prompts an upgrade, drainage improvements often are included in designs. State aid supports some road improvement projects, which may include drainage improvements; this aid is sought on a project-by-project basis (Cities of Blythe, Hephzibah, and Augusta, GA , 2006).

Various flood events have damaged roads throughout the City, primarily causing erosion. The most significant recent damage includes:

- Willis Foreman Road on Spirit Creek washed out in June 1998;
- One lane of Frontage Road near Bobby Jones Expressway washed out in June 1998; and

- Barton Chapel Road at Glen Hills Road, damaged by Rocky Creek in July 1998.

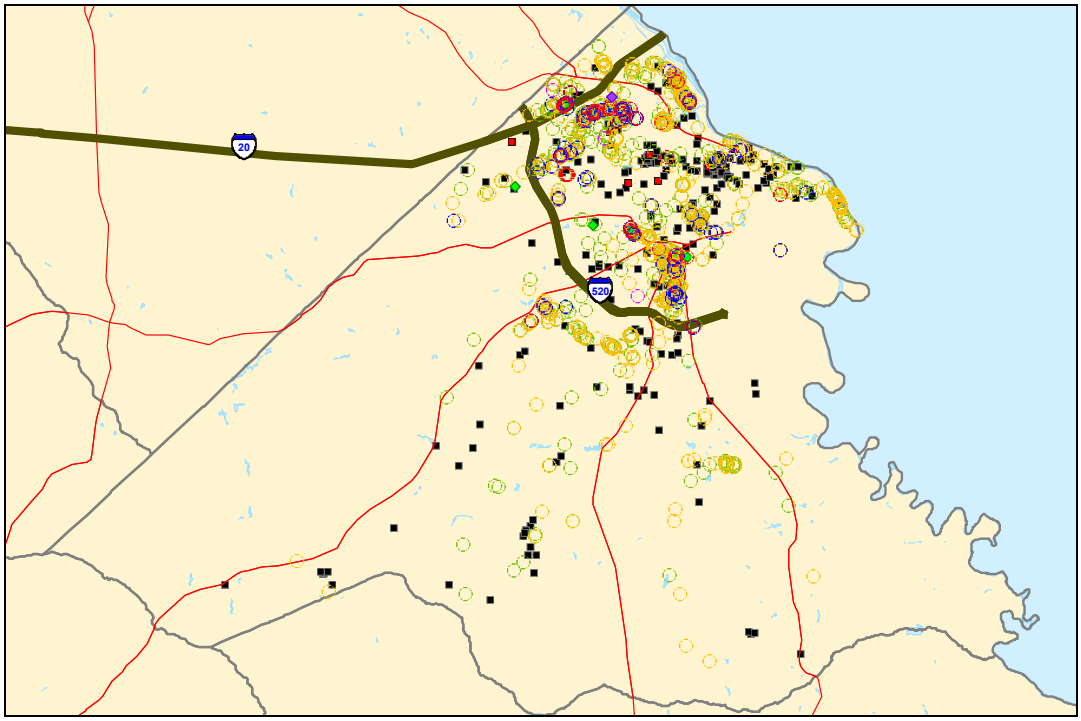
The City considers floodplain and floodway impacts in its planning and design for City roads. Developers must satisfy the City's drainage criteria and other aspects of road designs in order for the City to accept ownership.

When weather conditions suggest that road flooding is likely, the Augusta Emergency Management Agency and other City personnel monitor access routes that are prone to ponding and flooding and that are critical for fire and emergency medical response requirements, such as Walton Way at 13th and 15th Streets.

NFIP Flood Insurance Policies in Richmond County Planning Area

NFIP Flood Insurance Policy information obtained from FEMA Region IV, reveals the number of polices is 1,197 flood insurance policies, with insurance coverage on structures at $ 211,775,600.00, as reflected in the GMIS Graphic 4 below.

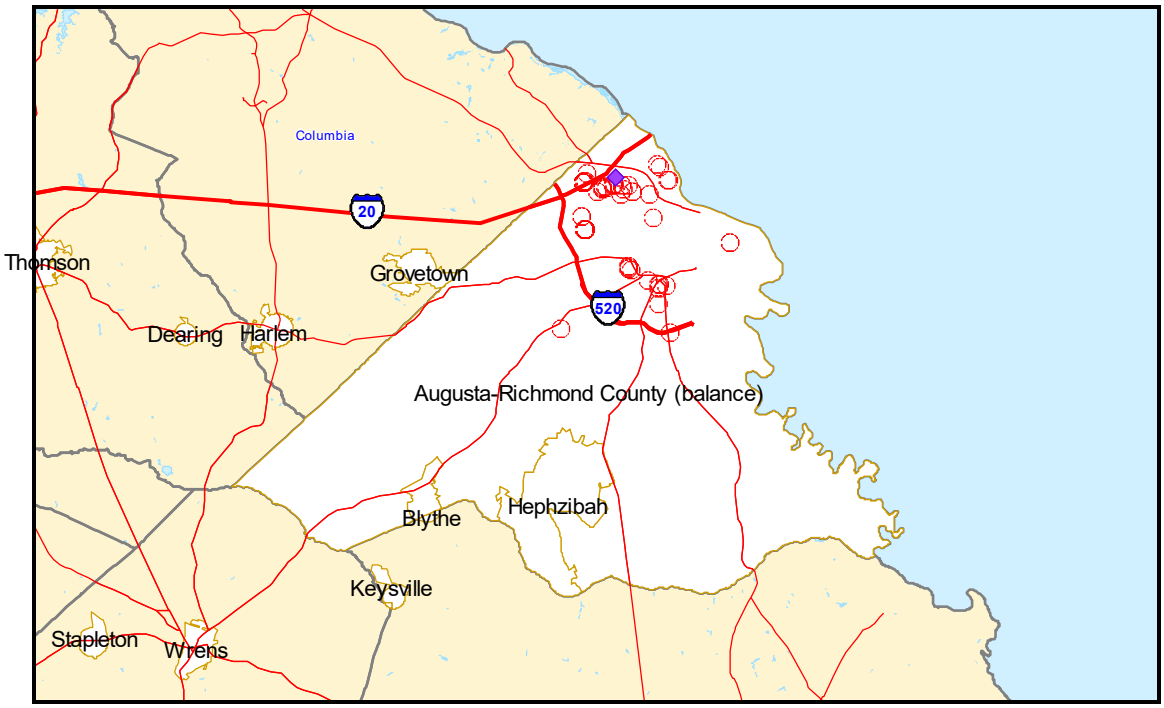
Graphic 4: Flood Insurance Policies in Richmond County



NFIP Repetitive Loss Information

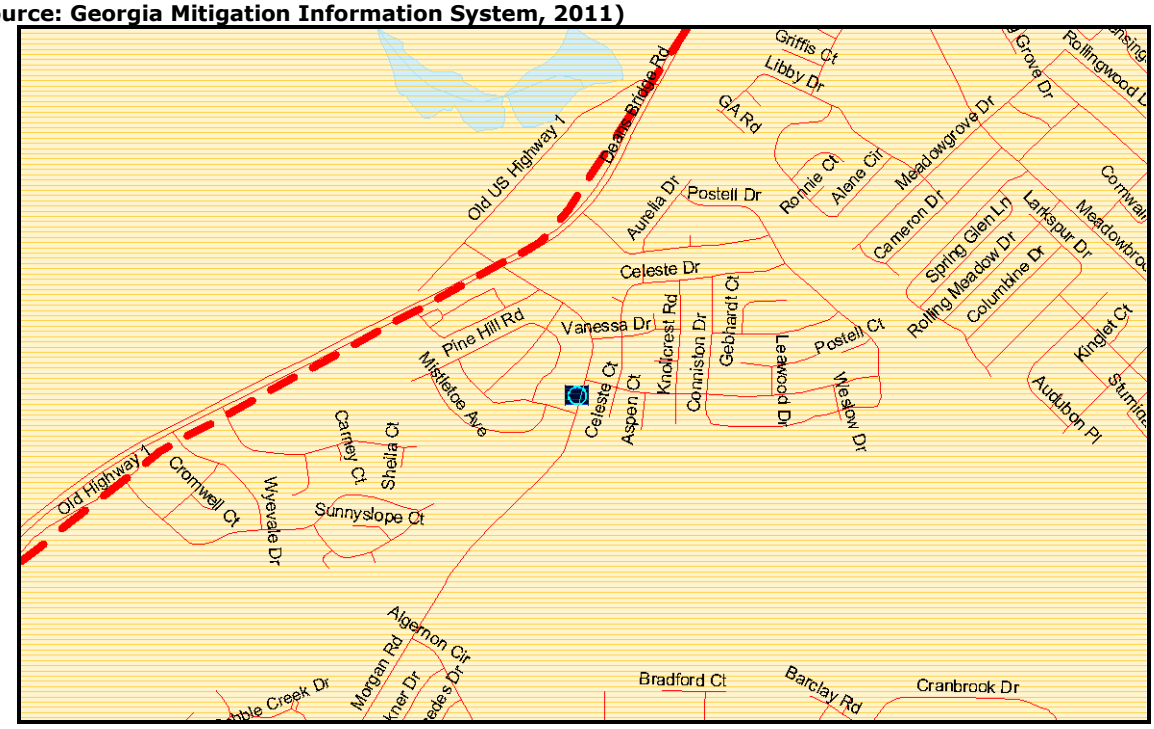
Picture 1 below illustrates repetitive loss locations from the Georgia Mitigation Information System (GMIS) Mapping Platform reflecting 52 NFIP repetitive loss properties in Augusta – Richmond County with a total claims paid figure of $1,981,854.51.

Picture 1: Augusta – Richmond County Repetitive Loss Locations (GMIS, 2011)



Picture 2 below illustrates repetitive loss locations from the GMIS Mapping Platform reflecting 1 NFIP repetitive loss property in Hephzibah.

Picture 2: Hephzibah Repetitive Loss Locations
(Source: Georgia Mitigation Information System, 2011)



2.2.3 Inventory of Assets Exposed to Flooding

GMIS reports the assets exposed to flooding are:

1. Augusta – Richmond County
    a. 18,827,251 sq. ft. of Building; and 61,869 persons affected.
2. Blythe
    a. 57,729 sq. ft. of Building space; and 430 persons affected.
3. Hephzibah
    a. 338,139 sq. ft. of Building space; and 3,097 persons affected.

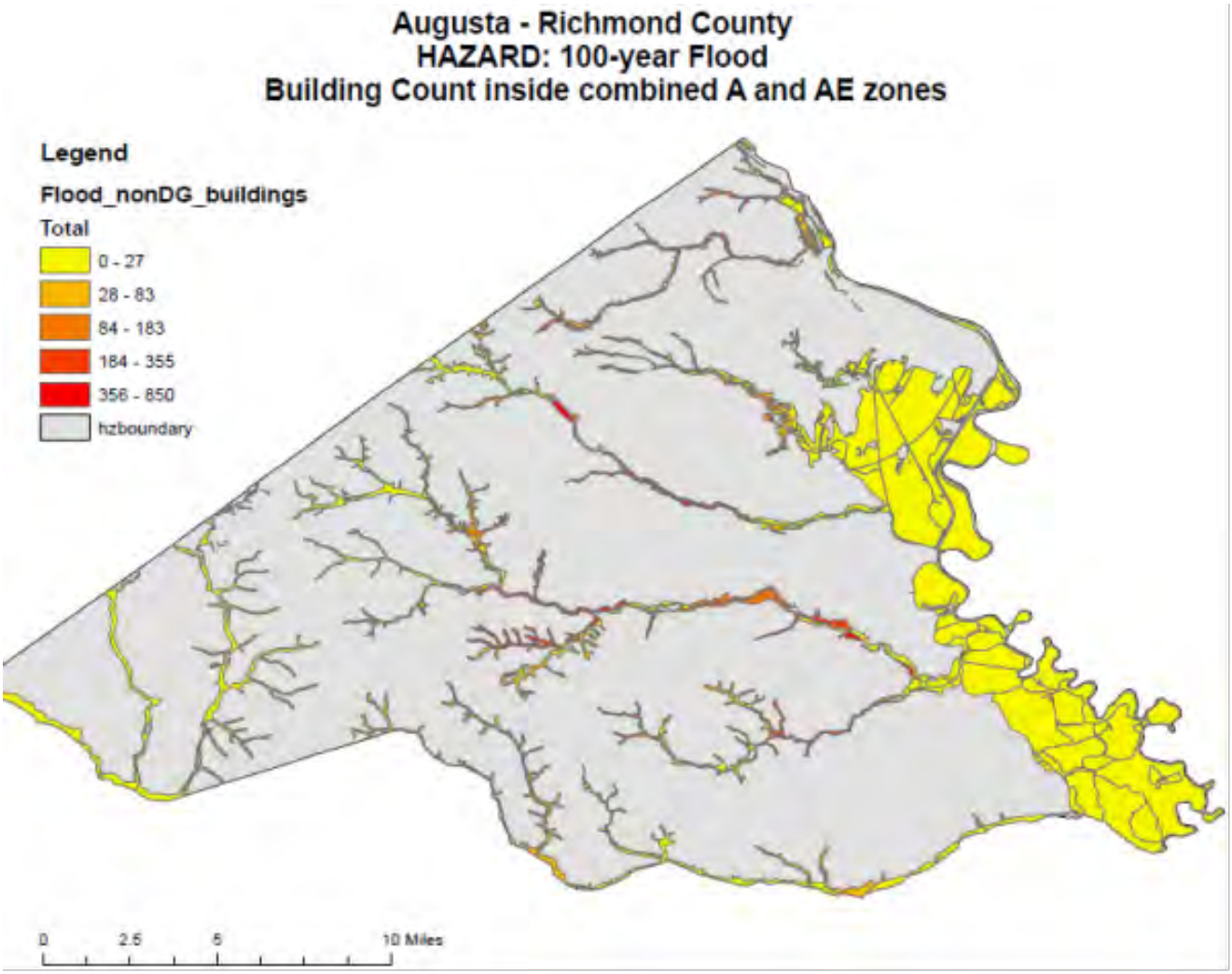
The geographical size of the region is 324 square miles and contains 40 census tracts and 3,367 census blocks. The region contains over 74 thousand households and has a total population of 199,775 people (2000 Census Bureau data). The distribution of population by State and County for the study region is provided in Appendix B of the HAZUS report. Assets exposed to flooding in the Augusta – Richmond County planning area are reported below from HAZUS® - MH. The data includes residential, commercial, industrial, and critical facility information (FEMA, 2011).

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

The flood loss estimates provided for the report (See Appendix A: HAZUS Reports) are based on a region that included Augusta – Richmond County, Ga. HAZUS estimates that there are 77,917 buildings in the region with an aggregate total replacement value of $12,743 million (2006 dollars). Table 2.16 and Table 2.17 present the relative distribution of values with respect to the general occupancies by Study Region and Scenario respectively. The data reveals residential buildings experience the highest exposure to the flood hazard at 70.4%; commercial buildings at 21.2%, industrial at 3.9%, religious buildings, education buildings, government buildings, and agricultural buildings at 0.2%.

Table 2.16: Building Exposure by Occupancy Type for the Study Region (HAZUS)

Occupancy	Exposure ($1000)	Percent of Total
Residential	8,967,798	70.4%
Commercial	2,707,355	21.2%
Industrial	495,189	3.9%
Religious	312,465	2.5%
Education	137,831	1.1%
Government	96,570	0.8%
Agricultural	26,011	0.2%
Total	**12,743,219**	**100.00%**



General Building Stock Damage

HAZUS-MH estimates that about 857 buildings will be at least moderately damaged. This is over 32% of the total number of buildings in the scenario. There are an estimated 104 buildings that will be completely destroyed. The definition of the 'damage states' is provided in Volume 1: Chapter 5 of the HAZUS Flood technical manual. Table 2.17 below summarizes the expected damage by general occupancy for the buildings in the region. Table 2.18 summarizes the expected damage by general building type.

Table 2.17: Expected Building Damage by Occupancy

Occupancy	1-10		11-20		21-30		31-40		41-50		Substantially	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Commercial	0	0.00	2	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Education	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Government	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Industrial	0	0.00	3	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Religion	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Residential	0	0.00	39	4.58	320	37.56	125	14.67	264	30.99	104	12.21
Total	**0**		**44**		**320**		**125**		**264**		**104**	

Table 2.18: Expected Building Damage by Building Type

Building Type	1-10		11-20		21-30		31-40		41-50		Substantially	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Concrete	0	0.00	2	100.00	0	0.00	0	0.00	0	0.00	0	0.00
ManufHousing	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	64	100.00
Masonry	0	0.00	2	11.11	5	27.78	2	11.11	9	50.00	0	0.00
Steel	0	0.00	4	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Wood	0	0.00	34	4.43	315	41.07	123	16.04	255	33.25	40	5.22

Essential Facilities

There are 8 hospitals in the region with a total bed capacity of 2,353 beds. There are 75 schools, 2 fire stations, 4 police stations and no emergency operation centers. Table 2.19 below reveals two of the seventy-five schools in the hazard exposure area will experience moderate damage and loss of use.

Table 2.19: Essential Facility Damage

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

Table 2.19: Expected Damage to Essential Facilities

Classification	Total	# Facilities		
		At Least Moderate	At Least Substantial	Loss of Use
Fire Stations	2	0	0	0
Hospitals	8	0	0	0
Police Stations	4	0	0	0
Schools	75	3	0	2

Social Impact - Shelter Requirements

HAZUS-MH estimates the number of households that are expected to be displaced from their homes due to the flood and the associated potential evacuation. HAZUS also estimates those displaced people that will require accommodations in temporary public shelters. The model estimates 2,224 households will be displaced due to the flood. Displacement includes households evacuated from within or very near to the inundated area. Of these, 5,339 people (of a total population of 199,775) will seek temporary shelter in public shelters.

2.2.4 Estimation of Losses Due to Flooding

The total economic loss estimated by HAZUS for the flood is 245 million dollars, which represents 8.63 % of the total replacement value of the scenario buildings.

Building-Related Losses

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

The total building-related losses were 243.53 million dollars. 1% of the estimated losses were related to the business interruption of the region. The residential occupancies made up 47.94% of the total loss. Table 2.20 below provides a summary of the losses associated with the building damage.

Table 2.20: Building-Related Economic Loss Estimates

(Millions of dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
Building Loss						
	Building	68.48	17.56	10.77	1.70	98.51
	Content	48.68	46.45	31.20	8.89	135.23
	Inventory	0.00	2.05	7.68	0.07	9.80
	Subtotal	**117.16**	**66.07**	**49.65**	**10.66**	**243.53**
Business Interruption						
	Income	0.02	0.26	0.01	0.03	0.31
	Relocation	0.18	0.07	0.01	0.00	0.27
	Rental Income	0.06	0.05	0.00	0.00	0.11
	Wage	0.05	0.32	0.02	0.40	0.78
	Subtotal	**0.31**	**0.69**	**0.04**	**0.43**	**1.47**
ALL	**Total**	**117.47**	**66.76**	**49.69**	**11.09**	**245.00**

HAZARD:	Flooding - Depth Grid (HAZUS, AE Zone only); exposure, not damages								
	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$,000's in Community or State	$,000's in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	71,769	16,452	22.9%	8,967,798	2,240,381	25.0%	199,775	46,870	23.5%
Commercial	4,202	810	19.3%	2,707,355	471,379	17.4%			N/A
Industrial	961	234	24.3%	495,189	194,528	39.3%			N/A
Agricultural	196	37	18.9%	26,011	4,560	17.5%			N/A
Religious/ Non-profit	515	95	18.4%	312,465	52,123	16.7%			N/A
Government	129	9	7.0%	96,570	5,614	5.8%			N/A
Education	145	32	22.1%	137,831	31,178	22.6%			N/A
Utilities			N/A			N/A			N/A
Total	77,917	17,669	22.7%	#######	2,999,763	23.5%	199,775	46,870	23.5%

2.2.5 Land Use and Development Trends related to Flooding

In areas where most of the development is occurring and is projected to occur, current floodplain management requirements are deemed adequate to prevent placing new buildings and infrastructure in flood hazard areas. Infrastructure that may not be able to avoid floodplains, such as roads and bridges and water and sewer lines, is required to be designed and constructed to minimize the potential for flood damage.

Redevelopment in the older areas is subject to floodplain management requirements. New buildings built on the site of demolished buildings are treated as new construction and must meet all code requirements. Additions to and renovation of older buildings that are located in mapped flood hazard areas are subject to compliance with substantial improvements requirements of the Flood Ordinance.

2.2.6 Multi-jurisdictional Differences related to Flooding

The City of Blythe does not have mapped flood hazard areas; poor drainage results in standing water in low areas. The City of Hephzibah has mapped flood hazard areas prepared by FEMA, dated 07/18/11; the map illustrates that the city is 'minimally flood prone' and flood hazard areas do not have flood elevations determined using engineering methods. However, the GIS analysis indicates that no buildings are located in the mapped floodplain; 120 parcels of land are wholly or partially affected by mapped floodplain

2.2.7 Flooding HRV Summary

Digital maps of the floodplain are used for flood hazard identification and assessments of risk. The data, combined with the building footprints and other infrastructure asset information, allow estimations of what is 'at risk' only by identifying whether such assets are 'in' or 'out' of the mapped flood hazard area. No other characterization of flood risk can be made, i.e., depth of flooding or whether houses are in the floodway or the flood fringe.

Frequent damaging flooding events and the number of at-risk buildings, the relative risk ranking of flood hazards was determined to be "high" (see Table 2.5 for a summary of relative risks). An overall summary of vulnerability to flood hazards is

difficult to frame briefly. The following information provides a succinct synopsis of community vulnerability to flooding:

- 25% of the total land area is mapped as flood hazard area.
- More than 3,700 buildings are in mapped flood hazard areas.
- Potential for new development in flood hazard areas is characterized by 929 vacant parcels in Augusta's floodplains and 120 vacant parcels in Hephzibah's floodplains.
- Four manufactured housing parks are shown as partially affected by flooding.
- A small number of individually listed historic structures appear to be subject to flooding.
- Nine public buildings have some exposure to flooding.
- Two schools (one public, one private) may have some flood risk, expected to affect the sites.
- Infiltration due to saturated ground into the wastewater collection system increases the costs of treatment.
- Flood-prone roads are identified by citizen reports, City personnel reports, press reports, and examination of flood hazard mapping.
- Stormwater management ponds have failed during intense rainfall events, contributing to downstream flooding.

2.3 Natural Hazard C: Drought/Extreme Heat

Drought is a deficiency of moisture that results in adverse impacts on people, animals, or vegetation over a sizeable area. Severe drought conditions can profoundly impact agriculture, water resources, tourism, ecosystems, and human welfare. According to NOAA, the economic impact of drought in the United States has been estimated to be $6-8 billion annually (FEMA, 1995). Drought may become a more common issue in the future, as suggested by NOAA climate data, showing increased warm U.S. and global temperatures since the mid-1990s. Climate models have also suggested that the likelihood of heat waves could increase in intensity and frequency over several decades, strengthening the environmental conditions for drought and wild fire events, (NOAA, National Oceanic and Atmospheric Administration, 2011).

2.3.1 Drought Identity

Drought is a complex physical and social process of widespread significance, although rarely does a single period of drought affect an entire state. The most commonly used definitions of drought are based on meteorological, agricultural, hydrological and socioeconomic effects:

- **Meteorological** drought is defined by a period of substantially diminished precipitation
  duration and/or intensity. This definition is usually expressed as an interval of time, generally on the order of months or years, during which the actual moisture supply at a given place consistently falls below the climatically appropriate (or normal) moisture supply.

- **Agricultural** drought occurs when there is inadequate soil moisture to meet the needs of a particular crop at a particular time. Agricultural drought usually occurs after or during meteorological drought, but before hydrological drought, and can also affect livestock and other dry-land agricultural operations.
- **Hydrological** drought refers to deficiencies in surface and subsurface water supplies. It is measured in terms of stream flow and as lake, reservoir and groundwater levels. There is usually a delay between lack of rain and resultant reduction in measurable water instreams, lakes and reservoirs. Therefore, hydrological measurements tend to lag other drought indicators.
- **Socio-economic** drought occurs when physical water shortages start to affect the health, well-being, and quality of life of residents, or when restricted water supplies affect the supply and demand of an economic product.

2.3.2 Drought/Extreme Heat Events, Frequency & Probability

Temperature extremes are the highest and lowest values of temperature attained for a given time, date and location. Extreme temperatures bring about uncommon risks for routine daily activities (e.g. recreation) and also cause hardship for certain industries (e.g. energy, transportation, agriculture, healthcare, tourism). This was evident during the summer 1988 drought and heat wave across the central and eastern U.S., which killed over 5,000 people from direct (i.e. heatstroke) and indirect (i.e. increased heat attacks) causes while also costing U.S. agriculture $71.2 billion in lost productivity (Lott et al., 2008).

When extreme temperatures are forecast to occur - government officials and emergency managers coordinate efforts to allocate proper resources and warn about the dangers of over exposure. A fine example of this is the Philadelphia Heat Health Watch/Warning System. A report by Ebi et al., 2004 found that from 1995 to 1998 this advanced warning system - in coordination with weather forecasts and climate data - saved 117 lives, with benefits of the system estimated at $468 million. Individuals living in cities have an elevated risk of death when temperature and humidity are high compared to those living in suburban or rural areas. Heat stroke mortality is highest for the poor and elderly who live in the inner cities, as they may lack the proper resources and information to protect themselves against sudden heat waves. This underscores the need of local governments and media to help communicate important weather information and any community assistance/air conditioned shelter available to those who need it (NOAA, NOAA Economics, 2011). Below are major Drought /Extreme Heat events as reported by NOAA.

1. Widespread Drought Entire year, 2008. Severe drought and heat caused agricultural losses in areas of the south and west. Record low lake levels also occurred in areas of the southeast. Includes states of CA, TX, NC, SC, GA, and TN. Estimate of over $2.0 billion in damages/costs (Lott et al., 2010).

2. During 2005, there were 5,301 hospital discharges related to excessive heat. Of those treated, 27% were between the ages of 65-84, 45% receiving Medicaid/Medicare and 34% classified as low income (DHHS, 2007).
3. During 2005, there were 3,405 hospital discharges related to excessive cold. Of those treated, 24% were between the ages of 65-84, 61% received Medicaid/Medicare and 33% classified as low income (DHHS, 2007).
4. During 2005, the average length of stay (days) to treat hospital stays related excessive heat and cold was 3.5 (days) and the average mean charges to treat excessive heat and cold (dollars) was $16,741. The national hospital bill to treat excessive heat and cold totaled $1,492,981,042 (DHHS, 2007).
5. Great Plains and Eastern Drought, Entire year 2007. Severe drought with periods of extreme heat over most of the southeast and portions of the Great Plains, Ohio Valley, and Great Lakes area, resulting in major reductions in crop yields, along with very low stream-flows and lake levels. Includes states of ND, SD, NE, KS, OK, TX, MN, WI, IA, MO, AR, LA, MS, AL, GA, NC, SC, FL, TN, VA, WV, KY, IN, IL, OH, MI, PA, NY. Preliminary estimate of well over $5.0 billion in damage/costs; some deaths reported due to heat but not beyond typical annual averages (Lott et al., 2010).

Information on local drought status at any given time can be viewed online at http://www.griffin.peachnet.edu/caes/drought/. Regional droughts appear to occur, on average, every ten years. Table 2.21 below reflects the annual drought events from the period of 2000 -2010 and contains summary data for fatalities, injuries, property damage, crop damage, and damage totals. Notable drought events in 2006 and 2007 resulted in 411 deaths, 3,399 injuries, and 541.97 million dollars in property and crop damages (damages year 2006 only).

Table 2.21: Annual U.S. Drought Summary 2000 - 2010

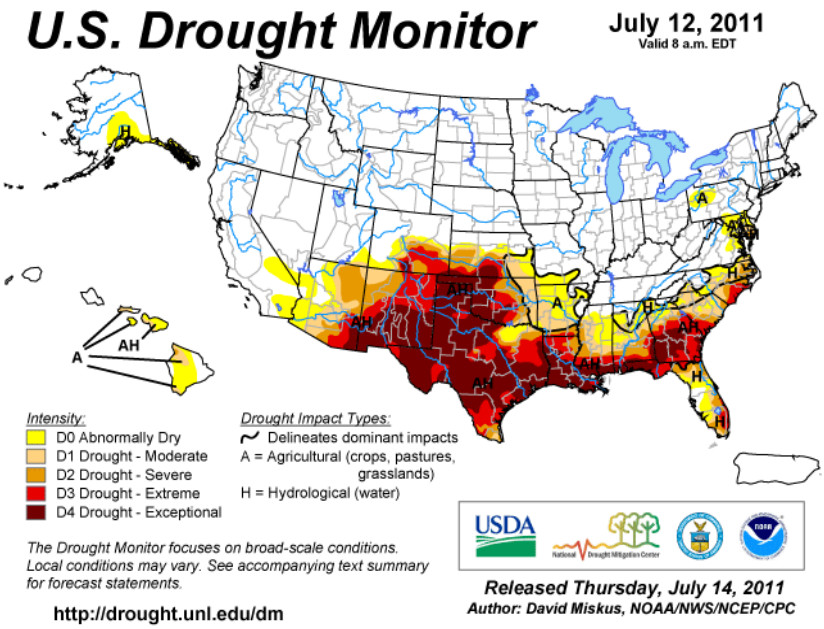
Year	Fatalities	Injuries	Property Damage (million $)	Crop Damage (million $)	Total Damage (million $)
2000	158	469	0.00	0.00	0.00
2001	166	445	0.00	0.00	0.00
2002	167	378	0.00	0.00	0.00
2003	36	174	0.00	0.00	0.00
2004	6	74	0.00	0.00	0.00
2005	158	298	3.39	0.00	3.39
2006	253	1,513	0.22	541.75	541.97
2007	105	1,886	0.00	0.00	0.00
2008	71	217	0.05	0.52	0.57
2009	45	204	4.18	0.00	4.18
2010	138	592	3.93	0.38	4.31

(NOAA, NOAA Economics, 2011)

Planning and response coordination related to drought events is difficult because incidents are problematic to monitor. The nonlinear impacts of drought on

ecological systems create lag effects in severity. NOAA is leading an initiative to develop the National Integrated Drought Information System (NIDIS) Portal, to improve drought-related information across the United States (NOAA, NOAA Economics, 2011). The Illustration 1 below reflects the national drought monitor information compiled by USDA for 12 July, 2011.

Illustration 1



During the period of 1999 to 2009, Georgia experienced severe drought conditions statewide resulting in water shortages, crop failure, and increased costs associated with water supply infrastructure. Notable drought events in Georgia are reflected in Table 2.22 below.

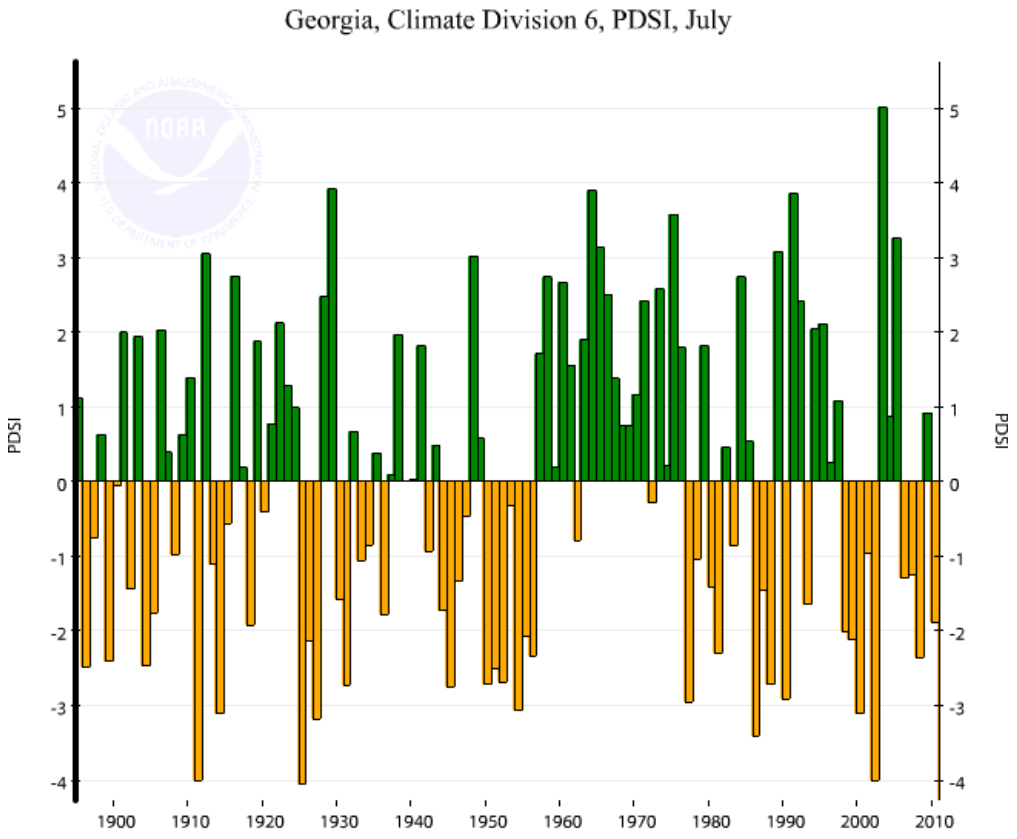
Table 2.22: Notable Drought Events in Georgia

Year	Area Affected	Remarks
1903-05	Statewide	Severe
1924-27	North Central Georgia	One of most severe of century
1930-35	Mostly Statewide	Affected most of US
1938-44	Statewide	Regional drought
1950-57	Statewide	Regional drought
1968-71	Southern and Central Georgia	Variable severity
1985-90	North and Central	Regional drought
1999-2009	Statewide	Severe
Source: USGS, GA State Climatologist		

Droughts result from prolonged periods of dry weather accompanied by extreme heat and usually occur during the summer months (July and August) in the Augusta area when high pressure systems settle over the area and dry prevailing winds come from the west and southwest. The area is subject to periodic droughts that may impact the ability of the cities to meet all water needs. In Appendix G: Community Profile, Figure A-1 illustrates the community land use map and Table A-2 indicates that about 5% of Augusta is in agricultural use.

The most severe drought event affecting Richmond County occurred in the area in 1986, contributing to three deaths and over $300,000 in crop damage. The long heat spell and drought that affected the area in July 1992 saw record temperatures: 47 of 61 days reached 95° or higher, including 21 days with 100° or higher. In Georgia alone, crop losses exceeded $500 million. The drought during the summer of 1998 saw reduction in the normal flows of the Savannah River, the area's primary source of raw water. Lowered levels affected tourism and river usage, prompting more river accidents (groundings and impacts with exposed snags). The State was concerned with water quality due to higher concentrations of effluent from plants and factories that withdraw water and return it to the river. The most significant drought impact to the planning area occurred in 2003 as reported on the NOAA Website and revealed in Illustration 1.1 below (NOAA, 2011).

Illustration 1.1: Georgia, Climate Division 6, Palmer Drought Severity Index (PDSI), July 1895-2011



2.3.3 Inventory of Assets Exposed to Drought/Extreme Heat

The entire planning area is expected to experience drought conditions without variations. Physical damage to buildings is not associated with droughts. Exterior plantings that depend on periodic watering are at risk and such watering is restricted in the early phases of water conservation. Crop loss for agricultural and forestry operations are at risk as well. Extreme Heat exposure affects the entire planning area. A news story reported by WRDW, Augusta, GA, *Highest number of heat-related deaths reported by Augusta Coroner,* reported 8 heat related deaths in the planning area during 2010, (WRDW - Augusta, GA, 2010) In 2010, temperatures averaged 5.3° warmer than normal or the 30-year average. Also, Augusta recorded 14 days in 2010 where the temperature reached at least 100°, while this year, there have only been 11 days. So, 2010 seems to have edged out 2011 as being the hottest of the two summers so far. (WAGT, 2011).

Augusta Utilities has sufficient capacity to provide water to the current service area with two surface water treatment plants (groundwater wells are being phased to backup status for extreme drought events) and a new plant came online in 2005.

Other assets exposed to drought or extreme heat are less concrete. EMA response to incidents of heat stroke or exhaustion, heat shelter opening and monitoring, and fires may place significant strain on emergency personnel and community facilities.

2.3.4 Estimation of Losses Due to Drought/Extreme Heat

The License & Inspections Department reported that during prolonged dry periods some older homes have experienced settling due to the falling water table which leads to local consolidation and compaction of soils. Individual homeowners employed engineers to determine appropriate solutions that usually include reconstruction of foundations. Only about 20 homes have experienced this problem in the past decade. Prolonged drought conditions can increase the risk of wildfires (see Section 2.5).

Commercial losses for landscape businesses, farmers, outdoor event promoters and tourism destinations are frequently associated with extreme heat events.

2.3.5 Land Use and Development Trends related to Drought/Extreme Heat

Availability of water through the existing distribution system is a factor that influences new land development activities. Augusta Utilities constructed a new water plant to serve the southern part of the City; the Savannah River will be the water source. This stimulated additional development in the southern part of the City. In areas not served by Augusta Utilities, lot sizes are larger to accommodate onsite septic systems; lot sizes may range from 0.86 to 3.3 acres depending on soil types and topography. Blythe reports that 1 acre lot sizes are required in areas on well and septic.

Recent drought events in Georgia resulted in water use restrictions, public outreach campaigns to promote water conservations, a Groundwater Recharge Ordinance, and increased costs to produce potable water.

2.3.6 Multi-jurisdictional Differences related to Drought/Extreme Heat

In terms of landscape impacts due to drought, there are no notable jurisdictional differences – the planning area is uniformly affected. However:

- The City of Blythe provides water to its residents, relying on two wells. As of 2004, Blythe's system is interconnected with Augusta Utilities for contingency service.
- The City of Hephzibah operates its own water pumping, treatment and distribution system, obtaining all of its water supply from groundwater sources. Three elevated tanks have a combined capacity of 285,000 gallons. The City worked with Augusta Utilities and can connect to the regional water supply in emergencies; in a recent drought Hephzibah supplied South Richmond County with approximately 1 million gallons per day.
- Augusta water treatment facilities provide roughly 15.5 billion gallons of clean drinking water. Our second water source comes from our new Max Hicks Plant on Tobacco Road which gets water from the Savannah River also and provides 15 million gallons of water to our customers in south Richmond County.
- Augusta – Richmond County operates Shelter in Place programs for extreme heat events.

2.3.7 Drought/Extreme Heat HRV Summary

Sustained drought conditions adversely affect agricultural and forestry interests, lead to loss of horticultural and decorative plantings, and contribute to increased risk of wildfires. An overall summary of vulnerability to drought is relatively straightforward because drought is assumed to uniformly affect the area and because most of the planning area is served by public water delivered by Augusta Utilities. The relative risk ranking of droughts was determined to be "moderate" (see Table 2.5 for a summary of relative risks).

Extreme heat vulnerability does not impact buildings or structures but rather affects vulnerable populations including children, elderly or physically impaired persons and people working or recreating outdoors. Extreme heat shelters, publically funded programs to provide cooling devices, health care providers, and EMA personnel face significant challenges during extended period of extreme heat. Economic losses related to extreme heat are evidenced in electrical brown-outs, crop loss, and lessened local and visitor attendance at outdoor venues or events.

2.4: Natural Hazard D – Severe Winter Storms

Heavy snowfall and severe icing events are anticipated by emergency planners across the United States during the winter season. However, these events can

cause considerable disruptions to society, as they distress transportation systems, utilities infrastructure, and general commerce. A large snowfall or icing event can cause billions of dollars, in lost business productivity and retail sales revenue, as workers and consumers are forced to stay home. Travel by road, rail, and air often becomes much slower and dangerous, particularly in regions that do not commonly deal with extreme winter weather. To help quantify the socioeconomic impact of snowstorm events, NOAA has developed the Northeast Snowfall Impact Scale (NESIS). This scale uses an algorithm to characterize and rank the severity of Northeastern U.S. snowstorms based on snowfall depth, snowfall area and the mean population affected.

Airports heavily rely on information from NOAA for improved decision making regarding air travel safety. A report by (Adams et al., 2004) indicates that the potential benefits from better forecasting of snow and icing diagnostics at U.S. airports, exceeds $600 million/year. Another report (NOAA, 2002) has shown that an enhanced satellite imager and sounder will improve max and min temperature predictions $504 million/year, as derived from load forecasting efficiency for electric utility providers in the US electric, gas, and sanitary services.

Improved max and min temperature predictions would also enhance the accuracy of winter weather-type forecasting (e.g. snow, ice, freezing rain), which would offer additional economic benefits for transportation, engineering, and agriculture.
NOAA historic snowfall data and weekly snow depth maps represent sources of winter snowfall data that is collected via NOAA's climate observing systems. The NOAA-sponsored National Snow and Ice Data Center (NSIDC) is also a central resource for a variety of the datasets and models pertaining to snow, ice, glaciers, and the implications of climate change to the Earth's cryosphere. These data are important for additional scientific research, government policy decision-makers, and emergency managers. This near-real time information provides invaluable benefits for public safety and well-being, as it allows individuals to make wise decisions to care for themselves, family, and property during extreme winter events (NOAA, NOAA Economics, 2011).

2.4.1 Severe Winter Storm Identity

Severe winter storms bring the threat of freezing rain, ice and snow accumulation. Heavy accumulations of ice, especially when accompanied by high winds, can result in extensive damage to trees and above-ground electric transmission lines. The most significant and widespread effects are due to ice and snow covered roads which pose hazardous conditions for traffic and can complicate response and recovery efforts.

Building damage may result if snow loads become significant. Severe winter storms could result in the loss of utilities, expected increase in traffic accidents impassable roads, debris clean-up from downed trees and limbs, and short-term lost income and productivity if normal commuting is hindered. Critical facilities are exposed to the effects of severe winter storms, but vulnerability is a function of the potential disruption of services (primarily electricity) and transportation systems.

Winter storms can vary in size and strength and include heavy snowstorms, blizzards, freezing rain, sleet, ice storms and blowing and drifting snow conditions.

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

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

NOAA Economics reports the following information related to Winter Storms in the U.S.:

- Research by (Adams et al., 2004) report that the annual economic costs of snowfall in the U.S. include:
    1. Road closures, which results in lost retail trade, wages, and tax revenue (exceeds **$10 billion/day** for closures in eastern U.S.);
    2. Snow removal (exceeds **$2 billion/year**);

- Flight delays (**$3.2 billion** annually for U.S. carriers)
- Damage to utilities infrastructure (up to **$2 billion** per storm event);
- Flooding from snowmelt (**$4.3 billion** for 1997 floods)
- Costs to agriculture and timber from frost and ice (as much as **$1.6 billion** per ice storm)
- Each year, **$6 billion** is lost in economic efficiencies, as a result of air traffic delays, of which 70 percent **($4.2 billion)** is attributed to weather (Air Transport Association, 2002), Source: (NOAA, NOAA Economics, 2011).

Table 2.23 below reveals the deaths, injuries, property, and crop damage in the U.S. during the period of 2000 to 2010. The highest incidence of deaths was reported in the year 2009 while the highest reported property and crops damages were reported in the year 2000.

Table 2.23: Table Annual U.S. Winter Storm Summary					
Year	**Fatalities**	**Injuries**	**Property Damage (million $)**	**Crop Damage (million $)**	**Total Damage (million $)**
2000	41	182	1314.83	0.00	1314.83
2001	18	173	129.50	0.13	129.63
2002	17	105	940.00	0.00	940.00
2003	28	112	599.28	10.32	609.60
2004	28	190	214.70	0.23	214.93
2005	34	72	331.99	0.11	332.10
2006	17	109	628.10	0.00	628.10
2007	9	159	108.07	0.25	108.32
2008	21	121	969.17	20.49	989.66
2009	21	394	349.75	0.52	350.27
2010	20	33	333.31	15.00	348.31
(NOAA, NOAA Economics, 2011). *Normalized to 2010 Dollars using Bureau of Labor Statistics Consumer Price Index [CPI].*					

Additional information supplied by NOAA provides a regional and state context to Winter Storm hazard effects on the southeast region of the U.S. and the state of Georgia:

- Weather-related crashes cost an average of **$42 billion** annually in the United States from personal injury, loss of life, and property damage (Lombardo 2000).
- Spring Freeze, April 2007. Widespread severe freeze over much of the east and Midwest (AL, AR, GA, IL, IN, IA, KS, KY, MS, MO, NE, NC, OH, OK, SC, TN, VA, WV), causing significant losses in fruit crops, field crops (especially wheat), and the ornamental industry. Temperatures in the teens to 20's accompanied by rather high winds nullified typical crop-protection systems. Over **$2.0 billion in damage/costs**; no deaths reported (Lott et al., 2010).
- Southeast Ice Storm, February 1994. Intense ice storm with extensive damage in portions of TX, OK, AR, LA, MS, AL, TN, GA, SC, NC, and VA; approximately **$3.0 (4.2)* billion in damage/costs**; **9 deaths** (Lott et al., 2010).
- Storm/Blizzard, March 1993. "Storm of the Century" hits entire eastern seaboard with tornadoes (FL), high winds, and heavy snows (2-4 feet); **$5.0-$6.0 (7.2-8.6)* billion in damage/costs**; approximately **270 deaths** (Lott et al., 2010), Source: (NOAA, NOAA Economics, 2011).

Table 2.24 below reveals the deaths, injuries, property, and crop damage from ice storms during the period of 2000 to 2010.

Table 2.24: Annual U.S. Ice Summary					
Year	**Fatalities**	**Injuries**	**Property Damage (million $)**	**Crop Damage (million $)**	**Total Damage (million $)**
2000	0	0	0.38	0.00	0.38
2001	0	0	0.50	0.00	0.50
2002	0	0	0.13	0.00	0.13
2003	0	0	0.00	0.00	0.00
2004	0	0	0.00	0.00	0.00
2005	0	0	0.00	0.00	0.00
2006	0	0	0.00	0.00	0.00
2007	7	11	1476.40	0.00	1476.40
2008	0	0	108.31	0.00	108.31
2009	7	5	1206.09	0.00	1206.09
2010	1	1	29.74	0.00	29.74
(NOAA, NOAA Economics, 2011). *Normalized to 2010 Dollars, Bureau of Labor Statistics Consumer Price Index.*					

2.4.2: Severe Winter Storm Events, Frequency & Probability

The 2003 International Building Code© includes a map of the United States showing "ground snow loads" associated with the 2%-annual probability of being exceeded (50-year recurrence interval). This information is used in design and construction so that buildings will withstand reasonably anticipated snow loads in order to minimize property damage (Source: ASCE, 07/05). The City falls within the area where the "ground snow load" is five pounds per square foot. In comparison, buildings and roofs in extreme northern Georgia must be designed to resist twice that snow load.

Records maintained by the State Climatologist's office (http://climate.engr.uga.edu) indicate that Augusta is in the region that usually receives less than 3-inches of snow per year. Although six winter storms in Georgia have prompted federal disaster or emergency declarations between 1976 and 2000, none of those events affected Augusta. Online records available from the National Climatic Data Center (http://www.ncdc.noaa.gov/oa/climate/severeweather/extremes.html) indicate that six recent winter events affected the Augusta area, although the hardest hit areas were nearby counties.

The January 2002 storm was centered over Lincoln County north of Augusta and the January 2004 ice storm affected the Augusta area but was reported to be most severe in Lincoln, Columbia, and McDuffie counties just north of Augusta. There is no evidence that these storms should be characterized as "severe." The ice storm caused scattered power outages that affected about 100,000 homes for several days and is the most severe to impact the planning area.

On 26 December, 2004, an ice storm produced 1/4 to 3/4 inch of ice and sleet taking down trees and power lines. Several power outages were reported along with numerous traffic accidents.

On 29 January, 2005, an ice storm started late Friday night and continued intermittently through Saturday night. Most areas received a quarter of an inch of ice on trees and other structures. Some areas received a quarter to a half an inch of ice. These areas experienced power outages of short duration. Overpasses and bridges iced, but ground temperatures on roadways prevented rain from freezing. There were many accidents due to drivers losing control when driving over the bridges and overpasses.

On 12 February, 2010, Emergency Management reported 2-4 inches of snow across the county. A low pressure system tracked across Northern Florida which produced heavy snow on the north side of the storm system. Snow fell from the Florida panhandle northeast to Virginia. Snowfall in the CSRA ranged from 4-7 inches.

On 10 January, 2011, Augusta Fire Department reported total snow accumulation of 2 to 3 inches in the northern portion of the county with 1 to 2 inches in the southern part. The snow was followed by freezing rain and drizzle with ice accumulations of 1/4 to 1/2 inch. Some power outages were also reported. A low pressure system moved through the Gulf of Mexico and across northern Florida producing snow, sleet and freezing rain across the southeast U.S. Heavy snow fell across the CSRA and lower Midlands of South Carolina with accumulations of 1 to 6 inches. Burke County had mainly sleet and freezing rain with ice accumulations of 1/2 inch. Power outages were reported throughout the area, but outages were not widespread, (NOAA, National Oceanic and Atmospheric Administration, 2011).

Winter weather affects the Augusta area nearly every year although there is a low probability of severe winter storms of such magnitude and severity that widespread property damage and power outages occurs. For the state as a whole, it appears that major severe winter storms occur, on average, every three years. For the 24 years of record, 12 winter storms were noted in the historical records suggesting a frequency of 0.5 storms per year. Table 2.25 below displays Winter Storm events in the planning area from the period of 1950 to 2011. The data reveals there were 4 injuries and no reports of damage during the nine year span.

Table 2.25: 6 SNOW & ICE Event(s) in Richmond County - 01/01/1950 and 03/31/2011.

County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 GAZ040 - 063>065	01/02/2002	09:25 PM	Winter Storm	N/A	0	0	0	0
2 GAZ040 - 063>065 - 077	01/26/2004	06:45 AM	Ice Storm	N/A	0	4	0	0
3 GAZ063>065 - 077	12/26/2004	05:00 AM	Ice Storm	N/A	0	0	0	0
4 GAZ040 - 063>065 - 077	01/29/2005	12:28 PM	Ice Storm	N/A	0	0	0	0
5 GAZ040 - 063>065 - 077	02/12/2010	17:00 PM	Winter Storm	N/A	0	0	0K	0K
6 GAZ063 - 065	01/10/2011	04:00 AM	Winter Storm	N/A	0	0	0K	0K
TOTALS:					0	4	0	0

2.4.3 Inventory of Assets Exposed to Severe Winter Storms

All jurisdictions are vulnerable to the effects of Severe Winter Storms. All buildings and above ground utilities are exposed to the effects of winter storms. Because most damage is associated ice accumulation that result in falling tree limbs and downed electric lines, it is not feasible to estimate the cost of building damage. The License & Inspection Department reported no building damage due to heavy snow or ice loads. The Fire Department indicates the number of structure fires increases when winter storms cause power outages due to 'creative' ways that people attempt to warm their homes.

Emergency Response equipment and personnel experience increased exposure during Winter Storm events when roads and bridges are more difficult to navigate and access to buildings is hazardous due to ice buildup on exposed surfaces.

2.4.4 Estimation of Losses Due to Severe Winter Storms

Backup power is available for the jails, the 911 Center and EOC, the Court House and the newer fire stations. Some older fire stations have emergency generators. City recreation facilities that are designated as emergency shelters do not have backup power.

Severe winter storms, especially those with heavy icing, generate a lot of downed trees and limbs, requiring cleanup of the resulting debris. The costs of managing debris are not included in regular budgets. When events prompt massive debris cleanup, staff from the Engineering & Environmental Services, Public Services, and Recreation & Parks departments are diverted from other work, often causing delays in scheduled projects.

In recent years, events with large quantities of debris have prompted the City of Augusta to waive landfill fees, thus reducing potential income. The January 2004 ice storm cost the City $ 322,354 (excludes estimate of lost income due to waiver of landfill fees). Icing of roads and bridges affects traffic but is not considered a major factor in physical damage to roads. A growing problem associated with periods of freezing weather is road icing due to automatic outdoor sprinkler systems.

2.4.5 Land Use and Development Trends related to Severe Winter Storms

All new buildings must be designed and constructed to meet current building code requirements, including snow loads. The effects of winter storms are not influenced by land use and development trends.

2.4.6 Multi-jurisdictional Differences related to Severe Winter Storms

There are no differences in exposure to severe winter storms associated with jurisdictional boundaries between Augusta, Blythe and Hephzibah.

2.4.7 Severe Winter Storm HRV Summary

Most winter storms are tracked and predicted with reasonable accuracy and advance warning. When roads are covered with snow and ice, the traveling public is adversely affected. Other than damage due to falling tree limbs, building damage due to severe winter storms is rare. Traffic accidents, road closures, and heightened EMA response are anticipated. Loss of electrical power presents issues for EMA, jurisdictional government operations, schools, and health care providers.

An overall summary of vulnerability to winter storms is relatively straightforward because every building and above-ground utilities in the planning area are equally likely to be exposed. The relative risk ranking of severe winter storm was determined to be "moderate" (see Table 2.5 for a summary of relative risks).

2.5: Natural Hazard E – Wildfires

A wildfire is an uncontrolled fire spreading through vegetative fuels, such as brush, marshes, grasslands or field lands, exposing and possibly consuming structures. They often begin unnoticed in sparsely populated areas and may spread quickly. The risk of wildfire, and the nature fire behavior, is associated with a combination of several factors, notably stands of timber and open areas of vegetative fuels, prolonged dry weather, sloping topography, and development within the zone commonly referred to as the 'urban-wildland interface'.

Within this zone, buildings become additional fuel for fires and prompt fire-fighting efforts. The causes of urban-wildland fires include lightning, human carelessness and arson. Wildland fires can occur during any month of the year, and the season length and peak months may vary appreciably from year to year. Generally, fires are more likely when seasonal precipitation levels are low, ambient humidity is low, and vegetation is dry.

The potential for property damage increases as development continues to take place in the interface. In areas with active forest-based economy, including tourism, extensive wildfires can have adverse economic impacts. If burned-out woodlands, grasslands, and farmlands do not quickly re-vegetate, increased erosion may contribute to reduced water quality or increased downstream flooding.

2.5.1 Wildfire Identity

Each year **tens of thousands of natural and manmade wildfires** across the United States burn millions of acres. The height of the wildfire season occurs in the late summer months, particularly across the western states. The conditions for wildfire development are very dependent on climatic variables such as antecedent moisture, humidity-levels, windspeed, and high temperature extremes. Lightning often starts a number of brush or forest fires, but the majority are started by humans through accidents or intentionally.

U.S. fire fighters regularly use NOAA climate data and products such as Firedetect or smoke observation summaries, to make decisions in regard to fire suppression strategies and safety issues. This data are critical for fire fighters and emergency managers to monitor before, during and after a wildfire has developed, as the intensity of wildfires and the rate at which they spread is directly related to the aforementioned climatic variables.

There are several ecological benefits of wildfires, as old brush is burned away and more space and fertilized soil is then available for new forest growth. However, the economic benefits in protecting homes, businesses, lives, and valuable infrastructure are even greater. NOAA's climate data and fire weather forecasts are valuable resources to society, as watches and warnings are issued in areas subject to a hazardous combination of high temperatures, high winds, and low-humidity over an extended period. Severe drought conditions are often correlated with high risks for wildfire development.

Numerous other NOAA data and products are also used in monitoring wildfire and drought conditions, including: weather forecasts, COOP data, the U.S. drought monitor, and GOES satellite imagery. Each of these sources of information enhances critical decision making to protect life and property from wildfire (NOAA, NOAA Economics, 2011). Table 2.26 below lists the U.S. Fire Summary for the period 2000 to 2010.

Table 2.26 Annual U.S. Fire Weather Summary

Year	Fatalities	Injuries	Property Damage (million $)	Crop Damage (million $)	Total Damage (million $)
2000	3	100	2678.68	9.02	2687.70
2001	5	46	56.50	0.00	56.50
2002	1	138	251.00	2.50	253.50
2003	0	2	2797.92	0.00	2797.92
2004	0	0	19.77	0.00	19.77
2005	0	0	45.99	0.00	45.99
2006	0	0	211.64	0.00	211.64
2007	19	225	1466.10	46.66	1512.76
2008	3	35	246.05	2.14	248.19
2009	2	109	114.14	1.42	115.57
2010	1	24	244.89	1.93	246.82

(NOAA, NOAA Economics, 2011). *(Normalized to 2010 Dollars, Bureau of Labor Statistics Consumer Price Index.*

2.5.2 Wildfire Events, Frequency & Probability

Data from the Georgia Forestry Commission indicates that over 3,800 incidents of forest or brush fire (i.e., all non-structural fires) were reported in the Augusta area between 1957 and mid-2004, with over 16,000 acres burned. The most severe occurred in 1998, a large woods fire on Bobby Jones came close to several houses.

These fires were attributed to various causes, including lightning, campfire, debris burning (residential, agricultural fields, household garbage, construction land clearing, etc.), incendiary, and the use of machines. With an average acreage per fire of just over 4 acres, the HMPC considers that forest and wildland fires do not represent a major hazard to the built environment – and the small areas affected also suggest effective response on behalf of local and state agencies.

Although an average of about 80 incidents per year were reported, the general wildland fire risk in the Augusta area is considered to be relatively low; very few occur in locations where buildings could be threatened. Because the risk is seasonal and changes with many factors, the Georgia Forestry Commission produces a Fire Danger Map each day using the National Fire Danger Rating System that is based on weather data obtained from stations across the State. The probability of wildland fires may be influenced by other events, such as drought or the build-up of underbrush and fallen trees and limbs following severe wind storms or ice storms.

State law restricts outdoor burning between May 1 and September 31, except for certain agricultural practices. The Georgia Forestry Commission and the Fire Department may issue warnings and tickets.

Table 2.27 reports FEMA data on fires in Georgia with nine events declared during the period 2007 to 2011.

Table 2.27: FEMA Fire Management Assistance Declarations – Georgia

Year	Date	Incident	Disaster Number
2011	06/16	Sweat Farm Again Fire	2921
2011	06/15	Racepond Fire	2920
2011	03/25	Mosley Road Fire	2876
2011	03/25	Elan Church Road Fire	2875
2007	05/31	Harveytown Fire	2697
2007	05/09	Bugaboo Scrub Fire	2693
2007	05/05	Roundabout Fire	2688
2007	04/26	Kneeknocker Swamp Fire	2686
2007	04/17	Sweat Farm Road Fire	2685

(FEMA, 2011)

There are three classes of fires understory fires, crown fires, and ground fires. Naturally-induced wildfires burn at relatively low intensities, consuming grasses, woody shrubs, and dead trees. Crown fires, which consists fires consuming whole living tress, are low probability but high consequence type events. Crown fires typically match perceptions of wildfires. None of the counties listed in the SHELDUS data correspond with the federally recognized fire events except for the Bugaboo Scrub Fire in Ware County.

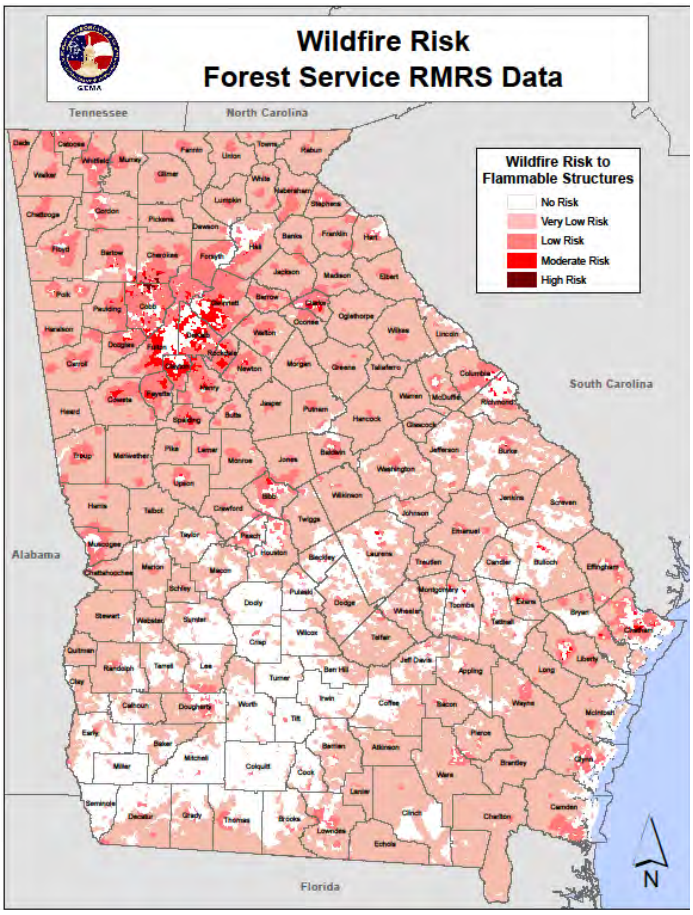
The most notable wildfire events are most likely the most recent 2007 fires that affected the southeast quadrant of Georgia. Essentially, these models take into

account surface fuel, canopy closure, historic fire occurrences, topography, weather influence, fire suppression effectiveness, urban interfaces, and infrastructure areas in order to calculate the "Level of Concern". Because the Southern Wildfire Risk Assessment is currently incomplete, this section includes another risk assessment based on the USDA Forest Service's Rocky Mountain Research Station (RMRS) Fire Sciences Laboratory's "Wildland Fire Risk to Flammable Structures, V 1.0" map. These data includes variables such as housing density, potential fire exposure, and extreme fire weather potential. The hazard scores are illustrated in the wildfire hazard risk Table 2.28 and Map 12 below, (GEMA, 2011).

Table 2.28: RMRS Wildland Fire Risk to Flammable Structures (GEMA, 2011)

Hazard Score	Description
4	High Risk
3	Moderate Risk
2	Low Risk
1	Very Low Risk
0	No Houses: • Agriculture • Bodies of Water • Dense Urban Development

MAP 12: GA Wildfire Risk



The map reveals the fire risk for the planning area ranges from moderate to very low risk and is ranked as Low Risk.

2.5.3 Inventory of Assets Exposed to Wildfires

Map 13 below produced in GMIS reveals a number of structures are vulnerable to wildfire in the planning area.

MAP 13: GMIS Map of Wildfire Critical Facility Exposure

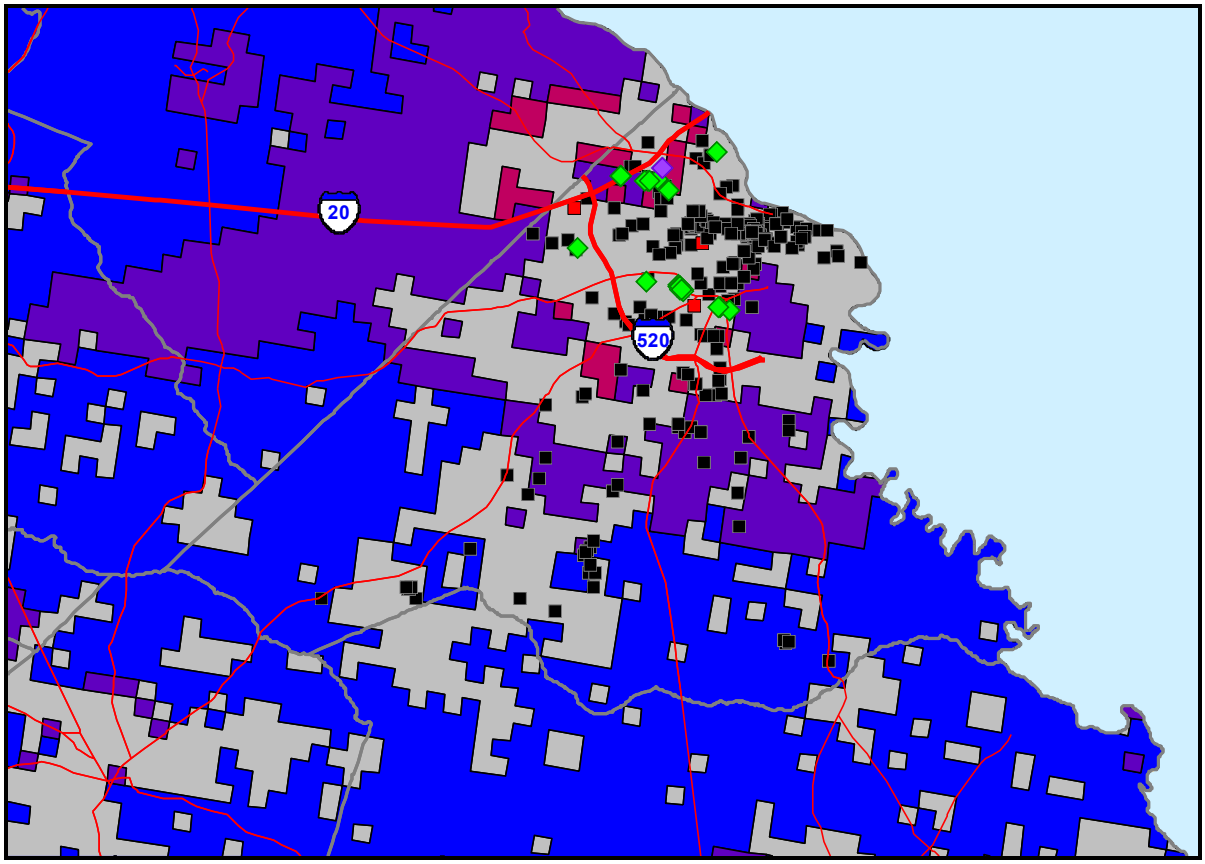
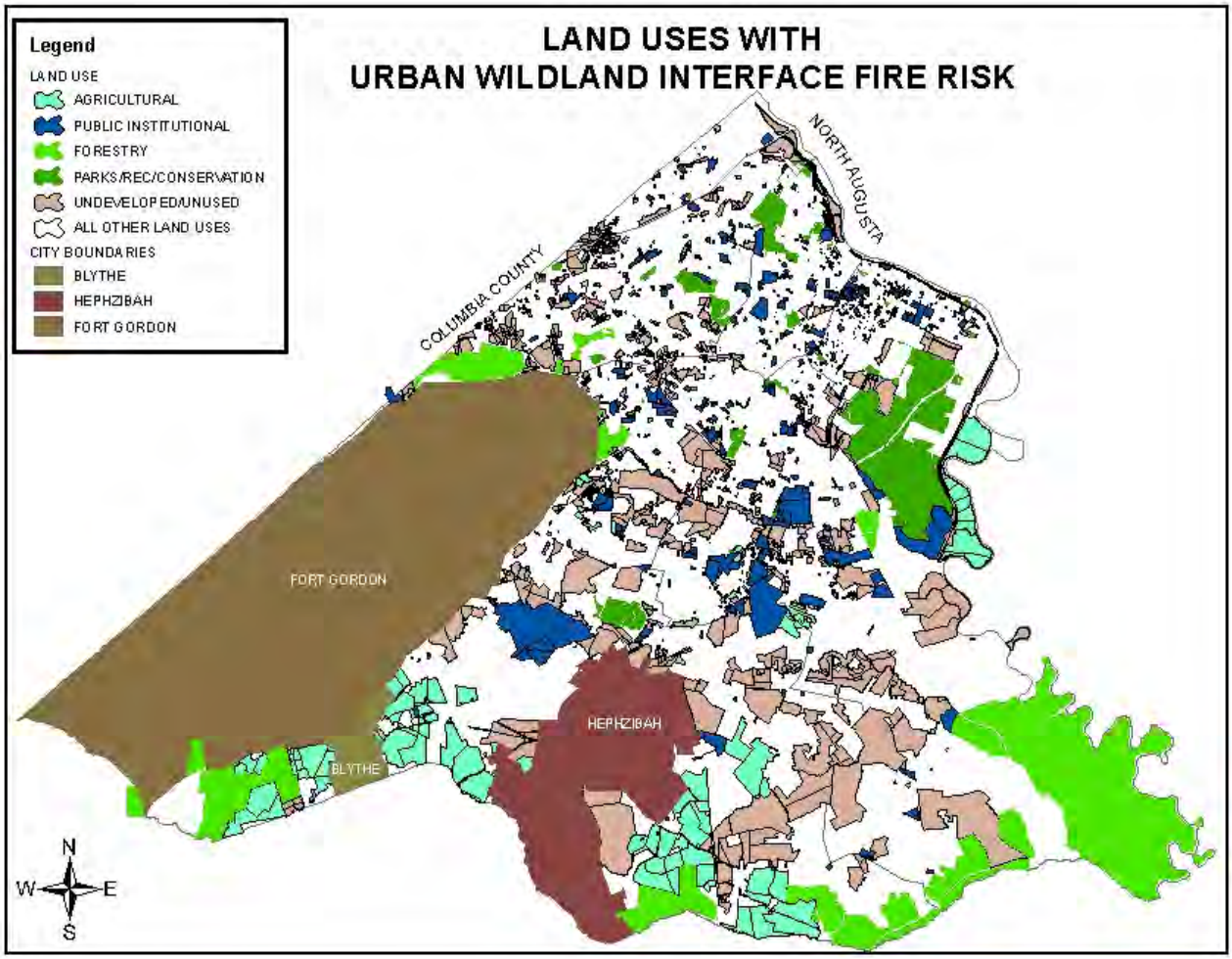


Table A-2 on land use indicates that only about 10 percent of Augusta is zoned for forested land use. When added to other categories of land use that likely are subject to wildland fires (public/institutional, park/recreation/conservation, agriculture, undeveloped/unused and Fort Gordon,), nearly 60% of the area could experience a non-structural type fire that could be characterized as "wildland urban interface" fire; Fort Gordon accounts for nearly one third (see Figure 2-11).

Approximately 2,200 structures are located in these land use zones and thus have some risk in the event wildland fires are not controlled. The Georgia Forestry Commission has indicated that nearly 60 percent of the Augusta area is forested lands.

Figure 2.11: Land Uses with Fire Risk



2.5.4 Estimation of Losses Due to Wildfires

It is unreasonable to approximate the characteristics of just 2,200 buildings by applying area-wide percentages, although it is likely that most of the interface buildings are residential, recreational, or used for farming and forestry purposes. More information about specific properties in or near wooded areas would be necessary to estimate the potential damage and losses associated with interface wildland fire (this level of detail is not available through the City's GIS data layers). The more significant economic impact of a large wildfire would be on the forest-based industries; however, given the efficiency of fire suppression (based on small acreage of the average fire), it is unlikely that any single fire would affect a large area.

Figure 2.11 was prepared using the reported locations of critical facilities. Fifteen facilities are located in areas where the land use suggests that wildland fires may occur (forested, agricultural, conservation/recreational and undeveloped). While no single wildfire incident would likely affect more than one of these facilities, the total

value of these at-risk critical and essential facilities is reported to be over $200 million:

- Richmond County Board of Education (transportation)
- Freedom Park Elementary
- Fort Gordon Fire Department
- Augusta Water Pump Station
- Riverwalk Marina
- Julian Smith Bar-B-Que Pit
- Sue Reynolds Park
- Augusta Aquatic Center
- Eastview Park
- Augusta Municipal Golf Course
- Dyess Park
- Augusta Fire Department (#16)
- Julian Smith Casino
- Warren Road Community Center
- Gracewood Park

The GEMA online tool described in Appendix B-2 uses a different methodology to characterize urban wildland fire risk. The method, developed by the USDA Forest Service, was intended for a state-wide analysis, but has been offered by GEMA as a source of data on wildfire risk.

Application of the GEMA online tool to the critical and essential facilities database yields 10 facilities that are located in areas identified as having a 'moderate' wildfire risk (hazard score of 3). Those facilities are: Fleming Athletic Office; Merry Elementary School; National Hills Elementary School; AFD- Engine Co #5; Richmond County Alter. & Opportunity Magnet School; Jeff Maxwell Branch Library; Bernie Ward Community Center; Carrie Mays; Westminster Schools Maintenance Shop; and Westminster Schools Prep School Gym. While no single wildfire incident would likely affect more than one of these facilities, the total value of these at-risk critical and essential facilities reported to be $12.4 million. Another 22 facilities are noted as having a "low" risk.

Blythe exposure to wildfire reveals the potential loss as zero. Hephzibah exposure to wildfire reveals the potential loss as 145,429 sq. ft. of building exposure, $5,940,000 in replacement costs and 1,288 persons affected by the event.

2.5.5 Land Use and Development Trends related to Wildfires

Development migration moving outward from the urban areas reveals considerable growth in the southern part of Augusta, GA. There has been an increase in the number of subdivisions and single family homes built in forested areas. This trend increases the likelihood that wildland fires may affect buildings.

The Fire Department operates nineteen fire stations in the planning area. The Department reviews subdivision plans primarily for the number and location of hydrants and to determine if access roads have adequate width and turning radius

for the newer, large apparatus. Some roads in the rural part of the City and some driveways are very narrow for the current tanker trucks. Augusta – Richmond County and the Cities of Blythe and Hephzibah fire stations are listed below.

Fire Stations: Augusta – Richmond County and the Cities of Blythe and Hephzibah

Station # 1
1 Broad St.
Augusta, GA 30901
View Map

Station #2
1425 Walton Way
Augusta, GA 30901
View Map

Station #3
1099 Reynolds St.
Augusta, GA 30901
View Map

Station #4
1866 Ellis St.
Augusta, GA 30904
View Map

Station #5
1898 Martin Luther King Blvd.
Augusta, GA 30901
View Map

Station #6
2618 Richmond Hill Rd.
Augusta, GA 30906
View Map

Station #7
2917 Willis Foreman Rd.
Hephzibah, GA 30815
View Map

Station #8
1898 Highland Ave.
Augusta, GA 30904
View Map

Station #9
3507 Walton Way Ext.
Augusta, GA 30905
View Map

Station #10
2625 Washington Rd.
Augusta, GA 30904
View Map

Station #11
2243 Old Savannah Rd.
Augusta, GA 30906
View Map

Station #12
1151 Hephzibah-McBean Rd.
Augusta, GA 30906
View Map

Station #13
2619 Lumpkin Rd.
Augusta, GA 30906
View Map

Station #14
3507 GA Highway 88
Blythe, GA 30805
View Map

Station #15
3909 Wrightsboro Rd.
Augusta, GA 30909
View Map

Station #16
3446 Old Louisville Rd.
Augusta, GA 30906
View Map

Station #17
3705 Old Waynesboro Rd.
Augusta, GA 30906
View Map

Station #18
4185 Windsor Spring Rd.
Augusta, GA 30906
View Map

Station #19
1600 Brown Rd.
Hephzibah, GA 30815
View Map

The Georgia Forestry Commission undertakes some preventive, pre-suppression work, including plowing pre-defined fire breaks. Importantly, the Forestry Commission staff can work with local governments and private land owners (fee based) to develop prevention plans to improve forest health. The Forestry Commission views public education as an important part of its mission and provides booths for local fairs and events and speakers for homeowner associations and schools.

2.5.6 Multi-jurisdictional Differences related to Wildfires

Blythe and Hephzibah are surrounded by and include agricultural and forested lands. Therefore, the risk of urban wildland interface fire is the same in the two cities as it is in similar land uses elsewhere in Augusta. Vulnerability is predicated on number of acres burned, location of fire, response time, and structure exposure in the fire zone.

2.5.7 Wildfire HRV Summary

An overall summary of vulnerability to wildfire is determined by examining the land use map for those land uses assumed to have a higher risk of such fires: over 60% of Augusta's area and about 2,200 buildings are located in those land uses. Any given outbreak of wildland fire is suppressed rapidly, and no single incident is likely to cause severe damage. The HMPC determined the relative risk ranking of wildfire as 'low' (see Table 2.5 for a summary of relative risks). Wildfire events pose a threat to highly populated areas, forested lands with planted merchantable timber, and residential areas located adjacent to forested areas. Drought conditions in the planning area during recent years increased the risk of wildfire vulnerability and community exposure.

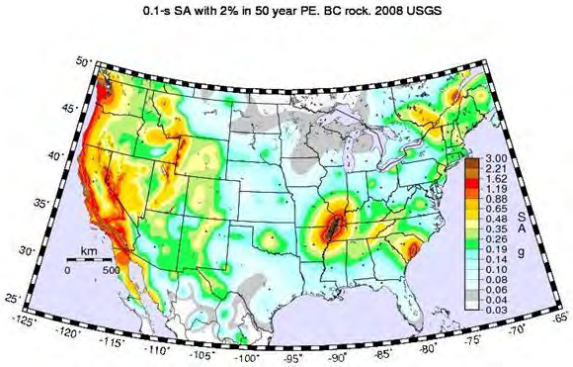
2.6: Natural Hazard F – Earthquakes

"Earthquakes are generally defined as the sudden motion or trembling of the Earth's surface caused by an abrupt release of slowly accumulated strain.

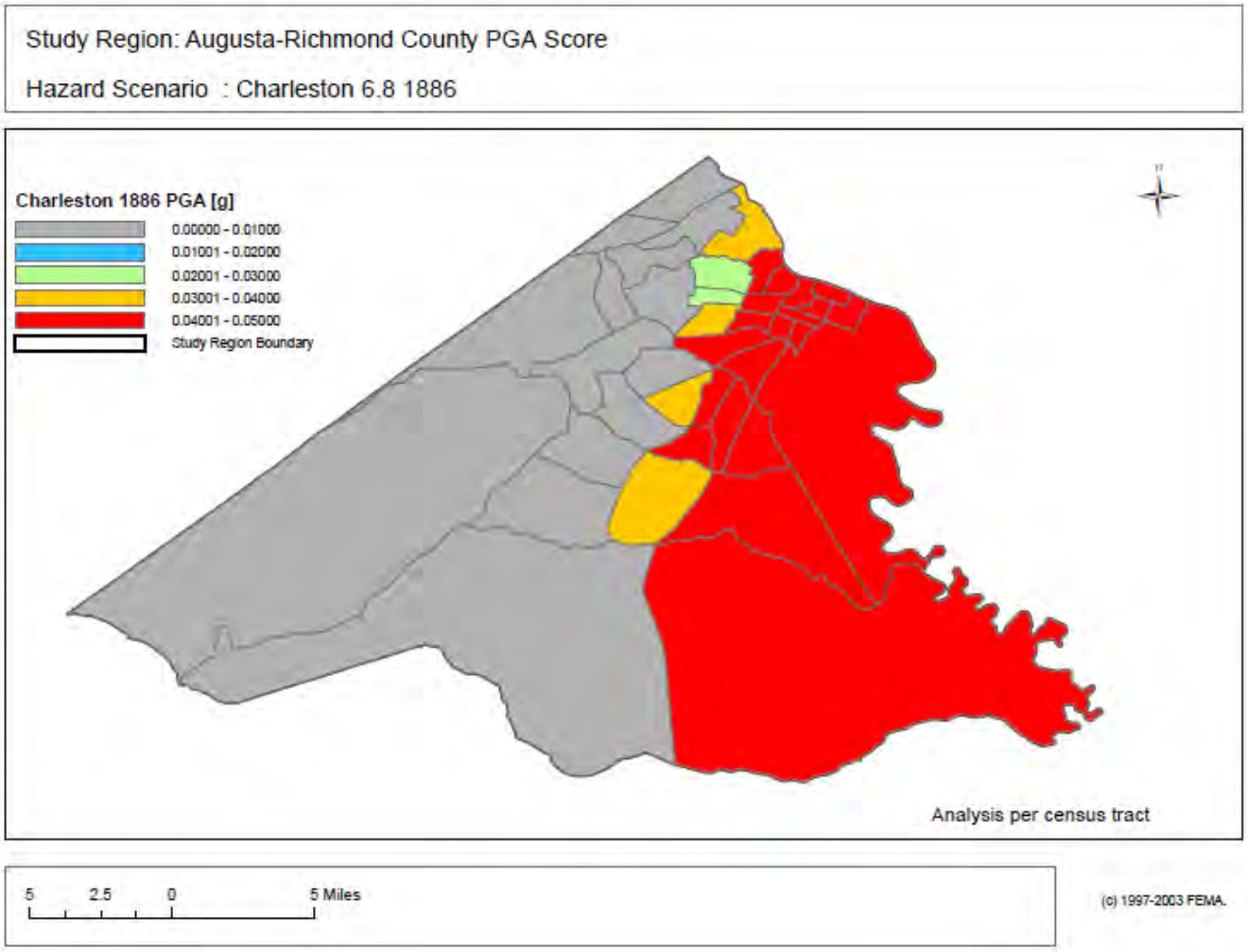
This release typically manifests on the surface as ground shaking, surface faulting, tectonic uplifting and subsidence, or ground failures, and tsunamis. Because the seismic waves have different frequencies of vibration, the waves disseminate differently through subsurface materials. The second manifestation of earthquakes is surface faulting. Structures built across active faults tend to sustain damage regularly. The third earthquake phenomenon that causes damage is tectonic uplift and subsidence. The fourth earthquake damage-causing phenomena are earthquake-induced ground failures, including liquefaction and landslides. Landslides form when earthquake shaking or seismic activity dislodges rock and debris on steep slopes triggering rock falls, avalanches, and slides (GEMA, 2011).

2.6.1 Earthquakes Identity

The graphic on the right depicts the various earthquake hazard zones in the U.S. and the corresponding probability rankings for the nation.



The Earthquake PGA Score for Augusta – Richmond County is: PGA=0.19410, as reflected in the map below.



2.6.2 Earthquakes Events, Frequency & Probability

The USGS estimates that several million earthquakes occur in the world each year. Many go undetected because they hit remote areas or have very small magnitudes.

The NEIC now locates about 50 earthquakes each day, or about 20,000 a year.
As more and more seismographs are installed in the world, more earthquakes can be and have been located. However, the number of large earthquakes (magnitude 6.0 and greater) has stayed relatively constant as revealed in Table 2.29 and Picture below (USGS, 2011).

Table 2.29: Average Annual Earthquakes Worldwide By Magnitude	
Magnitude	**Average Annually**
8 and higher	1 [1]
7 - 7.9	15 [1]
6 - 6.9	134 [2]
5 - 5.9	1319 [2]
4 - 4.9	13,000(estimated)
3 - 3.9	130,000(estimated)
2 - 2.9	1,300,000(estimated)

[1] Based on observations since 1900. These numbers have been recently updated, based on data from theCentennial catalog (from 1900 to 1999) and the PDE (since 2000).
[2] Based on observations since 1990

Picture 3

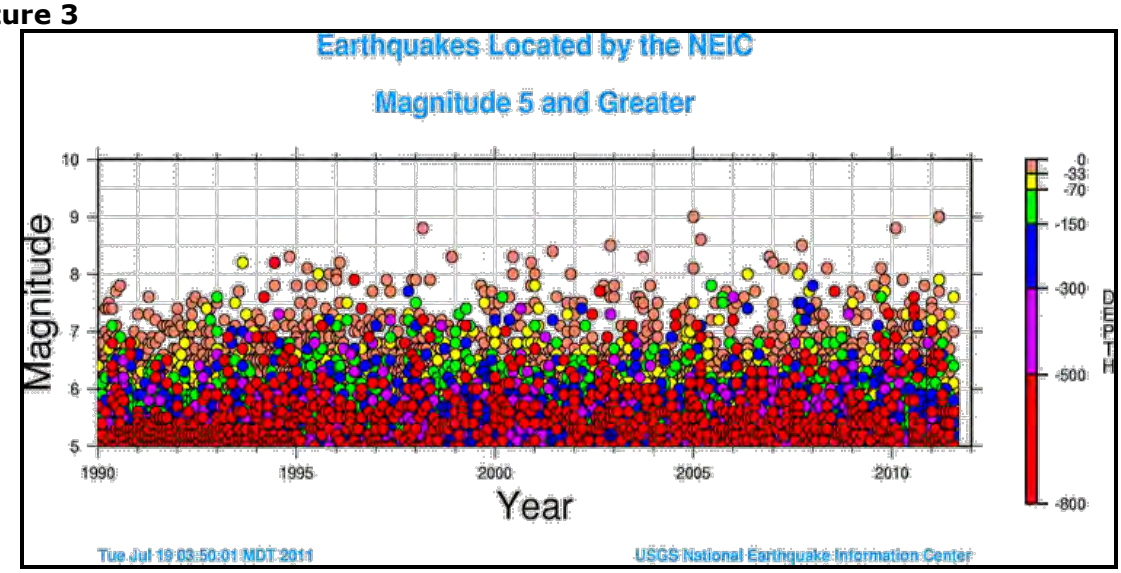


Table 2.30: Magnitude vs. Ground Motion and Energy		
Magnitude Change	**Ground Motion Change (Displacement)**	**Energy Change**
1.0	10.0 times	about 32 times
0.5	3.2 times	about 5.5 times
0.3	2.0 times	about 3 times
0.1	1.3 times	about 1.4 times

Table 2:30 above reveals that a magnitude 7.2 earthquake produces 10 times more ground motion than a magnitude 6.2 earthquake, but it releases about 32 times more energy. The energy release best indicates the destructive power of an earthquake (USGS, 2011). See: How much bigger is a magnitude 8.7 earthquake than a magnitude 5.8 earthquake?

Georgia Earthquake History

The first earthquakes reported felt in Georgia were the great New Madrid series of 1811 - 1812.These shocks were felt over almost all of the eastern United States. In Georgia that series of shocks reportedly shook some bricks from chimneys.

The great Charleston, South Carolina,earthquake of 1886 caused severe shaking experienced in Georgia. On August 31 at 9:25 p.m., preceded by a low rumble, the shock waves reached Savannah. People had difficulty remaining standing. One woman died of fright as the shaking cracked walls, felled chimneys, and broke windows. Panic at a revival service left two injured and two more were injured in leaping from upper story windows. Several more were injured by falling bricks. Ten buildings in Savannah were damaged beyond repair and at least 240 chimneys damaged. People spent the night outside.

At Tybee Island light station the 134 foot lighthouse was cracked near the middle where the walls were six feet thick, and the one-ton lens moved an inch and a half to the northeast.

In Augusta the shaking was the most severe (VIII on the Modified Mercalli scale) in the State. An estimated 1000 chimneys and many buildings were damaged. The business and social life was paralyzed for two days. Brunswick and Darien were alarmed.

An earthquake on June 17, 1872, at Milledgeville, and had an intensity of at least V on the Modified Mercalli scale, the lowest intensity in which some damage may occur. It was reported as a sharp shock, jarring brick buildings and rattling windows.

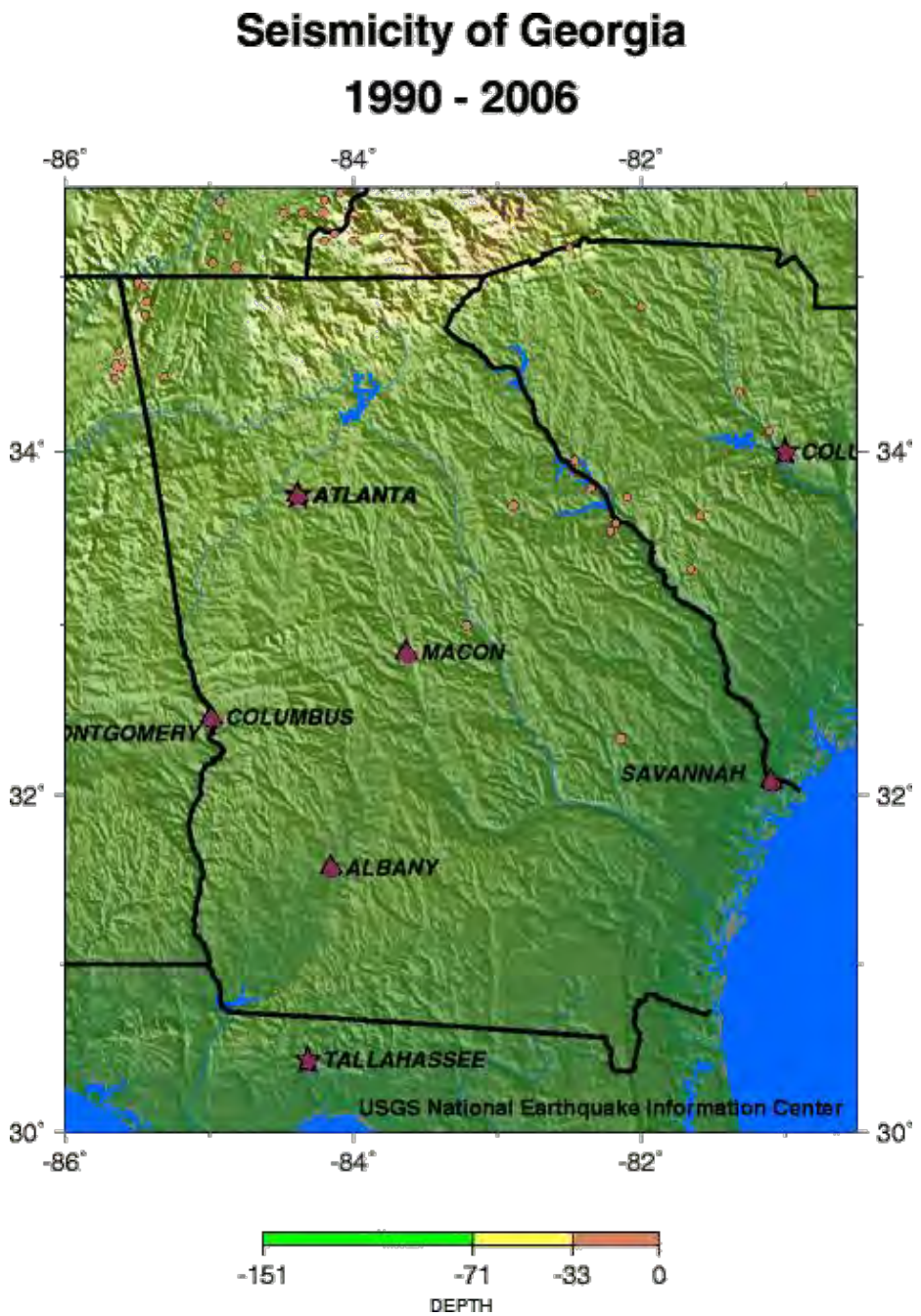
On November 1, 1875, at 9:55 in the evening, an intensity VI earthquake occurred near the South Carolina border. It was felt from Sparatansburg and Columbia, South Carolina, to Atlanta and Macon, Georgia, from Gainesville to Augusta, and generally over an area of 25,00 square miles.
A more local event occurred on October 18, 1902, with a sharp shock felt along the east face of Rocky Face Mountain west of Dalton with intensity VI and at La Fayette with intensity V. The felt area was about 1500 square miles, and included Chattanooga, Tennessee.

The Savannah area was shaken with an intensity VI earthquake on January 23, 1903. Centering near Tybee Island, it was felt over an area of 10,000 square miles including Savannah (intensity VI), Augusta (intensity III), Charleston (intensity IV-V), and Columbia (intensity III-IV). Houses were strongly shaken. Another shock was felt on June 20, 1912, at Savannah with intensity V.

On March 5, 1916, an earthquake centered 30 miles southeast of Atlanta was felt over an area of 50,00 square miles, as far as Cherokee County, North Carolina, by several people in Raleigh, and in parts of Alabama and Tennessee.

An earthquake of intensity V or over occurred on March 12, 1964, near Haddock, less than 20 miles northeast of Macon. Intensity V was recorded at Haddock while shaking was felt in four counties over a 400-square-mile area (USGS, 2011).

The Map below depicts the seismicity for Georgia.



The USGS database shows that there is a 0.07.5% chance of a major earthquake within 50 kilometers of Augusta, Georgia within the next 50 years. The largest earthquake within 100 miles of Augusta, Georgia was a 4.9 Magnitude in 1974. Table 2.10 reveals the earthquake probabilities for the planning area.

Table 2.10 Probability of Earthquakes in the next 50 years Within 31 Miles / 50km of Augusta			
Magnitude	**Probability**	**Magnitude**	**Probability**
5.0	2.114%	6.4	0.234%
5.1	1.710%	6.5	0.186%
5.2	1.710%	6.6	0.160%
5.3	1.383%	6.7	0.145%
5.4	1.121%	6.8	0.108%
5.5	0.909%	6.9	0.086%
5.6	0.842%	7.0	0.075%
5.7	0.685%	7.1	0.047%
5.8	0.601%	7.2	0.035%
5.9	0.491%	7.3	0.027%
6.0	0.456%	7.4	0.012%
6.1	0.365%	7.5	0.004%
6.2	0.317%	7.6	0.002%
6.3	0.254%	7.7	0.000%
Source: (NOAA, 2011)			

Table 2.11 Historical Earthquake Data (Within 100 Miles)			
Date	**Distance**	**Magnitude**	**Depth**
03/25/2010	**31.17**	**2.5**	**15**
04/04/2009	**74.06**	**3.1**	**7**
07/13/2003	**79.35**	**3.6**	**5**
03/18/2003	**54.82**	**3.5**	**5**
01/18/2000	**78.70**	**3.5**	**5**
08/08/1993	**24.26**	**3.2**	**5**
01/03/1992	**43.32**	**3.2**	**5**
12/12/1987	**65.14**	**3**	**5**
01/26/1983	**96.06**	**3.5**	**5**
08/25/1977	**74.30**	**3.1**	**10**
12/27/1976	**90.84**	**3.7**	**5**
08/02/1974	**40.51**	**4.9**	**1**
Source: USGS			

The **Richter Magnitude Scale** describes the typical effects of earthquakes of various magnitudes near the epicenter. The values are typical only and should be taken with extreme caution, since intensity and thus ground effects depend not only on the magnitude, but also on the distance to the epicenter, the depth of the earthquake's focus beneath the epicenter, and geological conditions (certain terrains can amplify seismic signals).

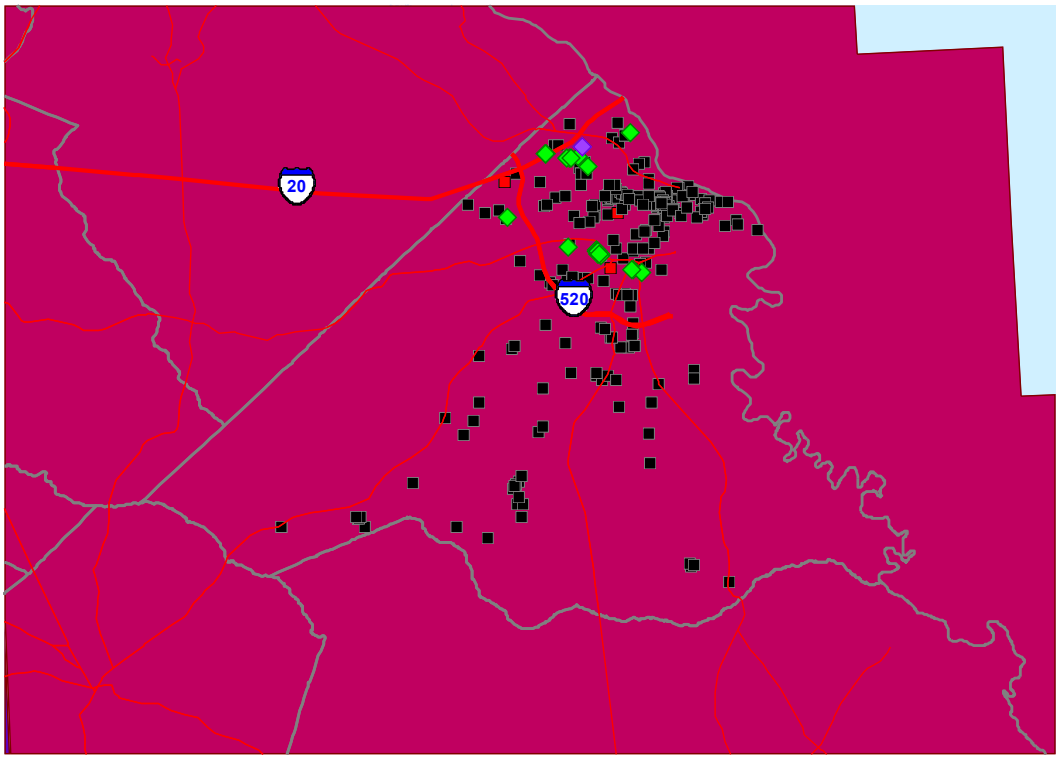
Table: 2.12 Richter Magnitude Scale			
Magnitude	**Description**	**Earthquake effects**	**Frequency of occurrence**
Less than 2.0	Micro	Micro earthquakes, not felt.[12]	About 8,000 per day
2.0–2.9	Minor	Generally not felt, but recorded.	About 1,000 per day
3.0–3.9		Often felt, but rarely causes damage.	49,000 per year (est.)
4.0–4.9	Light	Noticeable shaking of indoor items, rattling noises. Significant damage unlikely.	6,200 per year (est.)
5.0–5.9	Moderate	Can cause major damage to poorly constructed buildings over small regions. At most slight damage to well-designed buildings.	800 per year
6.0–6.9	Strong	Can be destructive in areas up to about 160 kilometers (100 mi) across in populated areas.	120 per year
7.0–7.9	Major	Can cause serious damage over larger areas.	18 per year
8.0–8.9	Great	Can cause serious damage in areas several hundred kilometers across.	1 per year
9.0–9.9		Devastating in areas several thousand kilometers across.	1 per 20 years
10.0+	Massive	Never recorded, widespread devastation across very large areas; see below for equivalent seismic energy yield.	Extremely rare (Unknown)
(*Based on U.S. Geological Survey documents.*)[13]			

2.6.3 Inventory of Assets Exposed to Earthquakes

The geographical size of the region is 328.51 square miles and contains 40 census tracts. There are over 73 thousand households in the region and has a total population of 199,775 people (2000 Census Bureau data). The distribution of population by State and County is provided in Appendix B.

There are an estimated 77 thousand buildings (residential and non-residential) in the region with a total building replacement value (excluding contents) of 12,743 (millions of dollars). Approximately 92.00 % of the buildings (and 70.00% of the building value) are associated with residential housing. The replacement value of the transportation and utility lifeline systems is estimated to be 2,285 and 273 (millions of dollars), respectively.

Map of Earthquake Exposure produced in GMIS



Building and Lifeline Inventory

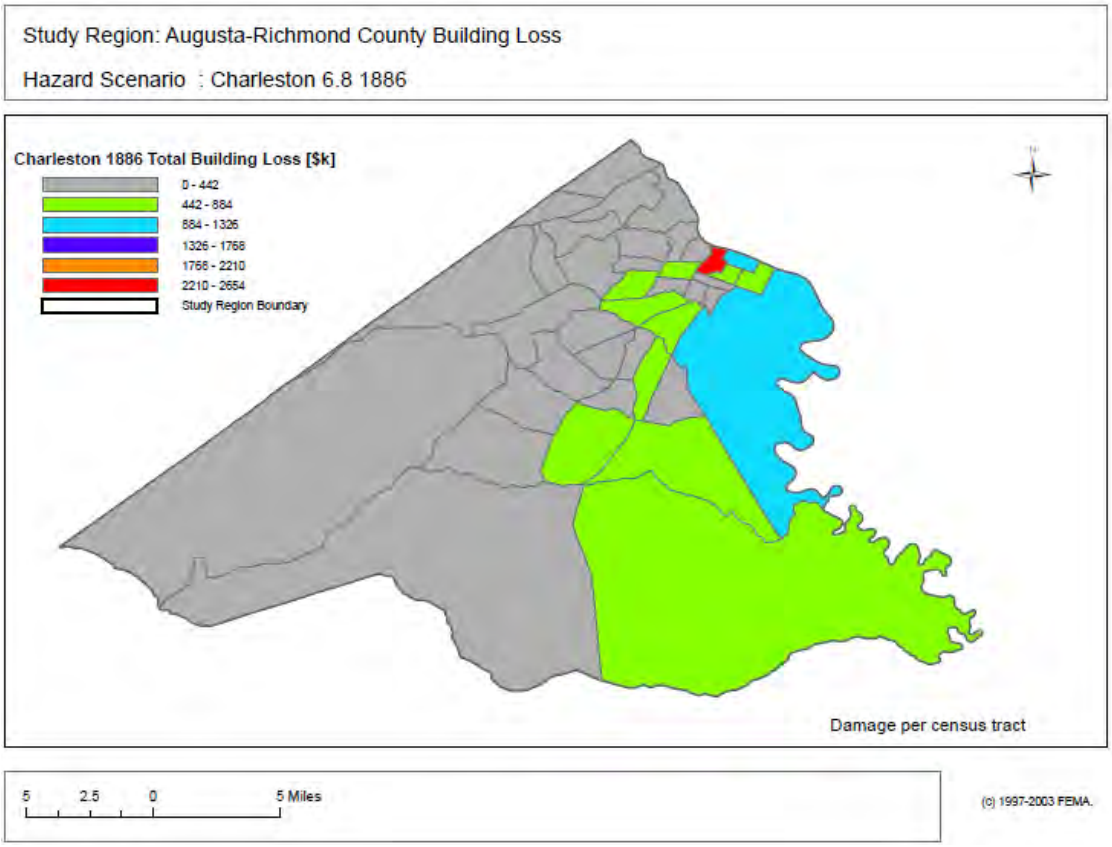
Building Inventory

HAZUS estimates that there are 77 thousand buildings in the region which have an aggregate total replacement value of 12,743 (millions of dollars). Appendix B provides a general distribution of the building value by State and County.

In terms of building construction types found in the region, wood frame construction makes up 74% of the building inventory. The remaining percentage is distributed between the other general building types.

Critical Facility Inventory HAZUS breaks critical facilities into two (2) groups: essential facilities and high potential loss (HPL) facilities. Essential facilities include hospitals, medical clinics, schools, fire stations, police stations and emergency operations facilities. High potential loss facilities include dams, levees, military installations, nuclear power plants and hazardous material sites. For essential facilities, there are 8 hospitals in the region with a total bed capacity of 2,353 beds.

There are 75 schools, 2 fire stations, 4 police stations and 0 emergency operation facilities. With respect to HPL facilities, there are 30 dams identified within the region. Of these, 6 of the dams are classified as 'high hazard'. The inventory also includes 106 hazardous material sites, 0 military installations and 0 nuclear power plants. The Savannah River Nuclear Site is located nearby in South Carolina.



Transportation and Utility Lifeline Inventory

Within HAZUS, the lifeline inventory is divided between transportation and utility lifeline systems. There are seven (7) transportation systems that include highways, railways, light rail, bus, ports, ferry and airports. There are six (6) utility systems that include potable water, wastewater, natural gas, crude & refined oil, electric power and communications. The lifeline inventory data are provided in Tables 2.13 and 2.14.

The total value of the lifeline inventory is over 2,558.00 (millions of dollars). This inventory includes over 260 kilometers of highways, 134 bridges, and 5,737 kilometers of pipes.

Table 2.13: Transportation System Lifeline Inventory

System	Component	# locations/ # Segments	Replacement value (millions of dollars)
Highway	Bridges	134	270.40
	Segments	130	1,707.10
	Tunnels	0	0.00
		Subtotal	**1,977.40**
Railways	Bridges	0	0.00
	Facilities	5	13.30
	Segments	104	119.30
	Tunnels	0	0.00
		Subtotal	**132.60**
Light Rail	Bridges	0	0.00
	Facilities	0	0.00
	Segments	0	0.00
	Tunnels	0	0.00
		Subtotal	**0.00**
Bus	Facilities	2	1.90
		Subtotal	**1.90**
Ferry	Facilities	0	0.00
		Subtotal	**0.00**
Port	Facilities	0	0.00
		Subtotal	**0.00**
Airport	Facilities	2	21.30
	Runways	4	151.90
		Subtotal	**173.20**
		Total	**2,285.10**

Table 2.14: Utility System Lifeline Inventory

System	Component	# Locations / Segments	Replacement value (millions of dollars)
Potable Water	Distribution Lines	NA	57.40
	Facilities	0	0.00
	Pipelines	0	0.00
		Subtotal	**57.40**
Waste Water	Distribution Lines	NA	34.40
	Facilities	3	175.80
	Pipelines	0	0.00
		Subtotal	**210.20**
Natural Gas	Distribution Lines	NA	23.00
	Facilities	0	0.00
	Pipelines	0	0.00
		Subtotal	**23.00**
Oil Systems	Facilities	0	0.00
	Pipelines	0	0.00
		Subtotal	**0.00**
Electrical Power	Facilities	1	96.80
		Subtotal	**96.80**
Communication	Facilities	9	0.80
		Subtotal	**0.80**
		Total	**388.20**

Earthquake Scenario Building Damage

HAZUS estimates that about 122 buildings will be at least moderately damaged. This is over 0.00 % of the total number of buildings in the region. There are an estimated 0 buildings that will be damaged beyond repair. The definition of the 'damage states' is provided in Volume 1: Chapter 5 of the HAZUS technical manual. Table 2.15 below summaries the expected damage by general occupancy for the buildings in the region. Table 2.16 summaries the expected damage by general building type. The following map illustrates building loss.

Table 2.15: Expected Building Damage by Occupancy

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	64	0.09	0	0.00	0	0.00	0	0.00	0	0.00
Commercial	2,134	2.95	0	0.00	0	0.00	0	0.00	0	0.00
Education	4	0.01	0	0.00	0	0.00	0	0.00	0	0.00
Government	30	0.04	0	0.00	0	0.00	0	0.00	0	0.00
Industrial	305	0.42	0	0.00	0	0.00	0	0.00	0	0.00
Other Residential	16,120	22.32	250	39.87	89	72.95	0	0.00	0	0.00
Religion	292	0.40	0	0.00	0	0.00	0	0.00	0	0.00
Single Family	53,268	73.76	377	60.13	33	27.05	0	0.00	0	0.00
Total	**72,217**		**627**		**122**		**0**		**0**	

Table 2.16: Expected Building Damage by Building Type (All Design Levels)

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Wood	56,609	78.39	302	48.17	15	12.30	0	0.00	0	0.00
Steel	1,329	1.84	0	0.00	0	0.00	0	0.00	0	0.00
Concrete	267	0.37	0	0.00	0	0.00	0	0.00	0	0.00
Precast	29	0.04	0	0.00	0	0.00	0	0.00	0	0.00
RM	587	0.81	0	0.00	0	0.00	0	0.00	0	0.00
URM	6,279	8.69	79	12.60	18	14.75	0	0.00	0	0.00
MH	7,117	9.86	246	39.23	89	72.95	0	0.00	0	0.00
Total	**72,217**		**627**		**122**		**0**		**0**	

Essential Facility Damage

Before the earthquake, the region had 2,353 hospital beds available for use. On the day of the earthquake, the model estimates that only 2,153 hospital beds (92.00%) are available for use by patients already in the hospital and those injured by the earthquake. After one week, 97.00% of the beds will be back in service. By 30 days, 99.00% will be operational.

Table 2.17: Expected Damage to Essential Facilities

Classification	Total	# Facilities		
		At Least Moderate Damage > 50%	Complete Damage > 50%	With Functionality > 50% on day 1
Hospitals	8	0	0	8
Schools	75	0	0	75
EOCs	0	0	0	0
PoliceStations	4	0	0	4
FireStations	2	0	0	2

Transportation and Utility Lifeline Damage

Table 2.18 provides damage estimates for the transportation system.

Table 2.18: Expected Damage to the Transportation Systems

System	Component		Number of Locations			
		Locations/ Segments	With at Least Mod. Damage	With Complete Damage	With Functionality > 50 %	
					After Day 1	After Day 7
Highway	Segments	130	0	0	130	130
	Bridges	134	0	0	134	134
	Tunnels	0	0	0	0	0
Railways	Segments	104	0	0	104	104
	Bridges	0	0	0	0	0
	Tunnels	0	0	0	0	0
	Facilities	5	0	0	5	5
Light Rail	Segments	0	0	0	0	0
	Bridges	0	0	0	0	0
	Tunnels	0	0	0	0	0
	Facilities	0	0	0	0	0
Bus	Facilities	2	0	0	2	2
Ferry	Facilities	0	0	0	0	0
Port	Facilities	0	0	0	0	0
Airport	Facilities	2	0	0	2	2
	Runways	4	0	0	4	4

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

The tables below provide information on the damage to the utility lifeline systems. Table 2.19 provides damage to the utility system facilities. Table 2.20 provides estimates on the number of leaks and breaks by the pipelines of the utility systems. For electric power and potable water, HAZUS performs a simplified system performance analysis. Table 2.21 provides a summary of the system performance information.

Table 2.19 : Expected Utility System Facility Damage

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

Table 2.20 : Expected Utility System Pipeline Damage (Site Specific)

System	Total Pipelines Length (kms)	Number of Leaks	Number of Breaks
Potable Water	2,869	6	1
Waste Water	1,721	5	1
Natural Gas	1,148	5	1
Oil	0	0	0

Table 2.21: Expected Potable Water and Electric Power System Performance

	Total # of Households	Number of Households without Service				
		At Day 1	At Day 3	At Day 7	At Day 30	At Day 90
Potable Water	73,920	0	0	0	0	0
Electric Power		0	0	0	0	0

Induced Earthquake Damage

Fire Following Earthquake

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

Debris Generation

HAZUS estimates the amount of debris that will be generated by the earthquake. The model breaks the debris into two general categories: a) Brick/Wood and b) Reinforced Concrete/Steel. This distinction is made because of the different types of material handling equipment required to handle the debris. The model estimates that a total of 0.010 million tons of debris will be generated. Of the total amount, Brick/Wood comprises 72.00% of the total, with the remainder being Reinforced Concrete/Steel. If the debris tonnage is converted to an estimated number of truckloads, it will require 320 truckloads (@25 tons/truck) to remove the debris generated by the earthquake.

Social Impact: Shelter Requirements

HAZUS estimates the number of households that are expected to be displaced from their homes due to the earthquake and the number of displaced people that will require accommodations in temporary public shelters. The model estimates 9 households to be displaced due to the earthquake. Of these, 8 people (out of a total population of 199,775) will seek temporary shelter in public shelters.

Casualties

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

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

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

Table 2.22 provides a summary of the casualties estimated for this earthquake.

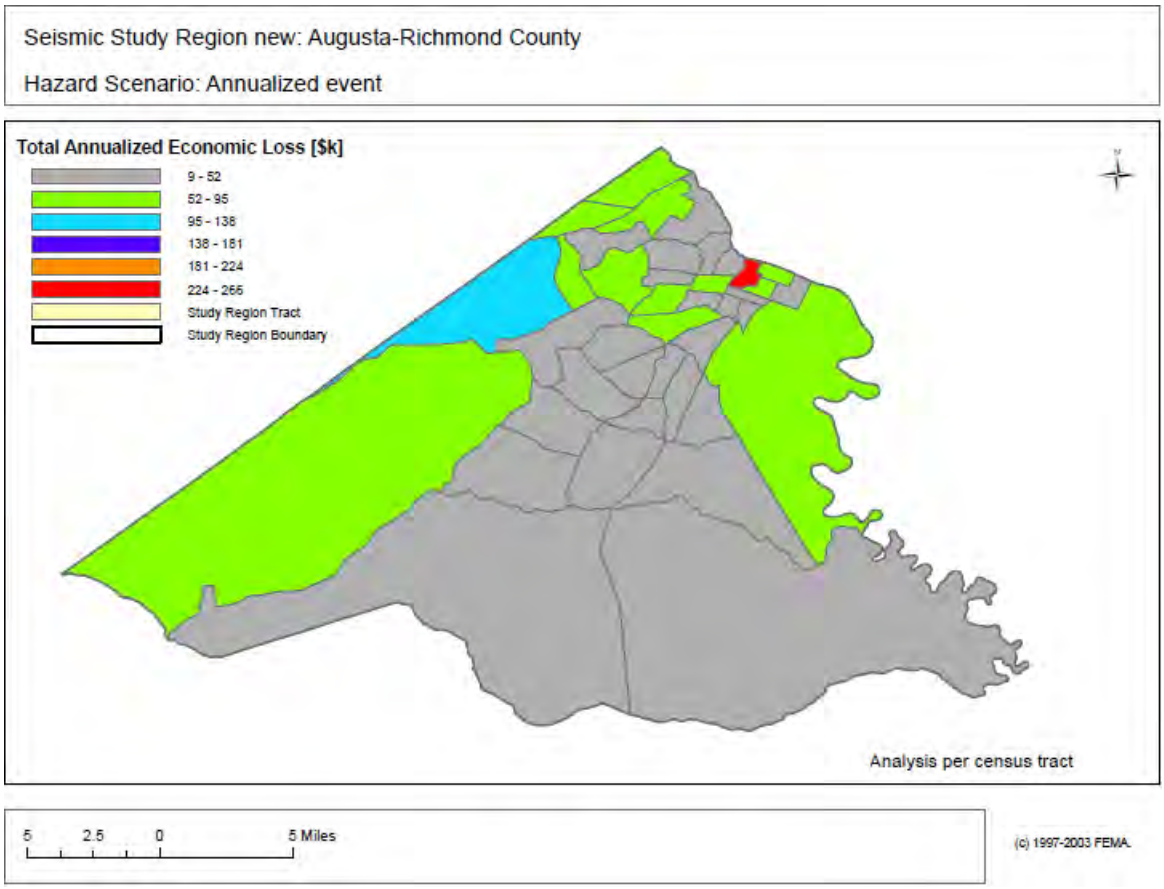
Table 2.22: Casualty Estimates

		Level 1	Level 2	Level 3	Level 4
2 AM	Commercial	0	0	0	0
	Commuting	0	0	0	0
	Educational	0	0	0	0
	Hotels	0	0	0	0
	Industrial	0	0	0	0
	Other-Residential	2	0	0	0
	Single Family	2	0	0	0
	Total	**4**	**0**	**0**	**0**
2 PM	Commercial	4	0	0	0
	Commuting	0	0	0	0
	Educational	1	0	0	0
	Hotels	0	0	0	0
	Industrial	0	0	0	0
	Other-Residential	0	0	0	0
	Single Family	0	0	0	0
	Total	**6**	**1**	**0**	**0**
5 PM	Commercial	2	0	0	0
	Commuting	0	0	0	0
	Educational	0	0	0	0
	Hotels	0	0	0	0
	Industrial	0	0	0	0
	Other-Residential	1	0	0	0
	Single Family	1	0	0	0
	Total	**4**	**0**	**0**	**0**

2.6.4 Estimation of Losses Due to Earthquakes

Economic Losses

The total economic loss estimated for the earthquake is 2.65 (millions of dollars), which includes building and lifeline related losses based on the region's available inventory. The following three sections provide more detailed information about these losses. The following map depicts economic losses.



Building-Related Losses

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

The total building-related losses were 2.10 (millions of dollars); 33% of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies which made up over 38%

of the total loss. Table 2.23 below provides a summary of the losses associated with the building damage.

Table 2.23: Building-Related Economic Loss Estimates

(Millions of dollars)

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total
Income Loses							
	Wage	0.00	0.02	0.17	0.00	0.01	0.20
	Capital-Related	0.00	0.01	0.13	0.00	0.00	0.14
	Rental	0.01	0.04	0.07	0.00	0.00	0.12
	Relocation	0.04	0.03	0.13	0.01	0.03	0.24
	Subtotal	**0.05**	**0.10**	**0.49**	**0.02**	**0.04**	**0.70**
Capital Stock Loses							
	Structural	0.05	0.07	0.12	0.02	0.02	0.28
	Non_Structural	0.20	0.22	0.29	0.05	0.05	0.81
	Content	0.06	0.04	0.13	0.03	0.02	0.29
	Inventory	0.00	0.00	0.00	0.01	0.00	0.01
	Subtotal	**0.32**	**0.34**	**0.54**	**0.11**	**0.10**	**1.39**
	Total	**0.37**	**0.44**	**1.03**	**0.12**	**0.14**	**2.10**

Transportation and Utility Lifeline Losses

For the transportation and utility lifeline systems, HAZUS computes the direct repair cost for each component only. There are no losses computed by HAZUS for business interruption due to lifeline outages. Tables 2.24 & 2.25 provide a detailed breakdown in the expected lifeline losses.

HAZUS estimates the long-term economic impacts to the region for 15 years after the earthquake. The model quantifies this information in terms of income and employment changes within the region. Table 2.26 presents the results of the region for the given earthquake.

Table 2.24: Transportation System Economic Losses
(Millions of dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Highway	Segments	1,707.07	$0.00	0.00
	Bridges	270.36	$0.03	0.01
	Tunnels	0.00	$0.00	0.00
	Subtotal	**1977.40**	**0.00**	
Railways	Segments	119.30	$0.00	0.00
	Bridges	0.00	$0.00	0.00
	Tunnels	0.00	$0.00	0.00
	Facilities	13.32	$0.15	1.11
	Subtotal	**132.60**	**0.10**	
Light Rail	Segments	0.00	$0.00	0.00
	Bridges	0.00	$0.00	0.00
	Tunnels	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**0.00**	
Bus	Facilities	1.92	$0.02	1.05
	Subtotal	**1.90**	**0.00**	
Ferry	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**0.00**	
Port	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**0.00**	
Airport	Facilities	21.30	$0.13	0.60
	Runways	151.86	$0.00	0.00
	Subtotal	**173.20**	**0.10**	
	Total	**2285.10**	**0.30**	

Table 2.25: Utility System Economic Losses

(Millions of dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Potable Water	Pipelines	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Distribution Lines	57.40	$0.03	0.04
	Subtotal	**57.38**	**$0.03**	
Waste Water	Pipelines	0.00	$0.00	0.00
	Facilities	175.80	$0.16	0.09
	Distribution Lines	34.40	$0.02	0.06
	Subtotal	**210.25**	**$0.18**	
Natural Gas	Pipelines	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Distribution Lines	23.00	$0.02	0.09
	Subtotal	**22.95**	**$0.02**	
Oil Systems	Pipelines	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**$0.00**	
Electrical Power	Facilities	96.80	$0.00	0.00
	Subtotal	**96.80**	**$0.00**	
Communication	Facilities	0.80	$0.00	0.04
	Subtotal	**0.79**	**$0.00**	
	Total	**388.17**	**$0.23**	

Table 2.26. Indirect Economic Impact with outside aid
(Employment as # of people and Income in millions of $)

LOSS		Total	%
First Year			
	Employment Impact	0	0.00
	Income Impact	0	0.00
Second Year			
	Employment Impact	0	0.00
	Income Impact	0	-0.01
Third Year			
	Employment Impact	0	0.00
	Income Impact	0	-0.01
Fourth Year			
	Employment Impact	0	0.00
	Income Impact	0	-0.01
Fifth Year			
	Employment Impact	0	0.00
	Income Impact	0	-0.01
Years 6 to 15			
	Employment Impact	0	0.00
	Income Impact	0	-0.01

Regional Population and Building Value Data

State	County Name	Population	Building Value (millions of dollars)		
			Residential	Non-Residential	Total
Georgia	Richmond	199,775	8,967	3,775	12,743
Total State		**199,775**	**8,967**	**3,775**	**12,743**
Total Region		**199,775**	**8,967**	**3,775**	**12,743**

An additional Seismic Scenario was run using Charleston, SC data and is available separately at: (https://docs.google.com/a/plansandmorellp.com/viewer?a=v&pid=explorer&chrome=true&srcid=0B44NiQQjw1DOYjFhNDQ0MWUtZDg4Mi00M2MxLWIzMTMtNzM4YTUyZGM2OTE2&hl=en_US.

2.6.5 Land Use and Development Trends related to Earthquakes

Augusta – Richmond County and the Cities of Blythe and Hephzibah governments and planning entities currently have no land use trends related to earthquakes.

2.6.6 Multi-jurisdictional Differences related to Earthquakes

There are no multi-jurisdictional differences related to earthquakes in the August-Richmond County planning area. The entire planning region is equally affected.

2.6.7 Earthquakes HRV Summary

Georgia is not the first state mentioned when discussing earthquakes. Events in Georgia are rare, particularly when compared to the long history of damaging earthquakes associated with California's active San Andrea fault zone and other fault zones bounding the tectonic plates of the Earth's crust.

Movement of the Earth's crust along these plate boundaries explains most earthquakes. Georgia, like all the other states east of the Rocky Mountains, does not have active faults, and is not on a tectonic plate boundary. Nonetheless, damaging earthquakes do occur in the interior of tectonic plates and these intra-plate earthquakes can be an important consideration for emergency managers and government officials.

Total economic loss estimated for the HAZUS earthquake in the planning area is 2.65 million dollars and includes building and lifeline related losses based on available inventory information. Given the relatively low risk factor for the planning area, Earthquakes were ranked in the 'low risk' category.

2.7: Natural Hazards G – All Hazards

The HMPC determined that an all hazards approach to analyze the impacts of current policies, ordinances, and plans on community safety from technological hazard risks due to growth decisions losses in Augusta - Richmond County and the Cities of Blythe and Hephzibah would provide a holistic methodology to address community risk.

The specific mitigation strategy and action is the production of a Safe Community Audit Report to inform citizens and decision makers losses in Augusta - Richmond County and the Cities of Blythe and Hephzibah about important safety issues and to relay needed changes in community ordinances, processes, and policies, (Godschalk, 2009).

CHAPTER 3: LOCAL TECHNOLOGICAL HAZARD, RISK, and VULNERABLITY* (HRV)

Chapter 3 of the HMP describes the Technological and Manmade Hazard*, Risk, and Vulnerability (HRV) summary undertaken by Augusta - Richmond County and the Cities of Blythe and Hephzibah. This section consists of the following subsections:

- CHEMICAL LEAK/SPILL; CHEMICAL RELEASE (AIRBORNE)**
- TERRORISM
- NUCLEAR PLANT INCIDENT
- DAM/LEVEE FAILURE

Notes: * Technological and Manmade Hazards referred to as Technological Hazards throughout the HMP.
**Chemical Leak/Spill – Chemical Release (Airborne) referred to as Chemical Hazard throughout HMP.

INTRODUCTION AND UPDATE SUMMARY

A key step in the mitigation of disaster losses in Augusta - Richmond County and the Cities of Blythe and Hephzibah, lies in developing a comprehensive understanding of the hazards posing risk to its communities. The following terms define the process of Hazard Identification and Risk Assessment and are found throughout the Plan.

Hazard: Event or physical conditions that have the potential to cause fatalities, injuries, agricultural loss, property damage, infrastructure damage, damage to the environment, interruption of business, other types of harm.
Risk: Product of a hazard's likelihood of occurrence and its consequences to society.
Vulnerability: Degree of susceptibility and resilience of the community and environment to hazards. **(Source:** Federal Emergency Management Agency, 2001).

The Local Hazard, Risk, and Vulnerability (HRV) summary process methodology evaluates risk defined by probability and frequency of occurrence. An assessment of each hazard event, human and property exposure to the hazard, and the consequences of that exposure form the basis of community hazard investigation. Distinct methodologies used to record community exposure include qualitative and quantitative data.

Augusta - Richmond County and the cities of Blythe and Hephzibah are vulnerable to a broad range of technological and manmade hazards that threaten life and property. The Augusta Richmond County Hazard Mitigation Planning Committee (HMPC) identified hazards to include in the HRV summary were determined to pose actual, potential threat to Augusta - Richmond County and the Cities of Blythe and Hephzibah. Hazards identified are consistent with those identified by the Georgia Emergency Management Agency (GEMA) and the Federal Emergency Management Agency (FEMA) for the Northeast region of the state and this region of the country. The technological hazards for this 2011 Plan update include:

- CHEMICAL LEAK/SPILL; CHEMICAL RELEASE (AIRBORNE)**
- TERRORISM
- NUCLEAR PLANT INCIDENT
- DAM/LEVEE FAILURE

Technological hazards can be potentially interrelated to natural hazards, (Ex: a chemical spill could exacerbate response and recovery efforts during a flood event or hazardous chemicals could be used in an act of terrorism), therefore an assessment of those hazards identifies commonalities during the HRV process. Where specific hazard risk and exposure categories intersect, risk hazard categories are not duplicated to control data skewing.

Table 3.1 below provides a summary of the changes made to the effective HMP.

Table 3.1: Evaluation of Technological and Manmade Hazards to Include in 2011 HRV Summary

2006 HAZARD	STATUS	NOTES	2011 HAZARD
Hazardous Materials	Changed	Renamed	Chemical Leak Spill; Chemical Release (Airborne)
N/A	Added	New Hazard Identified	Terrorism
N/A	Added	New Hazard Identified	Nuclear Plant Incident
N/A	Added	New Hazard Identified	Dam/Levee Failure

Existing Plan Review and Update Process. The HMPC reviewed the effective 2006 HMP during the first HMPC Workshop on June 14, 2011. The consensus of the HMPC and public attendees was to rewrite Chapter 2 after a thorough review of hazard data and community risks. Chapter 2 revisions, additions, and changes were accomplished through an intensive Hazard Identification process using GEMA Worksheet #1 with a FEMA Questionnaire addition, GMIS data and maps, HAZUS data and reports, Hazard Ranking Survey, analysis of independent data from FEMA, NOAA, NWS, USGS, GA Forestry, local knowledge of hazard events, news articles, and other sources of hazard information. Table U-3 below provides update information.

Table U – 3: Updates to Chapter 3	
A: 2006 HMP Chapter 3 Sections	**B: Updates to Sections**
3.1 Hazardous Materials 3.1.1 Events, Frequency & Probability 3.1.2 Assets Exposed & Potential Losses 3.1.3 Land Use and Development Trends 3.1.4 Multi-Jurisdictional Differences 3.1.5 Summary: Hazardous Materials	3.1 Technological Hazard A: Chemical Hazard Section renamed and completely re-written. 3.1.1 Chemical Hazard Identity. Section renamed and completely re-written. 3.1.2. Inventory of Assets Exposed to Chemical Hazard. Section renamed and re-written. 3.1.4.Estimate of Losses Due to Chemical Hazard. Section added. 3.1.5. Land use and development trends Chemical Hazard. Section re-written. 3.1.6 Multi-Jurisdictional differences in Chemical Hazard Events. Section renamed. Minor revision. 3.1.7 Chemical Hazard HRV Summary. Section revised.
HAZARD NOT IN 2006 EFFECTIVE PLAN.	3.2 Technological Hazard B: Terrorism 3.2.1 Terrorism Identity 3.2.2 Terrorism Profile 3.2.3 Inventory of Assets exposed to Terrorism 3.2.4 Estimation of potential losses to Terrorism 3.2.5 Land use and development trends related to Terrorism 3.2.6 Multi-Jurisdictional Terrorism Differences 3.2.7 General overall HRV summary of Terrorism
HAZARD NOT IN 2006 EFFECTIVE PLAN.	3.3 Technical Hazard C: Nuclear Plant Incident 3.3.1 Nuclear Plant Incident Identity 3.3.2 Profile of Nuclear Plant Incident 3.3.3 Inventory assets exposed to Nuclear Plant Incident 3.3.3.1 Planning Area Site Emergency 3.3.4 Estimation of Potential Losses to Nuclear Plant 3.3.5 Land use and development trends Nuclear Plant Incidents 3.3.6 Multi-Jurisdictional Nuclear Plant Incident Differences 3.3.7 General overall HRV summary of Nuclear Plant Incidents
HAZARD NOT IN 2006 EFFECTIVE PLAN.	3.4 Technical Hazard D: Dam – Levee Failure 3.4.1 Dam – Levee Failure Identity 3.4.2 Dam Failure Profile 3.4.3 Inventory assets exposed to Dam Failure 3.4.4 Potential losses related to Dam Failure 3.4.5 Land use and development trends related to Dam Failure 3.4.6 Multi-Jurisdictional Differences related to Dam Failure. 3.4.7 General overall HRV summary of Dam Failure.

Figure 3.2: HAZARD IDENTIFICATION RANKING SURVEY RESULTS

NATURAL HAZARD RANKING

Where 1 = Highest Risk and 6 = Lowest Risk)

1 TORNADO/WIND STORM/HAIL
2 FLOODING
3 DROUGHT EXTREME HEAT
4 SEVERE WINTER STORM
5 WILDFIRE
6 EARTHQUAKE

MANMADE/TECHNOLOGICAL HAZARD RANKING

Where 1 = Highest Risk and 4 = Lowest Risk

1 CHEMICAL LEAK/SPILL CHEMICAL RELEASE (AIRBORNE)
2 TERRORISM
3 NUCLEAR PLANT INCIDENT
4 DAM/LEVEE FAILURE

Raw numeric data for the Hazard Identification Ranking Survey is reported below in Table 3.2.

TABLE 3.2: HAZARD IDENTIFICATION RANKING SURVEY

RANK	NATURAL HAZARDS	RAW NUMBER	# RESPONDENTS
1	Tornado/Windstorm/Hail	50	31
2	Flood	75	31
3	Drought/Extreme Heat	105	31
4	Winter Storm	111	31
5	Wildfire	135	31
6	Earthquake	175	31
RANK	MANMADE/TECHNOLOGICAL HAZARDS		31
1	Chemical Leak/Spill; Chemical Release (Airborne)	44	31
2	Terrorism	82	31
3	Nuclear Incident	94	31
4	Dam/Levee Failure	95	31

Notes: Respondent numeric results are assigned value with the Hazards in each category ranked where the raw lowest score = the highest risk.

In the Natural Hazards category respondents ranked Tornado/Windstorm Hail as the highest community risk, followed by Flooding, Drought/Extreme Heat, Severe Winter Storms, Wildfires, and Earthquakes. In the Manmade/Technological Hazards category respondents ranked Chemical Leak/Spill as the highest community risk, followed by Terrorism, Nuclear Incident, and Dam/Levee Failure.

The HMPC Risk Assessment element of the plan is predicated on a Risk Factor (RF) formula where the HMPC Hazard Identification Questionnaire, Hazard Identification Ranking Survey, and HMPC Qualitative Commentary Report are assigned a 30%

(.30) weighted RF value in the overall HMP risk analysis. The HI - RA RF formula for the HMP Update is:

HMPC RA = (.30) + Historic Hazard Event - Declarations (.30) + FEMA HAZUS® - MH and other Risk Analysis Processes (.40).

The HI – RA results were forwarded to the HMPC for review, input, and adoption on 14 July, 2011 at the HMPC – Stakeholders Meeting, 9:00 AM – Noon, Augusta Municipal Building in Room 803. The HMPC Hazard Ranking Subcommittee incorporated appropriate revisions, clarifications, and community input, and the final HMPC HI - RA was adopted on July 17, 2011. The Subcommittee members and the role/affiliation of each are listed in the Table S.1 below:

Table S.1: HMPC Hazard Ranking Subcommittee			
Chief Howard Willis	City of Augusta HMPC Chairman	Steve Abbott	GA Forestry Commission Chief Ranger
Terri Turner	City of Augusta HMPC Vice - chair	Steve Willard	US Army - Fort Gordon Chief of Environ & Nat
Sharon Bennett	City of Augusta HMPC Secretary	Susan James	University Hospital Emergency Mgmt. Coordinator
Fred Russell	City of Augusta City Administrator	David Jones	MCG Health, Inc.
George Patty	Augusta - Richmond County Planning Commission Executive Director	David Brown	VA Medical Center Emergency Preparedness Coordinator
Scott Gay	City of Augusta Sheriff's Department	Tom Knight	South Star Special Projects Coordinator
Loriann H. Chancey	City of Blythe	Chief Patrick Clayton	Richmond County BOE Dept. Safety & Security
Bill Shanahan	City of Augusta Deputy Administrator	Mie Lucas	Emergency Serv. Dir.
Jonathan Adriano	GA Health - District 6 Director of Emergency Preparedness	Evan Joseph	GA Department of Corrections Warden
Dominick Nutter	City of Augusta E-911 Director	Tom Beck, Jr.	City of Augusta Recreation, Parks & Facilities - Director
Jack Womack	City of Augusta Fire Department Fire Marshall	Martha Allen	City of Hephzibah City Clerk
Hameed Malik	City of Augusta Engineer	Jasper A. Cooke	Augusta State University Public Safety Director
Tom Wiedmeier	City of Augusta Director Utilities	Randy Wishard	Richmond County Health Department
Abie Ladson	City of Augusta Public Works Director	Bill Welsh	Trinity Hospital Director of Plant Operations
Rob Sherman	City of Augusta Director License/Inspections	Brad Thompson	Doctor's Hospital Director of Safety & Security
Scott Hyatt	USCOE Operations Project Manager - J. Strom Thurmond Dam & Lake		

Hazards were ranked in order to provide structure, prioritization, and feasibility of proposed mitigation goals and actions. Ranking was both quantitative and qualitative. First, the quantitative analysis considered data from EPA, Department of Homeland Security (DHS), FEMA, GEMA, and local EMA Emergency Operation Plans (EOP), and EOP information from Federal, State, and Local Agencies, businesses, and individuals available. The Risk Factor (RF), qualitative approach, was used to provide additional insights on the specific risks and exposure associated with each hazard. This process is a valuable crosscheck or validation of the quantitative analysis performed.

The RF approach combines historic hazard data, local knowledge, and consensus risk assessment evaluations to produce numerical values to compare identified hazards in determining community vulnerability. During the planning process, the Augusta - Richmond County HMPC contrasted the results of the hazard profiles with local knowledge to generate the ranking criteria. The criteria were used to evaluate the hazards in order to determine the degree of risk for each.

The process produces numerical values, allowing identified hazards to be ranked against one another (higher RF values = greater hazard risk). RF values are obtained by assigning degrees of risk in five categories for each hazard: probability, impact, spatial extent, warning time, and duration. Each degree of risk is assigned a value range of 1 to 4 and a weighting factor for each category agreed upon by the HMPC. The HMPC may adjust the RF weighting scheme based on unique concerns or circumstances within the planning area. To calculate RF value for each hazard, risk values are multiplied by the weighting factor. The sum of the five categories equals the final RF value, as demonstrated in the equation and Chart 2-1 below:

RF Value = [(Probability x .30) + (Impact x .30) + (Spatial Extent x .20) + (Warning Time x .10) + (Duration x .10)]

Chart 2-1: HMPC HRV RF Criteria

Chart 2-1: AUGUSTA HMPC HAZARD, RISK AND VULNERABILITY (HRV) RISK FACTOR CRITERIA				
RISK ASSESSMENT CATEGORY	**LEVEL**	**DEGREE OF RISK LEVEL**	**INDEX**	**WEIGHT**
PROBABILITY What is the likelihood of a hazard event occurring in a given year?	**UNLIKELY**	LESS THAN 1% ANNUAL PROBABILITY	1	30%
	POSSIBLE	BETWEEN 1 & 10% ANNUAL PROBABILITY	2	
	LIKELY	BETWEEN 10 &100% ANNUAL PROBABILITY	3	
	HIGHLY LIKELY	100% ANNUAL PROBABILTY	4	
IMPACT *In terms of injuries, damage, or death, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?*	**MINOR**	VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES.	1	30%
	LIMITED	MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE DAY.	2	
	CRITICAL	MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE WEEK.	3	
	CATASTROPHIC	HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR 30 DAYS OR MORE.	4	
SPATIAL EXTENT *How large of an area could be impacted by a hazard event? Are impacts localized or regional?*	**NEGLIGIBLE**	LESS THAN 1% OF AREA AFFECTED	1	20%
	SMALL	BETWEEN 1 & 10% OF AREA AFFECTED	2	
	MODERATE	BETWEEN 10 & 50% OF AREA AFFECTED	3	
	LARGE	BETWEEN 50 & 100% OF AREA AFFECTED	4	
WARNING TIME *Is there usually some lead time associated with the hazard event? Have warning measures been implemented?*	**MORE THAN 24 HRS**	SELF DEFINED	1	10%
	12 TO 24 HRS	SELF DEFINED	2	
	6 TO 12 HRS	SELF DEFINED	3	
	LESS THAN 6 HRS	SELF DEFINED	4	
DURATION *How long does the hazard event usually last?*	**LESS THAN 6 HRS**	SELF DEFINED	1	10%
	LESS THAN 24 HRS	SELF DEFINED	2	
	LESS THAN 1 WEEK	SELF DEFINED	3	
	MORE THAN 1 WEEK	SELF DEFINED	4	

In applying the default weighting scheme, the highest possible RF value is 4.0. The methodology illustrated above contains the categories used to calculate the variables for the RF value.

Additional Sources of Risk Assessment Data

HMPC data sources by hazard included:

Chemical Hazards. EPA's Risk-based Prioritizations of High Production Volume (HPV) Chemicals are screening-level documents that:

- Summarize basic hazard and exposure information available to EPA on HPV chemicals;
- Identify potential risks;
- Note scientific issues and uncertainties; and
- Indicate the initial priority being assigned by the Agency for potential future appropriate action.

The documents are primarily based on hazard, use, and exposure data available to the Agency through the HPV Challenge Program and on EPA's examination of chemical use and exposure information collected from the 2006 Inventory Update Reporting (IUR) as well as data from readily available sources of hazard and exposure information.

These screening-level documents will be used by EPA to evaluate chemicals and assign initial priority for future potential action based on the risk concerns presented by these chemicals in comparison with other HPV chemicals and in light of any uncertainties presented by gaps in the available data. The Agency intends to follow-up with voluntary or regulatory actions for HPV chemicals of concern focusing initially on cases presenting special concern. These characterizations and prioritizations do not constitute definitive determinations regarding either risk or the sufficiency of available information for any regulatory purpose, but are rather initial evaluations based upon HPV Challenge Program and IUR data received by EPA.
For a given chemical or chemical category, each Risk-based Prioritization presents an initial recommended level of concern and contains supporting documents, including:

- Hazard Characterization;
- Exposure Characterization; and
- Risk Characterization (EPA, 2011).

Nuclear Plant Incident. The GEMA Radiological Programs Section is responsible for the Radiological Emergency Preparedness (REP) Program, the Waste Isolation Pilot Plant (WIPP) Program, and Local Emergency Planning Committee (LEPC) Program. The mission of the REP Program is to ensure the health and safety of the public living in the vicinity of Georgia's nuclear power facilities in the event of an accident. The primary emphasis of the program is on nuclear power plants; however plans also address other fixed nuclear facilities and radiological incidents. The REP program is responsible for plan development, plan reviews, responder training, and exercises to ensure that state and local governments are ready to respond in the unlikely event of an accident.

GEMA information on Local Emergency Planning Committees (LEPCs) work to understand chemical hazards in the community, develop emergency plans in case of an accidental release, and look for ways to prevent chemical accidents. LEPCs also serve as a repository for regional hazardous materials information, and perform outreach functions to increase hazardous materials awareness. LEPC

membership consists of local professionals representing occupational categories such as firefighting, law enforcement, emergency management, health, and/or transportation (GEMA, 2011).

Terrorism. The Counter Terrorism Task Force (CTTF) is a state-wide multi-disciplinary task force aimed at serving as the state's rapid-response security force. The CTTF's primary goal is to protect Georgia's citizens, critical infrastructure, and key resources from terrorist attacks, major disasters, and other emergencies.

In 2004, the Georgia Office of Homeland Security Director tasked GISAC with creating a task force capable of performing specialized and hazardous missions to protect the state of Georgia. GISAC developed the concept for this taskforce and the following agencies committed to provide staff and support:

- Georgia Bureau of Investigation (GBI)
- Georgia Emergency Management Agency (GEMA)
- Georgia Information Sharing & Analysis Center (GISAC)
- Georgia State Patrol (GSP)
- Georgia Department of Natural Resources (DNR), (GEMA, 2011).

Dam/Levee Failure. For 30 years, the Federal Government has been working to protect Americans from dam failure through the National Dam Safety Program (NDSP). The NDSP, which is led by FEMA, is a partnership of the states, federal agencies, and other stakeholders to encourage individual and community responsibility for dam safety.

Information Needs

Under the leadership of FEMA, state assistance funds have enabled all participating states to better their programs through increased inspections, emergency action planning, and the purchase of needed equipment. Visit Information Needs for Dam Safety (http://www.fema.gov/plan/prevent/damfailure/information.shtm) for more information.

Research

There is now a national research program in dam safety that is focusing on priorities, producing products for both the layperson and the expert, and developing technological tools that drive data collection and analysis toward a better understanding of risk and remediation needs. Visit Dam Safety Research (http://www.fema.gov/plan/prevent/damfailure/research.shtm) for information.

Training

In the training arena, FEMA expanded existing training programs and began new training programs to enhance the sharing of expertise between the federal and state sectors. Visit the following link on Dam Safety Training

(http://www.fema.gov/plan/prevent/damfailure/training.shtm) for information (FEMA, 2011).

RANKING RESULTS

The technological hazard with the highest risk potential based on the RF analysis is Chemical, with a value of 3.0; followed by Terrorism, with a value of 2.9; Nuclear Plant Incident, with a value of 2.1, and Dam/Levee Failure, with a value of 1.3.

Conclusions drawn from the qualitative and quantitative assessments, combined with the final RF determinations by the HMPC, were categorized into 3 risk designations (High, Moderate or Low) to produce a summary of hazard risks. Table 3.3 below reveals the analysis results and ranking.

Table 3.3 Augusta – Richmond County HMPC RF

TECHNOLOGICAL HAZARDS	PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION	RF RATING (PRIORITY)
Hazard A: Chemical Spill/Leak Chemical Release (Airborne)	**1.2**	**.9**	**.4**	**.4**	**.4**	**3.3**
Hazard B: Terrorism	**.6**	**.6**	**.4**	**.4**	**.4**	**2.8**
Hazard C: Nuclear Plant Incident	**.3**	**.6**	**.4**	**.4**	**.4**	**2.1**
Hazard D: Dam Levee Failure	**.6**	**.3**	**.4**	**.3**	**.4**	**2.0**
HIGH RISK (3.0 or higher)						

Table 3.4 below reveals community ranked hazards and lists them in the three categories of High, Moderate, and Low.

Table 3.4: HMPC RF Technological Hazard Risk Conclusions

HIGH RISK (3.0 or higher)	**Chemical Spill/Leak Chemical Release (Airborne)**
MODERATE RISK (2.0 – 2.9)	**Terrorism, Nuclear Plant Incident**
LOW RISK (0.1 – 1.9)	**Dam/Levee Failure**

3.1 Technological Hazard A: Chemical Hazard

For the purposes of mitigation planning, hazardous materials are defined as any materials that may have negative impacts on human health, animal health, or the environment. Hazardous materials vary widely in their toxicity to humans. Exposure to hazardous materials may result in injury, illness, or death. The

impacts of a hazardous materials exposure may be short-term immediate negative effects, defined as a few seconds, minutes or hours, or long-term negative effects within days, weeks, or years after exposure.

Hazardous chemicals are widely used in heavy industry, manufacturing, agriculture, mining, oil and gas industries, high tech industries, forestry operations, transportation, medical facilities and commercial, public and residential buildings. There are virtually hundreds of thousands of chemicals that are potentially hazardous to human health, at varying extent.

A single family home typically contains dozens of potentially hazardous materials including fuels, paints, solvents, cleaning chemicals, pesticides, herbicides, medicines and others. However, for mitigation planning purposes, the focus of interest is primarily on larger quantities of hazardous materials in industrial use and transported hazardous materials, where the potential for accidental spills or releases is greater.

The severity of a hazardous material spill or release incident for the affected community is dependent on multiple factors, including:

- Toxicity of the hazardous material;
- Quantity of the hazardous material spilled or released;
- Dispersal characteristics of the hazardous material;
- Local conditions including wind direction and topography;
- Location of the spill or release relative to sensitive environmental areas, including watersheds that provide community potable water, and;
- Efficacy of response and recovery actions.

3.1.1 Chemical Hazard Identity

A chemical hazard arises from contamination with harmful or potentially harmful chemicals that impact humans, the environment and water supply. Examples include burning of fossils, materials and chemicals used in construction and industry, chemical spillages, industrial accidents, and deliberate releases.

The Environmental Protection Agency (EPA) established the High Production Volume Information System (HPVIS), for a given chemical or chemical category, where each Risk-based Prioritization presents an initial recommended level of concern and supporting documents, including:

- Hazard Characterization;
- Exposure Characterization; and
- Risk Characterization.

EPA screening-level Risk Characterization documents summarize EPA's current thinking regarding the potential risks of HPV chemicals or categories by evaluating and integrating hazard and exposure information available to EPA.

The purpose of the qualitative screening-level risk characterizations is to:

- Support an risk-based prioritization which will inform risk management options; and
- Identify potential data needs for individual chemicals or chemical categories.

EPA risk characterizations consider three main aspects of chemicals or categories:

- Hazard (human health and environment);
- Exposure (general population and environment, workers, commercial workers and consumers, and children); and
- Physical chemical properties and environmental fate (persistence and bioaccumulation).

Evaluation of these three dimensions occurs during the risk-based prioritization process (Source: EPA, High Production Volume Information System (HPVIS), http://www.epa.gov/hpvis/aboutrbd.htm, 2011.)

The principal modes of human exposure to hazardous materials include:

1. Inhalation of gaseous or particulate materials via the respiratory (breathing) process,
2. Ingestion of hazardous materials via contaminated food or water,
3. Direct contact with skin or eyes.

The following definitions are helpful in understanding chemical exposure sources:

- **Flammable materials** are substances where fire is the primary threat, although explosions and chemical effects listed below may also occur. Common examples include gasoline, diesel fuel, and propane.
- **Explosives** are materials where explosion is the primary threat, although fires and chemical effects listed below may also occur. Common examples include dynamite and other explosives used in construction or demolition.
- **Irritants** are substances that cause inflammation or chemical burns of the eyes, nose, throat, lungs, skin or other tissues of the body in which they come in contact. Examples of irritants are strong acids such as sulfuric or nitric acid.
- **Asphyxiates** are substances that interfere with breathing. Simple asphyxiates cause injury or death by displacing the oxygen necessary for life. Nitrogen is a good example. Nitrogen is a normally harmless gas that constitutes about 78% of the atmosphere. However, nitrogen releases in a confined space may result in asphyxiation by displacing oxygen. Chemical asphyxiates are substances that prevent the body from using oxygen or otherwise interfere with the breathing process. Common examples are carbon monoxide and cyanides.
- **Anesthetics and Narcotics** are substances which act on the body by depressing the central nervous system. Symptoms include drowsiness, weakness, fatigue, and un-coordination, which may lead to unconsciousness,

paralysis of the respiratory system and death. Examples include numerous hydrocarbon and organic compounds.

Hazardous materials may also have a wide variety of more specialized impacts on human health. Other types of toxic effects are briefly summarized in Table 3.5.

Table 3.5: Other Types of Hazardous Materials

Type of Hazardous Material	Effects on Humans
Hepatotoxin	Liver damage
Nephrotoxin	Kidney damage
Neurotoxin	Neurological (nerve) damage
Carcinogen	May result in cancer
Mutagen	May produce changes in the genetic material of cells
Teratogen	May have adverse effects on sperm, ova, or fetal tissue
Radioactive materials	May result directly in radiation sickness at high exposure levels or act as carcinogen, mutagen, or teratogen
Infectious substances	Biological materials such as bacteria or viruses that may cause illness or death

Much of the information above was summarized from Chapter Six of the Handbook of Chemical Hazard Analysis Procedures[4]. The first chapters of the handbook contain a concise summary of the technical aspects of hazardous materials. These chapters are useful to readers seeking a more technical introduction to the classification and science of hazardous materials.

Hazardous materials are chemical substances, which, if released or misused, can pose threats to the environment or to the health of people who are exposed to the materials. Chemicals of this nature are used in industry, agriculture, medicine, research, and the manufacture of some consumer goods. Hazardous materials come be explosives, flammable and combustible substances, poisons, and radioactive materials. Since their chemical properties vary significantly, an incident could be obvious (e.g., airborne plume, spill on the ground, bad smell) or not readily apparent (e.g., beneath the surface of the ground, no odor or color).

Hazardous material incidents are among the most common technological threats to public health and the environment. Most incidents of release result from transportation accidents or accidents in manufacturing facilities that use the materials. Hazardous materials are transported on railroads, state roads, interstate highways, as well as local roads, during delivery. A hazardous materials accident is usually a localized event and response is managed locally. The Emergency Planning and Community Right-to-Know Act of 1986 establishes requirements for Federal, State and local governments, Indian Tribes, and industry regarding emergency planning and "Community Right-to-Know" reporting on hazardous and toxic

[4] **Handbook of Chemical Analysis Procedures**, Federal Emergency Management Agency, U.S. Department of Transportation, and U.S. Environmental Protection Agency, U.S. Government Printing Office, 1988.

chemicals. The Act's provisions help increase the public's knowledge and access to information on chemicals used at individual facilities and releases into the environment. States and communities, working with facilities, can use the information to improve chemical safety and protect public health and the environment.

3.1.2 Chemical Hazard Profile

Reports on hazardous materials are prepared by handlers and submitted to and maintained by the Local Emergency Planning Committee (staffed by the Augusta Emergency Management Agency). One hundred and twenty-six facilities make or store sufficient quantities of chemicals to require preparation of risk management plans mandated by the U.S. Environmental Protection Agency. These risk management plans are required submission to local EMA, E-Plan and EPD. A risk management plan is a detailed analysis of risk that includes a 5-year history of actual incidents, the likely consequences of a "worst case" scenario, and strategies for improving safety.

Incidents involving releases of hazardous materials (HazMat) are not assigned a probability of recurrence as are natural hazards. However, past data can be used to characterize the likelihood of future incidents. The Environmental Protection Division of the Georgia Department of Natural Resources is the state's lead agency in regulating public and private facilities that use hazardous substances. The agency maintains a database of reported spill incidents and releases, which are declining, probably because manufacturers, users, and transporters of hazardous materials are becoming more aware of the financial and political costs of hazardous materials incidents.

3.1.3 Inventory of Assets Exposed to Chemical Hazard

In the City of Augusta, transportation of hazardous materials poses a daily threat, given that the Railroad and U.S. Routes 20 and 520 that run through the City are major transportation routes.

A general spatial analysis can be performed to estimate general impacts associated with accidental releases of hazardous materials. In the Augusta area, sites with reported materials are concentrated in four clusters (Figure 3-2).

Using the GIS building footprints, the concentration of development (and thus number of people) located within a given distance around the sites can be determined. The analysis takes into account only the geographic distribution of buildings with respect to the manufacturers, users, and storage facilities, and does not characterize specific types of hazardous materials and the potential effects should a release occur. Different types of hazardous material have different potential impacts, and in all cases the total effects would be influenced by weather and the efficiency of response and containment.

The American Society for Testing and Materials (ASTM) develops standards for regulated facilities that manufacture, use, store or are disposal sites for hazardous or potentially hazardous materials and waste. According to these standards, the 1.5 mile radial distance was considered in evaluating each of the clusters' potential influence on surrounding properties.

Considering the clusters of HazMat sites and applying a 1.5-mile radius, over 25% of all buildings in Augusta are within areas broadly characterized as 'potential impact areas'. This estimate is extraordinarily high, given several simplifying assumptions made in the analysis, and certainly does not represent the potential impact of any single incident.

Using the reported locations of the critical facilities, fifty-nine critical facilities are located in areas delineated by applying the 1.5-mile buffer to clusters of sites where hazardous materials are used or stored (see Figure 3-3).

Figure 3.2: Hazardous Material Sites

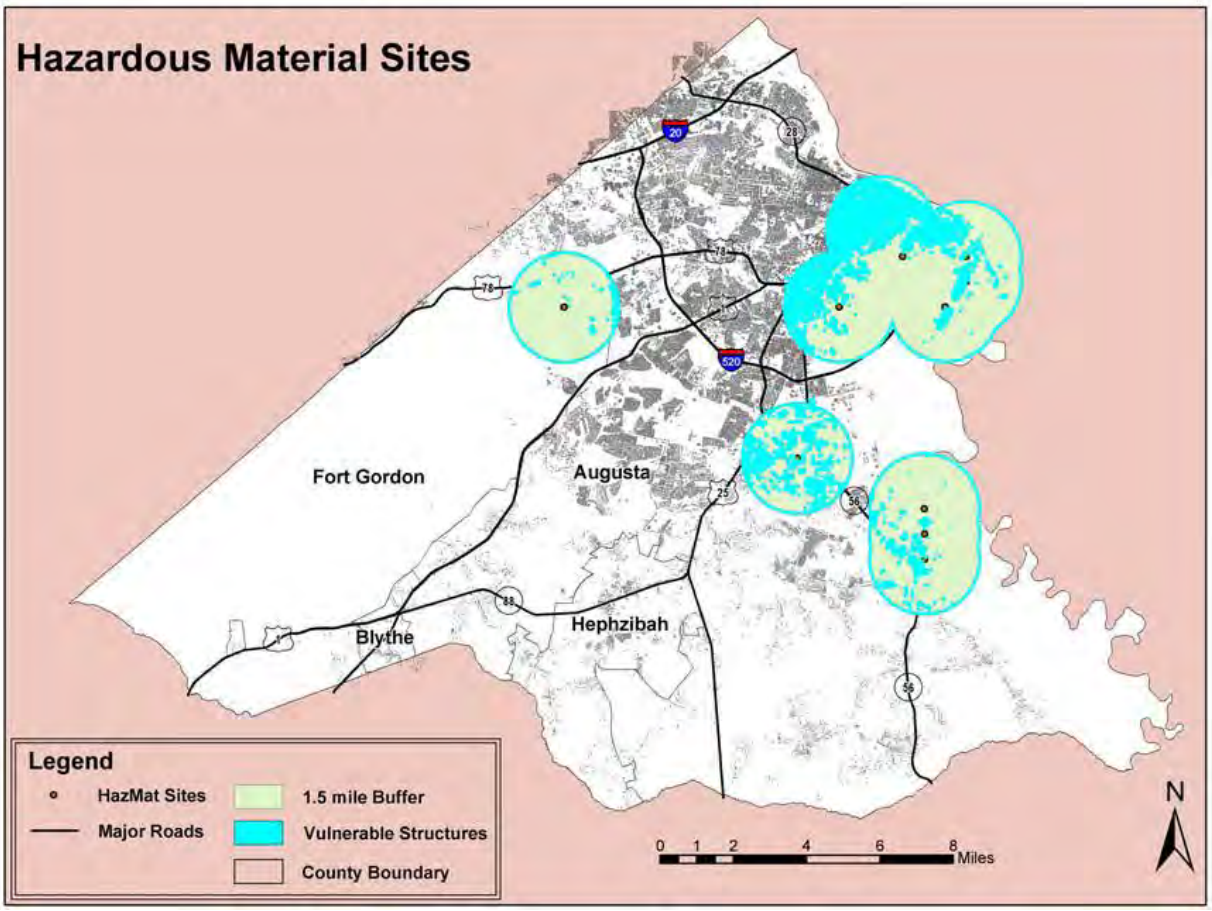
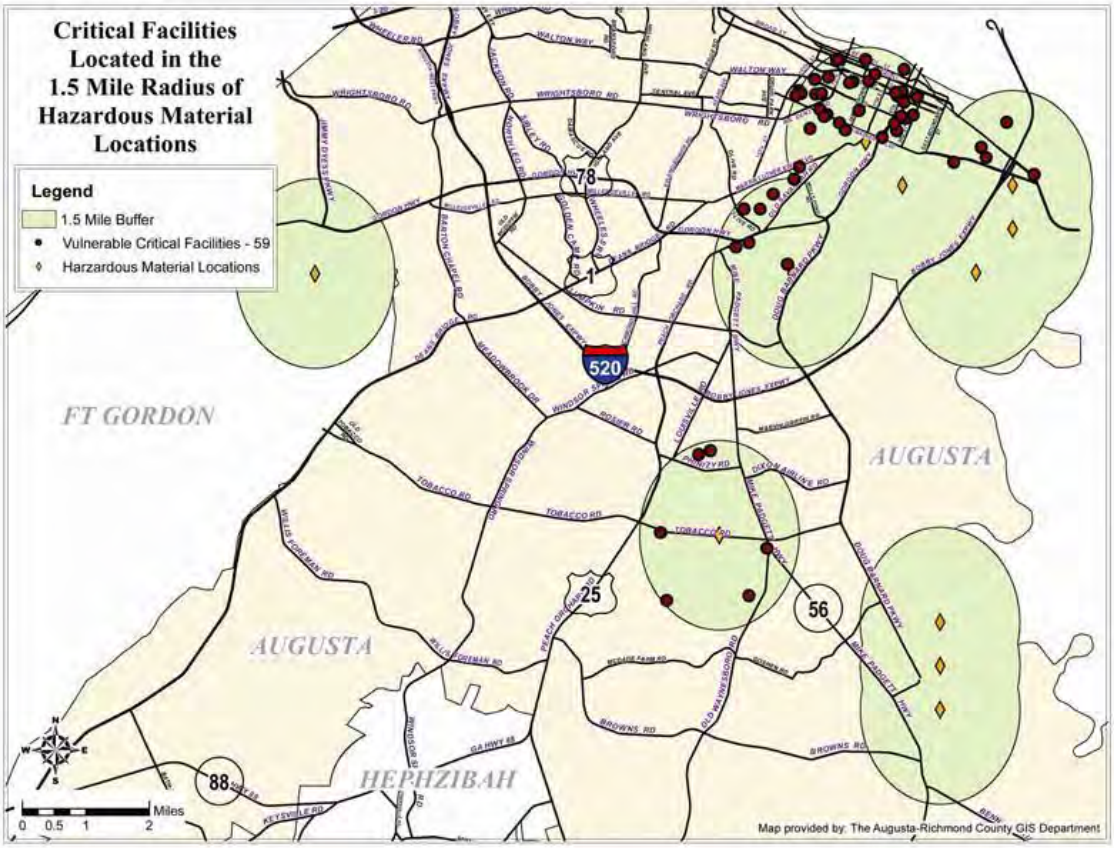


Figure 3.3: Hazardous Material Sites



Sources of potential hazards for the planning area are best understood with hazard site location and chemical hazard identification information. EPA databases and local EMA information contain community specific exposure data and maps related to chemical hazards as detailed below.

The EPA National Priorities List (NPL) is the list of national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States and its territories.

Sites are listed on the National Priorities List (NPL) upon completion of Hazard Ranking System (HRS) screening, public solicitation of comments about the proposed site, and after all comments have been addressed. More information about these steps in the process can be found here:

- Introduction to the HRS
- How Sites are Placed on the NPL
- Public Comment Process
- How Sites are Deleted from the NPL
- Notice of Policy Change for Partial Deletion from the NPL

The Hazard Ranking System (HRS) is the principal mechanism EPA uses to place uncontrolled waste sites on the National Priorities List (NPL). It is a numerically

based screening system that uses information from initial, limited investigations - the preliminary assessment and the site inspection - to assess the relative potential of sites to pose a threat to human health or the environment. Any person or organization can petition EPA to conduct a preliminary assessment using the Preliminary Assessment Petition (PDF) (4 pp., 485 K, About PDF).

The NPL primarily serves as an information and management tool. It is a part of the Superfund cleanup process. The NPL is updated periodically. The Federal Register Notices for NPL Updates page provides a list of Federal Register Notices for proposed and final NPL Updates. The list is ordered by year and provides the rule type, rule date, FR citation, and a short content description for each FR.
Section 105(a)(8)(B) of CERCLA (CERCLA Overview) as amended, requires that the statutory criteria provided by the HRS be used to prepare a list of national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States. This list, which is Appendix B of the National Contingency Plan, is the NPL.

The identification of a site for the NPL is intended primarily to guide EPA in:

- Determining which sites warrant further investigation to assess the nature and extent of the human health and environmental risks associated with a site;
- Identifying what CERCLA-financed remedial actions may be appropriate;
- Notifying the public of sites EPA believes warrant further investigation; and
- Serving notice to potentially responsible parties that EPA may initiate CERCLA-financed remedial action.

Inclusion of a site on the NPL does not in itself reflect a judgment of the activities of its owner or operator, it does not require those persons to undertake any action, nor does it assign liability to any person. The NPL serves primarily informational purposes, identifying for the States and the public those sites or other releases that appear to warrant remedial actions (Source: EPA, National Priorities List (NPL), Basic Information. http://www.epa.gov/superfund/sites/npl/npl_hrs.htm.)
The HRS uses a structured analysis approach to scoring sites. This approach assigns numerical values to factors that relate to risk based on conditions at the site. The factors are grouped into three categories:

- Likelihood that a site has released or has the potential to release hazardous substances into the environment;
- Characteristics of the waste (e.g. toxicity and waste quantity); and
- People or sensitive environments (targets) affected by the release.

Table 3.6 below contains NPL sites for Georgia, including sites in the Augusta – Richmond County planning area. Site narrative analysis documents are contained in links in the far right column of the table.

Table 3.6: EPA NPL List for Georgia Sites*						
*Augusta – Richmond County Sites Highlighted in Gray						
Site Name	City	CERCLIS ID	Final Listing Date	Site Score	Federal Facility Indicator	Additional Information
Alternate Energy Resources	Augusta	GAD033582461	04 / 19 / 2006	50.00	No	Site Listing Narrative
Brunswick Wood Preserving	Brunswick	GAD981024466	04 / 01 / 1997	54.49	No	Site Listing Narrative
Camilla Wood Preserving Company	Camilla	GAD008212409	07 / 28 / 1998	50.00	No	Site Listing Narrative
Diamond Shamrock Corp. Landfill	Cedartown	GAD990741092	08 / 30 / 1990	35.60	No	Site Listing Narrative
Firestone Tire & Rubber Co. (Albany Plant)	Albany	GAD990855074	10 / 04 / 1989	30.08	No	Site Listing Narrative
Hercules 009 Landfill	Brunswick	GAD980556906	09 / 21 / 1984	52.58	No	Site Listing Narrative
LCP Chemicals Georgia	Brunswick	GAD099303182	06 / 17 / 1996		No	Site Listing Narrative
Marine Corps Logistics Base	Albany	GA7170023694	11 / 21 / 1989	44.65	Yes	Site Listing Narrative
Marzone Inc./Chevron Chemical Co.	Tifton	GAD991275686	10 / 04 / 1989	30.26	No	Site Listing Narrative
Mathis Brothers Landfill (South Marble Top Road)	Kensington	GAD980838619	03 / 31 / 1989	30.78	No	Site Listing Narrative
Peach Orchard Road PCE Ground Water Plume	Augusta	GAN000407449	09 / 14 / 2005	50.00	No	Site Listing Narrative
Robins Air Force Base (Landfill #4/Sludge Lagoon)	Houston County	GA1570024330	07 / 22 / 1987	51.66	Yes	Site Listing Narrative
T.H. Agriculture & Nutrition Co. (Albany Plant)	Albany	GAD042101261	03 / 31 / 1989	40.93	No	Site Listing Narrative
Woolfolk Chemical Works, Inc.	Fort Valley	GAD003269578	08 / 30 / 1990	42.24	No	Site Listing Narrative

EPA Toxics Release Inventory (TRI)

In 1984, a deadly cloud of methyl isocyanate killed thousands of people in Bhopal, India. Shortly thereafter, there was a serious chemical release at a sister plant in West Virginia. These incidents underscored demands by industrial workers and

communities in several states for information on hazardous materials. Public interest and environmental organizations around the country accelerated demands for information on toxic chemicals being released "beyond the fence line" -- outside of the facility. Against this background, the Emergency Planning and Community Right-to-Know Act (EPCRA) was enacted in 1986.

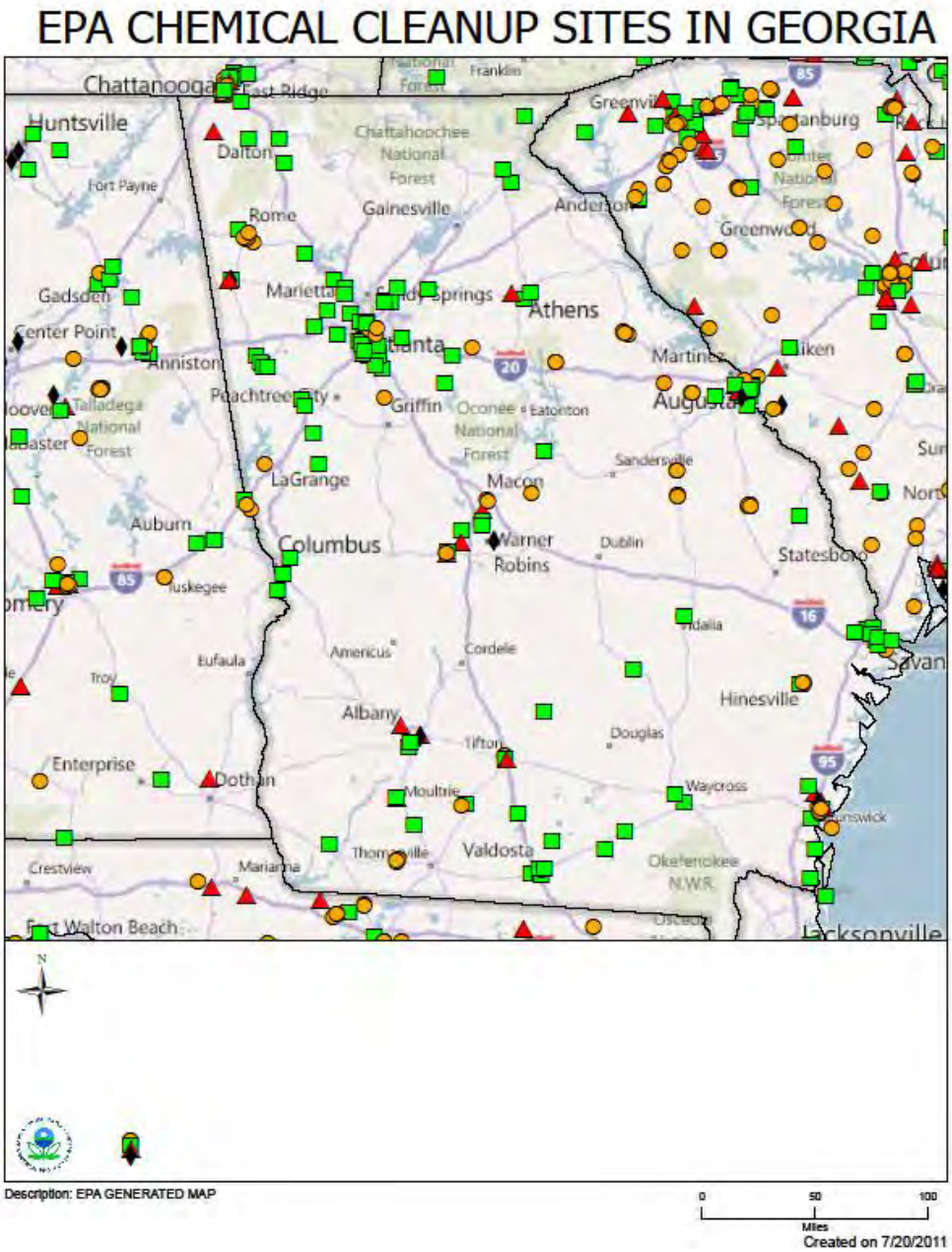
One of EPCRA's primary purposes is to inform citizens of toxic chemical releases in their areas. EPCRA Section 313 requires EPA and the States to collect data annually on releases and transfers of certain toxic chemicals from industrial facilities and make the data available to the public through the Toxics Release Inventory (TRI). TRI is a database containing data on disposal or other releases of over 600 toxic chemicals from thousands of U.S. facilities and information about how facilities manage those chemicals through recycling, energy recovery, and treatment. One of TRI's primary purposes is to inform communities about toxic chemical releases to the environment.

In 1990 Congress passed the Pollution Prevention Act which requires facilities to report additional data on waste management and source reduction activities to EPA under TRI. The goal of the Toxics Release Inventory Program is to provide communities with information about toxic chemical releases and waste management activities and to support informed decision making at all levels by industry, government, non-governmental organizations, and the public.

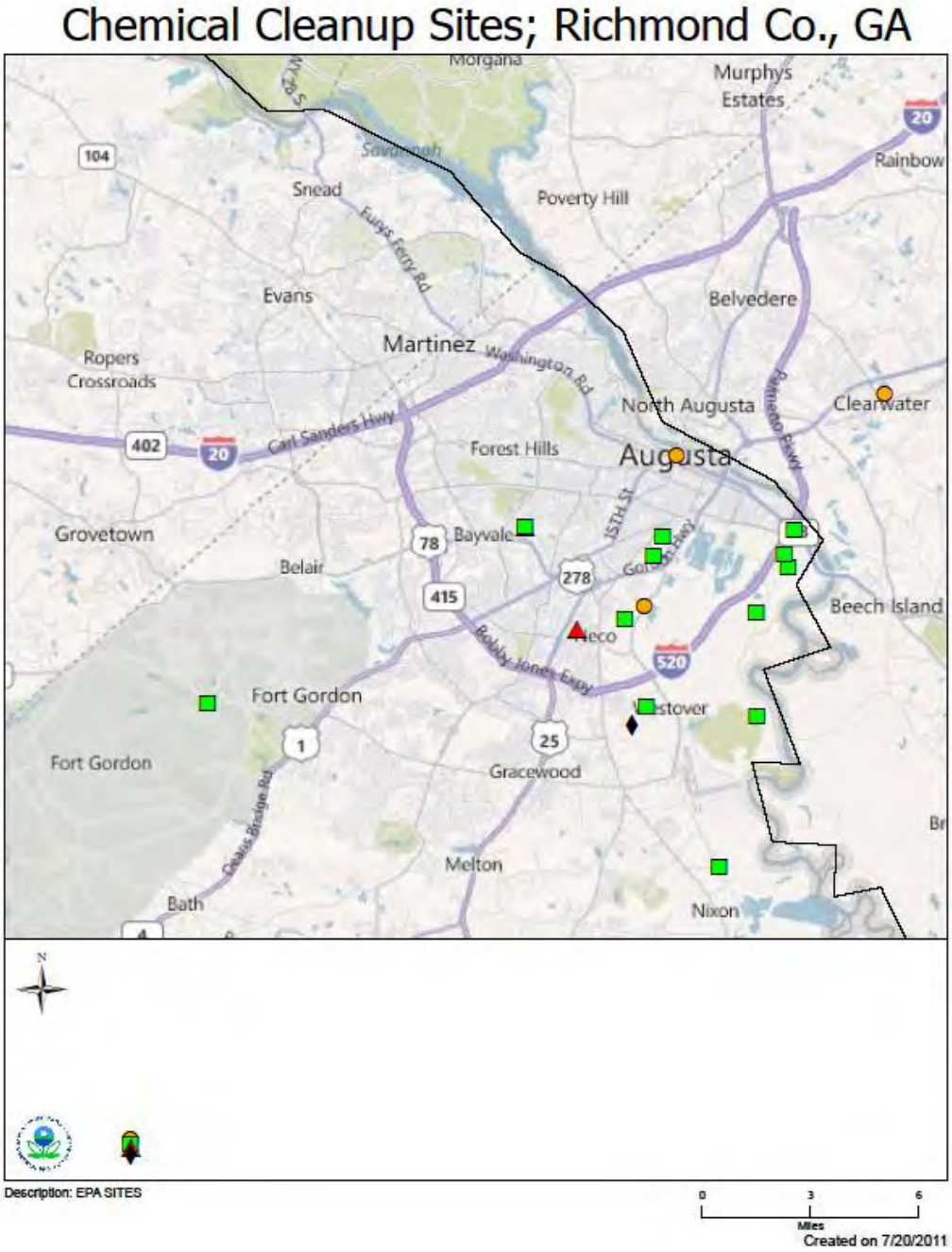
The Toxics Release Inventory Program compiles the TRI data submitted by regulated facilities each year and makes the data available through the TRI Data Files and Tools webpage (Source: EPA, Toxics Release Inventory (TRI) Program. http://www.epa.gov/tri/triprogram/whatis.htm.)

The TRI mapping platform contains information in data and graphical form for Chemical Hazard Cleanup Sites for all U.S. states including Georgia. Regional, county, and municipal location information can be produced as well. Map production for the state of Georgia and the Augusta – Richmond County planning area produced the following maps:

Map 1: EPA TRI Map of Chemical Cleanup Sites in Georgia



Map 2: EPA TRI Map of Chemical Cleanup Sites in Richmond, County



TRI Sites in Augusta – Richmond County and the Cities of Blythe and Hephzibah

Row #	Facility	TRIF ID	Total On-site Disposal or Other Releases	Total Off-site Disposal or Other Releases	Total On- and Off-site Disposal or Other Releases
2	***AC INDUSTRIES. 727 LANEY WALKER BLVD EXTENSION, AUGUSTA, Georgia 30901 (RICHMOND)***	***30901CNDST727LA***	***15,834***	***0***	***15,834***
.	AMMONIA (325 Chemicals)	30901CNDST727LA	15,834	0	15,834
3	***AUGUSTA WOOD PRESERVING CO. 115 LANEY-WALKER BLVD, AUGUSTA, Georgia 30901 (RICHMOND)***	***30901GSTWD115LA***	***3***	***1,396***	***1,399***
.	ARSENIC COMPOUNDS (321 Wood Products)	30901GSTWD115LA	2	780	782
	CHROMIUM COMPOUNDS(EXCEPT CHROMITE ORE MINED IN THE TRANSVAAL REGION) (321 Wood Products)	30901GSTWD115LA	1	616	617
	COPPER COMPOUNDS (321 Wood Products)	30901GSTWD115LA	NA	NA	NA
4	***BORAL BRICKS INC- AUGUSTA PL ANTS 3 4 5. 1630 ARTHERN RD, AUGUSTA, Georgia 30901 (RICHMOND)***	***30913MRRYBARTHE***	***5,329***	***161***	***5,490***
.	HYDROGEN FLUORIDE (327 Stone/Clay/Glass)	30913MRRYBARTHE	4,467	0	4,467
	LEAD COMPOUNDS (327 Stone/Clay/Glass)	30913MRRYBARTHE	75	0	75
	MANGANESE COMPOUNDS (327 Stone/Clay/Glass)	30913MRRYBARTHE	787	161	948
5	***DSM CHEMICALS NORTH AMERICA INC. 1 COLUMBIA NITROGEN RD, AUGUSTA, Georgia 30901 (RICHMOND)***	***30903DSMCHNO1CO***	***2,855,368***	***39,991***	***2,895,359***
.	AMMONIA (325 Chemicals)	30903DSMCHNO1CO	34,398	12,975	47,373
	BENZENE (325 Chemicals)	30903DSMCHNO1CO	8,767	0	8,767
	BENZO(G,H,I)PERYLENE (325 Chemicals)	30903DSMCHNO1CO	0	0	0
	COPPER COMPOUNDS (325 Chemicals)	30903DSMCHNO1CO	41	126	167
	CYCLOHEXANE (325 Chemicals)	30903DSMCHNO1CO	447,618	0	447,618
	CYCLOHEXANOL (325 Chemicals)	30903DSMCHNO1CO	24,240	0	24,240
	ETHYLENE GLYCOL (325 Chemicals)	30903DSMCHNO1CO	842	4	846
	N-BUTYL ALCOHOL (325 Chemicals)	30903DSMCHNO1CO	6	0	6
	NITRATE COMPOUNDS (325 Chemicals)	30903DSMCHNO1CO	2,261,326	26,114	2,287,440
	NITRIC ACID (325 Chemicals)	30903DSMCHNO1CO	4	0	4
	PHENOL (325 Chemicals)	30903DSMCHNO1CO	75	0	75
	POLYCYCLIC AROMATIC COMPOUNDS (325 Chemicals)	30903DSMCHNO1CO	0	0	0
	TOLUENE (325 Chemicals)	30903DSMCHNO1CO	77,628	0	77,628
	ZINC COMPOUNDS (325 Chemicals)	30903DSMCHNO1CO	424	772	1,196
6	***GENERAL CHEMICAL LLC AUGUSTA PLANT. 1580 COLUMBIA NITROGEN RD, AUGUSTA, Georgia 30901 (RICHMOND)***	***30901PRDTCCOLUM***	***21,229***	***0***	***21,229***
.	SULFURIC ACID (1994 AND AFTER "ACID AEROSOLS" ONLY) (325 Chemicals)	30901PRDTCCOLUM	21,229	0	21,229
7	***MODERN WELDING CO OF GEORGIA,INC. 300 PREP PHILLIPS DR, AUGUSTA, Georgia 30901 (RICHMOND)***	***30903MDRNW300PR***	***7,014***	***0***	***7,014***
.	CHROMIUM (332 Fabricated Metals)	30903MDRNW300PR	52	.	52
	NICKEL (332 Fabricated Metals)	30903MDRNW300PR	28	.	28
	STYRENE (332 Fabricated Metals)	30903MDRNW300PR	6,935	0	6,935
8	***NUTRASWEET CO. 1762 LOVERS LN, AUGUSTA, Georgia 30901 (RICHMOND)***	***30903THNTR1750L***	***33,806***	***0***	***33,806***
.	AMMONIA (325 Chemicals)	30903THNTR1750L	436	.	436
	CHLOROMETHANE (325 Chemicals)	30903THNTR1750L	23,690	0	23,690

Row #	Facility	TRIF ID	Total On-site Disposal or Other Releases	Total Off-site Disposal or Other Releases	Total On- and Off-site Disposal or Other Releases
	DIOXIN AND DIOXIN-LIKE COMPOUNDS (325 Chemicals)	30903THNTR1750L	**	**	**
	FORMIC ACID (325 Chemicals)	30903THNTR1750L	879	0	879
	HYDROCHLORIC ACID (1995 AND AFTER "ACID AEROSOLS" ONLY) (325 Chemicals)	30903THNTR1750L	2,507	0	2,507
	METHANOL (325 Chemicals)	30903THNTR1750L	6,294	.	6,294
9	***PCS NITROGEN FERTILIZER LP. 733 1/2 LANEY WALKER BLVD EXT, AUGUSTA, Georgia 30901 (RICHMOND)***	***30903CLMBN23COL***	***5,457,745***	***0***	***5,457,745***
.	AMMONIA (325 Chemicals)	30903CLMBN23COL	4,221,109	0	4,221,109
	CHLORINE (325 Chemicals)	30903CLMBN23COL	NA	NA	NA
	COPPER COMPOUNDS (325 Chemicals)	30903CLMBN23COL	102	.	102
	DIOXIN AND DIOXIN-LIKE COMPOUNDS (325 Chemicals)	30903CLMBN23COL	**	**	**
	FORMALDEHYDE (325 Chemicals)	30903CLMBN23COL	468	0	468
	MERCURY (325 Chemicals)	30903CLMBN23COL	3	.	3
	METHANOL (325 Chemicals)	30903CLMBN23COL	126,164	0	126,164
	NITRATE COMPOUNDS (325 Chemicals)	30903CLMBN23COL	1,107,162	0	1,107,162
	NITRIC ACID (325 Chemicals)	30903CLMBN23COL	536	0	536
	VANADIUM COMPOUNDS (325 Chemicals)	30903CLMBN23COL	NA	NA	NA
	ZINC COMPOUNDS (325 Chemicals)	30903CLMBN23COL	2,201	.	2,201
	Total	**8**	**8,396,328**	**41,548**	**8,437,876**

Row #	Facility	TRIF ID	Total On-site Disposal or Other Releases	Total Off-site Disposal or Other Releases
1	NUTRASWEET CO. 1762 LOVERS LN , AUGUSTA Georgia 30901 (RICHMOND. 325 Chemicals)	30903THNTR1750L	0.0000062	0.0000000
2	PCS NITROGEN FERTILIZER LP. 733 1/2 LANEY WALKER BLVD EXT , AUGUSTA Georgia 30901 (RICHMOND. 325 Chemicals)	30903CLMBN23COL	0.2530000	0.0000000
	Total	**2**	**0.2530062**	**0.0000000**

Total On- and Off-site Disposal or Other Releases
0.0000062
0.2530000
0.2530062

Row #	Facility	TRIF ID	Total On-site Disposal or Other Releases	Total Off-site Disposal or Other Releases	Total On- and Off-site Disposal or Other Releases
1	NUTRASWEET CO. 1762 LOVERS LN , AUGUSTA Georgia 30901 (RICHMOND. 325 Chemicals)	30903THNTR1750L	0.0000002	.	0.0000002
2	PCS NITROGEN FERTILIZER LP. 733 1/2 LANEY WALKER BLVD EXT , AUGUSTA Georgia 30901 (RICHMOND. 325 Chemicals)	30903CLMBN23COL	0.0006626	.	0.0006626

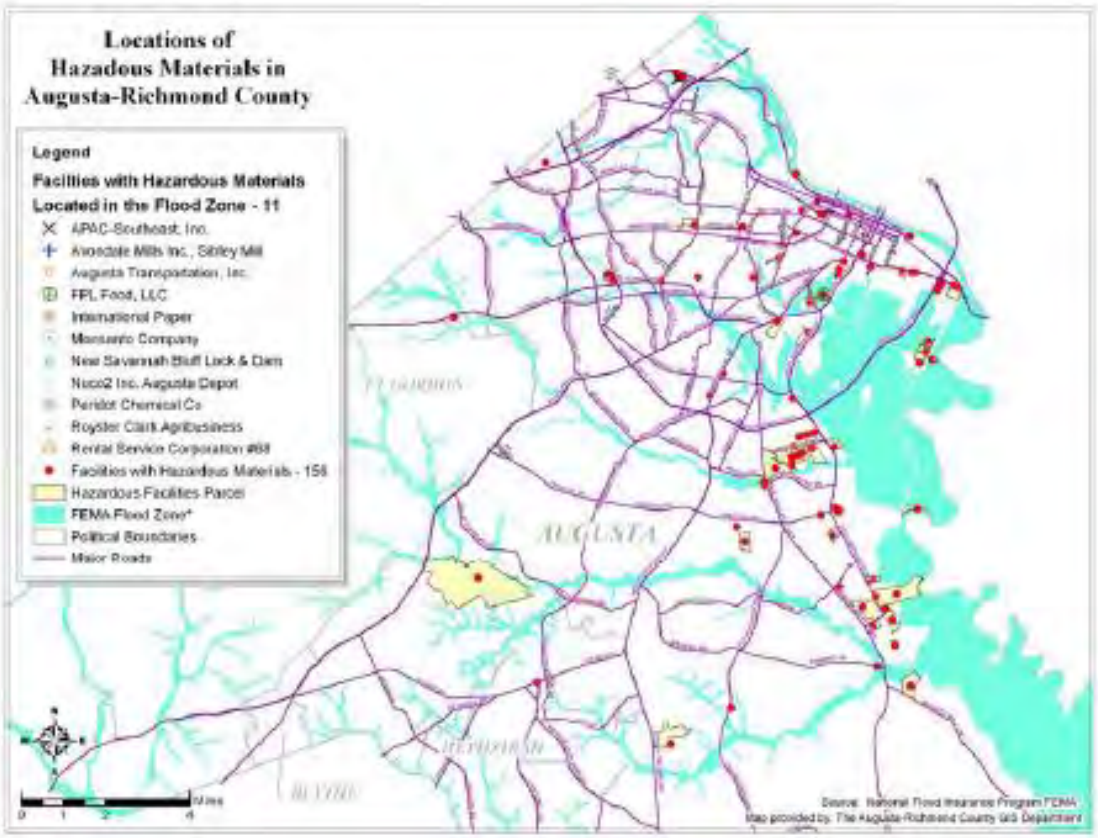
Flood Risks – Chemical Hazards.

Extensive flood-prone areas are found on Augusta's east side and are associated with Butler Creek, Rocky Creek, and drainage from all streams in the urban district (former City). The area, also known as Phinizy Swamp, is generally flat and is predicted to experience relatively shallow flooding. Industries in the area are familiar with flood hazards and containment areas (around chemical storage tanks)

that are located in floodplain areas are sized to protect against flooding up to the predicted level of the base flood defined as the 1% annual chance flood (100-year).

Figure 3-4 below uses the best available location data for hazardous materials (which may be represented by office address rather than physical location of material handling facility). Of the 156 locations, eleven plot as falling within the mapped flood hazard area. This determination does not imply that these facilities are subject to flooding or transport chemicals offsite during a flood event.

Figure 3-4: Locations of Hazardous Materials (flood map).



3.1.4. Estimate of Losses Due to Chemical Hazard

Information available from EPA Superfund Sites for Richmond County, GA for past or future losses due to Chemical Hazard exposure reveals the costs of cleanup and site remediation are in the tens of millions of dollars. Important to note is the staggering costs of hazardous site cleanup. The potential for parcel condemnation, government or personal acquisition of a toxic site and the resulting costs of environmental remediation are a genuine community concern. Human impact, State and Federal fines, enforcement costs, and impact to the environment are difficult to quantify. Chemical contamination of buildings may require demolition, site contamination may eliminate development potential, and emergency response operations after an event can economically cripple communities.

First responders are generally local fire service personnel or Hazardous Material (HazMat) Teams that are trained in basic procedures for the initial (first) response to hazardous materials incidents. The responsibilities of first responders including securing the incident scene and making a preliminary assessment of the potential severity of the hazardous material incident and the level of threat, if any, to persons at and outside of the immediate incident area. In Augusta, fire service personnel are trained to either the "Awareness" Level or "Operations" Level. City of Augusta HazMat personnel assist the Cities of Blythe and Hephzibah and other regional communities during hazard events.

HazMat Teams are specialized teams, composed primarily of fire service personnel, with higher-level training and specialized equipment for dealing with hazardous materials. For Augusta - Richmond County and the Cities of Blythe and Hephzibah, the HazMat Team with primary responsibility is the Augusta EMA ESF Team.

The hazardous materials services function is the primary responsibility of the Augusta Fire Department, while support for this function is the responsibility of CHEMTREC, Radiological Assist Program DOE, and Richmond County Health Department (Source: Augusta Local Emergency Operations Plan [LEOP], http://appweb.augustaga.gov/ema/docs/LEOP_public.pdf.

The EMA plan for hazardous materials incidents is characterized as Preparedness, Response, Recovery, and Mitigation. The response methodology is dependent on the following factors:

- Class of hazardous material
- Size of container
- Fire/explosion potential
- Leak severity and container integrity, and
- Threat to life safety.

Hazardous Materials Transport: Truck, Rail Shipments and Pipelines

Truck Shipments

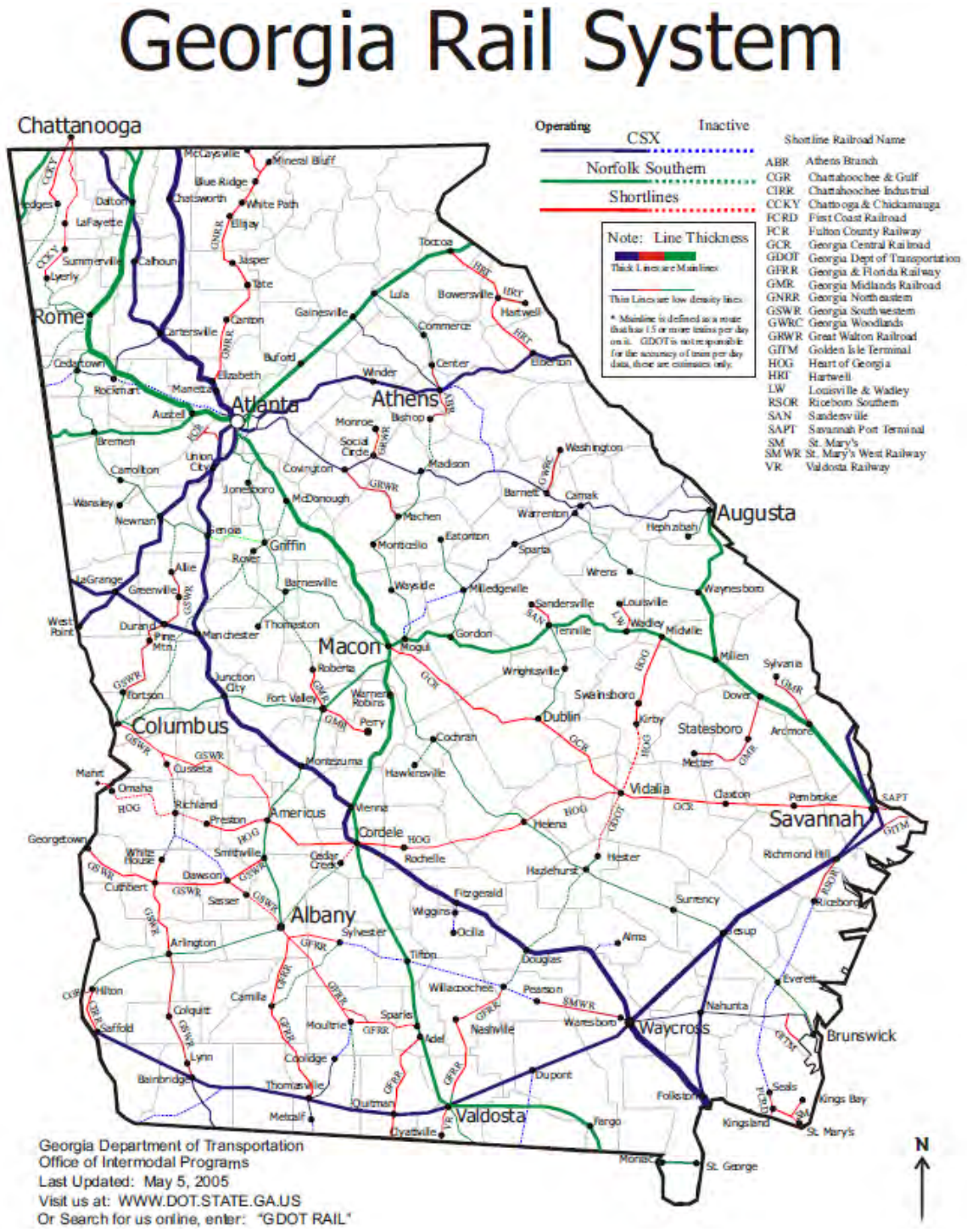
Hazardous materials are transported once or many times during their "life cycle" of raw materials, manufacturing, incorporation into other products, wholesale and retail trade, use, waste disposal, and recycling. For the planning area, transportation accidents present the highest risk for hazardous material incidents.

Rail Shipments

There are 2 major rail freight carriers operating in the planning area, according to 2011 data from the GDOT Department of Transportation (GDOT) website (http://www.dot.state.ga.us/maps/Documents/railroad/Georgia_Rail_Map_plain.pdf).

GDOT has responsibility for state transit safety oversight. Map 3 below illustrates the rail lines operating in the Georgia. The main railroads serving the planning area are CSX and Norfolk Southern (NS).

Map 3: Georgia Rail Lines



Hazard Events In or Near Richmond County

At approximately 0300 on January 6, 2005 a Norfolk Southern Train collided with a parked train in the town of Graniteville, SC. Four hazardous materials tank cars derailed (three chlorine, one sodium hydroxide). One chlorine car was breached, releasing approximately 40 tons of chlorine; 50 tons remained in tank car. Nine fatalities occurred and hundreds of victims reported respiratory affects. A one mile radius was evacuated (5,400 people) and a 2 mile radius shelter–in–place zone established (Environmental Protection Agency, 2005).

Richmond County has three current EPA Region IV Superfund Cleanup Sites. Table S.2 below lists the data for Richmond County, Georgia EPA Superfund Sites.

Table S.2: Richmond County EPA Superfund Sites

SITE/SUMMARY	STATUS	ONLINE DOCUMENTS	MANAGER/E-MAIL
Alternate Energy Resources	FINAL		bennett.giezelle@epa.gov
Monsanto/Augusta Plant	DELETED	ARs, ROD	joseph.robenson@epa.gov
Peach Orchard Road PCE Ground Water Plume	FINAL		bennett.giezelle@epa.gov

Natural Gas Pipelines

The natural gas pipeline systems of local gas utilities, including the systems in Richmond County, almost always follow road and street patterns because of established utility rights of way and because of the need to connect with each building served. Thus, for areas served by natural gas, the local street network is essentially identical to the natural gas distribution pipe network.

Overall, the safety record of natural gas distribution pipelines is good with relatively few significant accidents. Natural gas is not toxic (i.e., not poisonous). However, natural gas can be an asphyxiant if it displaces oxygen in an enclosed space. Natural gas burns readily when ignited, but only when gas concentrations are between 4% and 15% in air. In its pure state, natural gas is both colorless and odorless. The strong odor normally associated with natural gas is an odorant deliberately introduced at low concentrations to serve as a warning of the presence of natural gas. The strong odorant is generally added to natural gas at the local distribution level, by local gas utilities, and is readily detectible in concentrations well below the explosive range.

Fires and/or explosions from natural gas leaks in pipelines are rare. In part, the rarity of fires and/or explosions is due to the fact that natural gas is about 1/3rd less dense than ordinary air. Thus, leaking natural gas does not accumulate near the ground or "pond" in low-lying areas (as heavier gases such as liquefied natural gas or gasoline fumes may do). Instead, leaking natural gas rises rapidly and is

dissipated by dilution in the atmosphere. The fires and /or explosions that do occur from natural gas leaks are generally in buildings where the confined space allows leaking gas to accumulate until ignited.

Pipeline breaks from natural causes may occur due to landslides or earthquakes. Earthquake induced pipe breaks for natural gas transmission lines are most likely to occur in areas of soft soils subject to liquefaction and/or lateral spreading which cause significant pipe displacements. The most likely locations for such breaks during an earthquake are on slopes of soft ground near where pipelines cross rivers or streams.

The most common man-made cause of pipeline breaks is pipeline rupture due to pipes breaking when heavy construction equipment is used to excavate for construction projects. Most such breaks occur in local distribution lines. Pipeline breaks can also be caused by deliberate actions of sabotage or terrorism. Although pipelines are not symbolic targets with political, historical, and cultural significance, they are potential targets for terrorist actions. Major pipeline breaks could disrupt gas service over wide areas with resulting significant economic impacts.

Natural gas utilities and local emergency responders are generally well prepared to deal with natural gas breaks, because such incidents occur frequently enough to have well-standardized response procedures. Evacuations for natural gas distribution system pipeline ruptures are generally limited to the immediate area of the break.

More than 60 miles of transmission pipelines run across Richmond County. Atlanta Gas Light owns eight miles of pipe, while Southern Natural Gas Co. owns a loop of 56 miles. The Atlanta Gas Light line, consisting of 8 and 10 inch pipe, was installed in 1960; the other line dates back to 1953.

As stated earlier, there are many fixed locations in the planning area with inventories of hazardous materials and a considerable volume of hazardous materials being transported to, from, within, or through Richmond County. For both fixed and in transit hazardous materials, there is a wide variety of types and quantities of materials.

Historically, the safety record for hazardous materials has been good, with relatively few, hazmat incidents. Nevertheless, there is a potential for larger hazmat incidents in the planning area. A brief synopsis of the probable impacts of hazmat incidents on the planning area is given below in Table 3.7 below.

Table 3.7: Probable Impacts of Hazmat Incidents in Richmond County	
Inventory	**Potential Impacts**
Area Affected	Most HazMat incident are localized near source of spill; major spills could have extensive evacuation zones and affect significant portion of community
Buildings	Negligible impact with exception of explosion incidents near structures
Streets	Temporary street closure likely
Roads	Temporary road closure likely
Interstate	Slowdown of traffic; temporary road closure possible
Electrical Power	Negligible impact with exception of explosion incidents near transmission lines, power grid, poles
Other Utilities	Minor to major impact; chemical release near water supply intakes or recharge areas could limit or contaminate water supply
Casualties	Potential for injuries and deaths dependent on spatial extent and type of hazardous material

3.1.5. Land use and development trends related to Chemical Hazard

The Augusta Comprehensive Zoning Ordinance specifies that certain uses are prohibited in the Savannah River Corridor Protection District (plus 100-foot buffer), including "handling areas for the receiving and storage of hazardous wastes and disposal facilities for hazardous or solid wastes" (Sec. 25-D-5).

Augusta's Groundwater Protection Ordinance (Title 8) requires that in certain significant groundwater recharge areas:

- No land disposal of hazardous waste shall be permitted;
- The handling, storage and disposal of hazardous materials shall take place on an impermeable surface having spill and leak protection approved by the Georgia Department of Natural Resources, Environmental Protection Division; and
- New above-ground chemical or petroleum storage tanks larger than 660 gallons must have secondary containment for 110 percent of tank volume or 110 percent of the largest tanks in a cluster of tanks.

3.1.6 Multi-Jurisdictional differences in Chemical Hazard Events

Many facilities in Augusta's industrial area use hazardous materials and the transport of materials via highway and railroad poses considerable threat, therefore a relative risk ranking of 'high' was assigned to the likelihood of a HazMat incident occurring (see Table 3.4 for a summary of relative risks). This assessment in no way minimizes the seriousness of impacts due to HazMat incidents, especially transportation-related incidents.

3.1.7 Chemical Hazard HRV Summary

Effective mitigation planning and effective emergency response planning can help reduce the number or frequency of hazardous materials incidents and also reduce the severity of incidents that do occur. In combination, these benefits can significantly reduce the negative impacts of hazardous materials incidents on affected communities. The general principles of mitigation planning, emergency response planning (and training) is well standardized and practiced by Augusta – Richmond County and the Cities of Blythe and Hephzibah in concert with their State and Federal partners, GEMA and FEMA.

Perhaps the single most critical factor in enhancing both mitigation planning and emergency response planning is **specific inventory awareness**, accomplished through the EMA SARA, Tier II and II program for major hazardous materials sites within each jurisdiction. Specific inventory awareness means detailed knowledge of the types of hazardous materials, quantities of hazardous materials and locations of every location in a jurisdiction with significant quantities of hazardous materials. In this context, what constitutes a significant quantity varies depending on the toxicity of the material, the dispersal characteristics and the nature and population of nearby areas likely to be affected by hazardous materials incidents.

The Augusta Emergency Management Agency has access to the state and local database information which contains a vast amount of information on the inventories of hazardous materials at fixed locations in Richmond County. This detailed inventory information along with data hazardous materials being transported within or through Richmond County, provides the basic data for specific inventory awareness. In combination, with the chemical data and emergency response information provided in the **2008 Emergency Response Guide** and in other sources, these are the basic data necessary for effective planning and effective emergency response.

3.2 Technological Hazard B: Terrorism

After the September 11 attacks, the Georgia Information Sharing & Analysis Center (GISAC) was created to solve the information / intelligence sharing challenges between federal, state, and local agencies. GISAC's primary mission is to serve as the state's focal point for the collection, assessment, analysis, and dissemination of terrorism intelligence relating to the State of Georgia program and data.

GISAC was not intended to replace or duplicate the counter-terrorism functions of the Federal Bureau of Investigation (FBI), but rather to enhance and facilitate the collection of information from local and state sources, and to integrate that information into a system that would benefit homeland security and counter-terrorism intelligence programs at all levels. GISAC is composed of personnel representing the following agencies and organizations in the State of Georgia:

Georgia Office of Homeland Security/Georgia Emergency Management Agency (GOHS/GEMA)
Georgia Bureau of Investigation (GBI)
Georgia Department of Public Safety / Georgia State Patrol (GSP)
Georgia Sheriff's Association (GSA)
Georgia Association of Chiefs of Police (GACP)
Georgia Association of Fire Chiefs (GAFC)
Georgia Department of Corrections

The GISAC produces The Open Source Report, which is a weekly summary of open-source information concerning terrorism and infrastructure issues of interest to the Georgia homeland security community.

3.2.1 Terrorism Identity

FEMA defines terrorism as any "activity that involves an act that is dangerous to human life or potentially destructive of critical infrastructure or key resources; is a violation of the criminal laws of the United States or of any State or other subdivision of the United States; and appears to be intended to intimidate or coerce a civilian population, to influence the policy of a government by intimidation or coercion, or to affect the conduct of a government by mass destruction, assassination, or kidnapping," (FEMA, 2011)

Terrorism is the use of force or violence against persons or property in violation of the criminal laws of the United States for purposes of intimidation, coercion, or ransom.

Terrorists often use threats to:

- Create public fear;
- Convince citizens the government is unable to prevent terrorism.
- Gain publicity for their causes.

Acts of terrorism include threats of terrorism; assassinations; kidnappings; hijackings; bomb scares and bombings; cyber-attacks (computer-based); and the use of chemical, biological, nuclear and radiological weapons.

High-risk targets for acts of terrorism include military and civilian government facilities, international airports, large cities, and high-profile landmarks. Terrorists might also target large public gatherings, water and food supplies, utilities, and corporate centers. Further, terrorists are capable of spreading fear by sending explosives or chemical and biological agents through the mail (FEMA, 2011).

3.2.2 Terrorism Profile

Pre-9/11 (September 11, 2001) attacks on New York and U.S. Pentagon, terrorist incidents in the U.S. were primarily bombing attacks, involving detonated and undetonated explosive devices, tear gas, and pipe or fire bombs. Terrorist incidents in the U.S. largely involved small extremist groups using acts of terrorism

to achieve a specific objective. Monitoring suspected terrorist activities by Local, state and federal law enforcement officials serves to prevent or protect against an attack. Other nations work with the U.S. government to limit political and financial support efforts for terrorism.

The United States Attorney General in consultation with the Homeland Security Secretary assigns a National Terrorism Threat Level, predicated on an ongoing threat analysis. The Counterterrorism Division of the Federal Bureau of Investigation (FBI) maintains continual contact with the U.S. Office of Homeland Security and the intelligence community to exchange, monitor, and share threat information.

Several factors are considered when assigning a specific Threat Level, including:

- Threat credence;
- Threat independent corroboration;
- Threat specificity and/or imminence;
- Gravity of the threat.

Terrorist tactics include:

Explosive Hazards

Terrorists frequently use explosive devices as the most common weapon. Information is readily available in books and other information sources on constructing explosive devices. Materials needed for explosive devices are found in variety, hardware, and auto supply stores. The devices are highly portable in vehicles and hidden on humans as the mode of transport. Explosives are readily detonated from remote locations or by suicide bombers.

Conventional bombs are used to damage and destroy financial, political, social, and religious institutions. Attacks occurred around the world in public places and on city streets injuring and killing thousands of people.

Biological Hazards

Biological agents are organisms or toxins that can kill or incapacitate people, livestock, and crops. The three basic groups of biological agents that would likely be used as weapons are bacteria, viruses, and toxins. Most biological agents are difficult to grow and maintain. Many break down quickly when exposed to sunlight and other environmental factors, while others, such as anthrax spores, are very long lived. Biological agents can be dispersed by spraying them into the air, by infecting animals that carry the disease to humans and by contaminating food and water.

Delivery methods include:

- Aerosols - biological agents dispersed into the air, form a fine mist that can drift for miles. Inhaling the agent may cause disease in people or animals;

- Animals - some diseases are spread by insects and animals, such as fleas, mice, flies, mosquitoes, and livestock;
- Food and water contamination - some pathogenic organisms and toxins may persist in food and water supplies. Most microbes can be killed, and toxins deactivated, by cooking food and boiling water. Most microbes are killed by boiling water for one minute, but some require longer. Follow official instructions;
- Person-to-person - spread of a few infectious agents is also possible. Humans have been the source of infection for smallpox, plague, and the Lassa viruses.

Chemical Threats

Chemical agents are poisonous vapors, aerosols, liquids, and solids that have toxic effects on people, animals, or plants. They can be released by bombs or sprayed from aircraft, boats, and vehicles. They can be used as a liquid to create a hazard to people and the environment. Some chemical agents may be odorless and tasteless. They can have an immediate effect (a few seconds to a few minutes) or a delayed effect (2 to 48 hours). While potentially lethal, chemical agents are difficult to deliver in lethal concentrations. Outdoors, the agents often dissipate rapidly. Chemical agents also are difficult to produce.

A chemical attack could come without warning. Signs of a chemical release include people having difficulty breathing; experiencing eye irritation; losing coordination; becoming nauseated; or having a burning sensation in the nose, throat, and lungs. Also, the presence of many dead insects or birds may indicate a chemical agent release.

Nuclear Blast

A nuclear blast is an explosion with intense light and heat, a damaging pressure wave, and widespread radioactive material that can contaminate the air, water, and ground surfaces for miles around. A nuclear device can range from a weapon carried by an intercontinental missile launched by a hostile nation or terrorist organization, to a small portable nuclear devise transported by an individual. All nuclear devices cause deadly effects when exploded, including blinding light, intense heat (thermal radiation), initial nuclear radiation, blast, fires started by the heat pulse, and secondary fires caused by the destruction.

Hazards of Nuclear Devices

The extent, nature, and arrival time of these hazards are difficult to predict. The geographical dispersion of hazard effects will be defined by the following:

- Size of the device. A more powerful bomb will produce more distant effects.
- Height above the ground the device was detonated. This will determine the extent of blast effects.
- Nature of the surface beneath the explosion. Some materials are more likely to become radioactive and airborne than others. Flat areas are more susceptible to blast effects.

- Existing meteorological conditions. Wind speed and direction will affect arrival time of fallout; precipitation may wash fallout from the atmosphere.

Radiological Dispersion Device

Terrorist use of an RDD—often called "dirty nuke" or "dirty bomb"—is considered far more likely than use of a nuclear explosive device. An RDD combines a conventional explosive device—such as a bomb—with radioactive material. It is designed to scatter dangerous and sub-lethal amounts of radioactive material over a general area. Such RDDs appeal to terrorists because they require limited technical knowledge to build and deploy compared to a nuclear device. Also, the radioactive materials in RDDs are widely used in medicine, agriculture, industry, and research, and are easier to obtain than weapons grade uranium or plutonium.
The primary purpose of terrorist use of an RDD is to cause psychological fear and economic disruption. Some devices could cause fatalities from exposure to radioactive materials. Depending on the speed at which the area of the RDD detonation was evacuated or how successful people were at sheltering-in-place, the number of deaths and injuries from an RDD might not be substantially greater than from a conventional bomb explosion.

The size of the affected area and the level of destruction caused by an RDD would depend on the sophistication and size of the conventional bomb, the type of radioactive material used, the quality and quantity of the radioactive material, and the local meteorological conditions—primarily wind and precipitation. The area affected could be placed off-limits to the public for several months during cleanup efforts.

3.2.3 Inventory of Assets exposed to Terrorism

All assets in the Augusta – Richmond County planning area are exposed to terrorism. The insidious nature of attacks, covert construction and transportation of devices used, and the domestic and foreign political and financial support of terroristic acts are inhibiting factors in mitigation planning. The proximity of Fort Gordon, location of major rail and truck transportation lines, and the concentration of population heighten the risk for the planning area. The Master's Golf Tournament, which attracts thousands of international spectators, the locations of eight hospitals, several of which are university medical centers, and concentrated centers of population increase community exposure to terrorism.

Future development is considered at risk. According to GDOT Population Projections to 2030, the projected population in Richmond County will increase by 15.02 percent from 2000 to 2030. This increase in population will result in an increase in housing and facilities that may be at risk from terrorism.

Tables 3.7 and 3.8 below contain terrorism hazard event profiles compiled by FEMA.

Table 3.7: Event Profiles for Terrorism and Technological Hazards

Event Profiles for Terrorism and Technological Hazards

Hazard	Application Mode	Hazard Duration	Extent of Effects; Static/Dynamic	Mitigating and Exacerbating Conditions
Conventional Bomb/ Improvised Explosive Device	Detonation of explosive device on or near target; delivery via person, vehicle, or projectile.	Instantaneous; additional "secondary devices" may be used, lengthening the time duration of the hazard until the attack site is determined to be clear.	Extent of damage is determined by type and quantity of explosive. Effects generally static other than cascading consequences, incremental structural failure, etc.	Overpressure at a given standoff is inversely proportional to the cube of the distance from the blast; thus, each additional increment of standoff provides progressively more protection. Terrain, forestation, structures, etc. can provide shielding by absorbing and/or deflecting energy and debris. Exacerbating conditions include ease of access to target; lack of barriers/shielding; poor construction; and ease of concealment of device.
Chemical Agent *	Liquid/aerosol contaminants can be dispersed using sprayers or other aerosol generators; liquids vaporizing from puddles/ containers; or munitions.	Chemical agents may pose viable threats for hours to weeks depending on the agent and the conditions in which it exists.	Contamination can be carried out of the initial target area by persons, vehicles, water and wind. Chemicals may be corrosive or otherwise damaging over time if not remediated.	Air temperature can affect evaporation of aerosols. Ground temperature affects evaporation of liquids. Humidity can enlarge aerosol particles, reducing inhalation hazard. Precipitation can dilute and disperse agents but can spread contamination. Wind can disperse vapors but also cause target area to be dynamic. The micro-meteorological effects of buildings and terrain can alter travel and duration of agents. Shielding in the form of sheltering in place can protect people and property from harmful effects.
Arson/ Incendiary Attack	Initiation of fire or explosion on or near target via direct contact or remotely via projectile.	Generally minutes to hours.	Extent of damage is determined by type and quantity of device/accelerant and materials present at or near target. Effects generally static other than cascading consequences, incremental structural failure, etc.	Mitigation factors include built-in fire detection and protection systems and fire-resistive construction techniques. Inadequate security can allow easy access to target, easy concealment of an incendiary device and undetected initiation of a fire. Non-compliance with fire and building codes as well as failure to maintain existing fire protection systems can substantially increase the effectiveness of a fire weapon.
Armed Attack	Tactical assault or sniping from remote location.	Generally minutes to days.	Varies based upon the perpetrators' intent and capabilities.	Inadequate security can allow easy access to target, easy concealment of weapons and undetected initiation of an attack.
Biological Agent *	Liquid or solid contaminants can be dispersed using sprayers/aerosol generators or by point or line sources such as munitions, covert deposits and moving sprayers.	Biological agents may pose viable threats for hours to years depending on the agent and the conditions in which it exists.	Depending on the agent used and the effectiveness with which it is deployed, contamination can be spread via wind and water. Infection can be spread via human or animal vectors.	Altitude of release above ground can affect dispersion; sunlight is destructive to many bacteria and viruses; light to moderate wind will disperse agents but higher winds can break up aerosol clouds; the micro-meteorological effects of buildings and terrain can influence aerosolization and travel of agents.

Table 3.8: Event Profiles for Terrorism and Technological Hazards

Event Profiles for Terrorism and Technological Hazards (continued)

Hazard	Application Mode	Hazard Duration	Extent of Effects; Static/Dynamic	Mitigating and Exacerbating Conditions
Cyber-terrorism	Electronic attack using one computer system against another.	Minutes to days.	Generally no direct effects on built environment.	Inadequate security can facilitate access to critical computer systems, allowing them to be used to conduct attacks.
Agriterrorism	Direct, generally covert contamination of food supplies or introduction of pests and/or disease agents to crops and livestock.	Days to months.	Varies by type of incident. Food contamination events may be limited to discrete distribution sites, whereas pests and diseases may spread widely. Generally no effects on built environment.	Inadequate security can facilitate adulteration of food and introduction of pests and disease agents to crops and livestock.
Radiological Agent **	Radioactive contaminants can be dispersed using sprayers/aerosol generators, or by point or line sources such as munitions, covert deposits and moving sprayers.	Contaminants may remain hazardous for seconds to years depending on material used.	Initial effects will be localized to site of attack; depending on meteorological conditions, subsequent behavior of radioactive contaminants may be dynamic.	Duration of exposure, distance from source of radiation, and the amount of shielding between source and target determine exposure to radiation.
Nuclear Bomb **	Detonation of nuclear device underground, at the surface, in the air or at high altitude.	Light/heat flash and blast/shock wave last for seconds; nuclear radiation and fallout hazards can persist for years. Electromagnetic pulse from a high-altitude detonation lasts for seconds and affects only unprotected electronic systems.	Initial light, heat and blast effects of a subsurface, ground or air burst are static and are determined by the device's characteristics and employment; fallout of radioactive contaminants may be dynamic, depending on meteorological conditions.	Harmful effects of radiation can be reduced by minimizing the time of exposure. Light, heat and blast energy decrease logarithmically as a function of distance from seat of blast. Terrain, forestation, structures, etc. can provide shielding by absorbing and/or deflecting radiation and radioactive contaminants.
Hazardous Material Release (fixed facility or trans-portation)	Solid, liquid and/or gaseous contaminants may be released from fixed or mobile containers.	Hours to days.	Chemicals may be corrosive or otherwise damaging over time. Explosion and/or fire may be subsequent. Contamination may be carried out of the incident area by persons, vehicles, water and wind.	As with chemical weapons, weather conditions will directly affect how the hazard develops. The micro-meteorological effects of buildings and terrain can alter travel and duration of agents. Shielding in the form of sheltering in place can protect people and property from harmful effects. Non-compliance with fire and building codes as well as failure to maintain existing fire protection and containment features can substantially increase the damage from a hazardous materials release.

* Source: *Jane's Chem-Bio Handbook*
** Source: FEMA, *Radiological Emergency Management* Independent Study Course

3.2.4 Estimation of potential losses to Terrorism

Man-made and technological hazards are by definition non-quantifiable. Calculating or estimating monetary losses from terrorism hazards can only be identified in that all assets are at risk. As such, they cannot be compared and prioritized in the same manner as risks from natural hazards. The HMPC recognizes the inability to quantify assets exposed to terrorism beyond those stated above.

The Augusta – Richmond County EOP plan recognizes and incorporates the various jurisdictional and functional authorities of departments and agencies; municipal governments; and private-sector organizations in incident management. The EOP details the specific incident management roles and responsibilities of the departments and agencies involved in incident management. Further, the plan establishes the multi-agency organizational structures and processes required to implement the authorities, roles, and responsibilities for incident management. The plan is applicable to all departments and agencies that may be requested to provide assistance or conduct operations in the context of actual or potential disasters or emergencies.

Terrorism induced disasters or emergencies are high-impact events that require a coordinated and effective response by an appropriate combination of County, municipal, private-sector, and nongovernmental entities in order to save lives, minimize damage, and provide the basis for long-term community recovery and mitigation activities.

3.2.5 Land use and development trends related to Terrorism

There are several contributing land uses related to the threat of terrorism. The first is the location of major transportation corridors from East to West on Interstate 20, Interstate 520 and the CSX and Norfolk Southern rail lines. The second is the concentration of industrial uses and rail lines in close proximity to the City of Augusta. The third is the location of the Fort Gordon Military Base within Richmond County.

3.2.6 Multi-Jurisdictional Terrorism Differences

There are no multi-jurisdictional differences in the planning region related to the terrorism hazard. All communities in Richmond County are at risk.

3.2.7 General overall HRV summary of Terrorism

There are an extensive range of potential impacts from terrorism. A terrorist attack could be a minor, localized event or a catastrophic event. Terrorism is a threat to facilities, infrastructure and human life.

The HMPC provided qualitative information and comments, and damage/loss estimations, using a Low – Moderate – High range, based on their knowledge of community facilities. Committee members considered potential risk to people (loss of life or injury), risk to buildings and critical facilities (primarily structural damage or loss of use) and risk to infrastructure (utilities, communications, and roads).

Data collected and shared with the HMPC for the assessment included:

- Critical Facilities List
- Infrastructure Inventory
- Hazard Identification Questionnaire

- Hazard Ranking Survey
- Hazard Identification – Risk Assessment Qualitative Summary
- EMA LEOP

The terrorism risk was ranked using the following criteria:

- Human Risk – High
- Buildings – High
- Infrastructure - High.

This RF ranking applies to all jurisdictions. The HMPC reviewed the EMA LEOP for guidance in completing the HVR.

3.3 Technological Hazard C: Nuclear Plant Incident

GEMA's Radiological Programs Section is responsible for the Radiological Emergency Preparedness (REP) Program, the Waste Isolation Pilot Plant (WIPP), and Local Emergency Planning Committee (LEPC) Programs for the State of Georgia.

The mission of the REP Program is to ensure the health and safety of the public living in the vicinity of Georgia's nuclear power facilities in the event of an accident. The primary emphasis of the program is on nuclear power plants; however plans also address other fixed nuclear facilities and radiological incidents. The REP program is responsible for plan development, plan reviews, responder training, and exercises to ensure that state and local governments are ready to respond in the unlikely event of an accident.

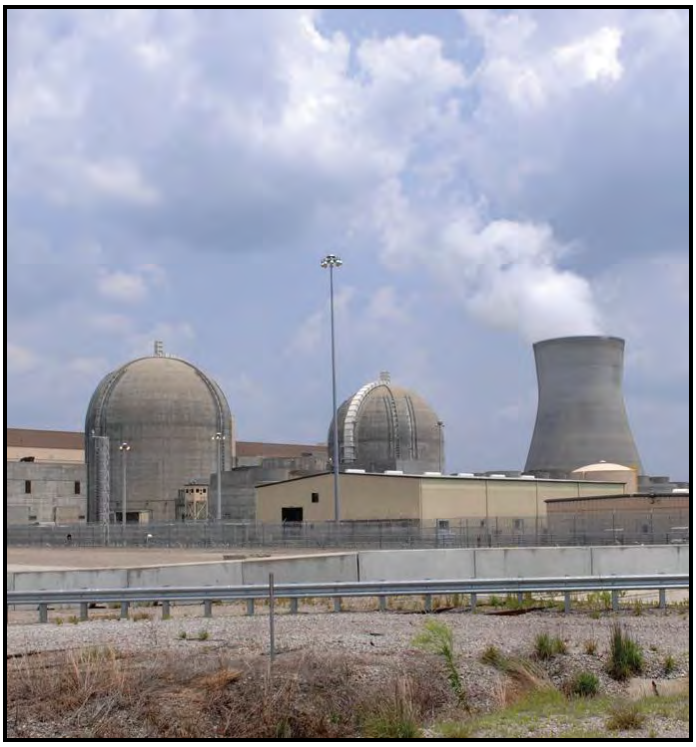
Public Warning/Notification

Warning to the public within the 10-mile emergency planning zones of Georgia's nuclear facilities is primarily provided by tone alert radios. These tone alert radios are similar to NOAA weather radios and are provided to all residences, businesses, schools and other facilities within 10 miles of each plant. This warning system can be activated by GEMA within minutes of the decision by local and state official notification of a nuclear emergency.

Sirens supplement the tone alert radios at Plant Vogtle and local television and radio broadcasts supplement the above mentioned systems at all sites. Emergency preparedness information is distributed annually to the public by the utility. This information contains maps of evacuation planning zones and instructions for what to do when notified of an emergency at the plant (GEMA, 2011).

3.3.1 Nuclear Plant Incident Identity

Alvin W. Vogtle. The Alvin W. Vogtle Nuclear Plant is located in Waynesboro, GA, approximately 25 miles south of Augusta in Burke County.



Picture 4: Alvin W. Vogtle Electric Generating Plant

Savannah River Site. The Savannah River Site (SRS) is located near two growing metropolitan areas. It is located approximately 12 miles south of Aiken, South Carolina, and 15 miles southeast of Augusta, Georgia.

Picture 4.1: Savannah River Site

3.3.2 Profile of Nuclear Plant Incident

Alvin W. Vogtle Site. The Alvin W. Vogtle Electric Generating Plant provides the following information in the 2011 Emergency Information Calendar distributed in the Augusta – Richmond County planning area:

Kinds of Emergencies

- **Unusual Event.** A minor problem has occurred. No release of radioactive matter has taken place or is expected. There is no danger to the public. Citizens do not have to take any action.
- **Alert.** Small amounts of radioactive material could be released inside the plant. An alert gets emergency workers ready if the event becomes more serious. There is no danger to the public. It is unlikely residents will need to do anything.
- **Site Area Emergency.** There has been a serious problem. Small amounts of radioactive material could be released into the area right around the plant. Government officials may order evacuation or sheltering of the public as a precaution. Emergency workers would be ready to take actions if needed. Citizens should tune local radio or television stations.
- **General Emergency.** This is the most serious type of emergency at a nuclear power plant. Radioactive material could be released outside the plant site. Citizens may need to take protective actions discussed below. Citizens will be notified by your tone alert radio or through the media. Stay tuned to the radio or television stations listed in this calendar. County officials will guide citizen actions.

Emergency Actions

The two actions citizens may be asked to take for protection are "take shelter" or "evacuate." These two actions are described in the 2011 Emergency Information Calendar, (Source: Southern Company, 2011. Alvin W. Vogtle Electric Generating Plant Information Calendar. http://www.southerncompany.com/nuclearenergy/pdf/Vogtle_2011_calendar.pdf.)

Savannah River Site. The Savannah River Site is a secured U.S. Department of Energy facility. The facility historically produced tritium, plutonium and other special nuclear materials for national defense and the space program and is home to the Savannah River National Laboratory. SRS is owned by DOE and is managed and operated by Savannah River Nuclear Solutions, LLC. A range of nuclear-related research and production operations are ongoing at Savannah River Site. Past disposal practices at Savannah River Site resulted in significant site contamination. While considerable cleanup progress has been made since the 1980s, much additional cleanup work remains. Tanks containing highly radioactive liquid waste continue to be addressed. Multiple ground water plumes are being addressed; their cleanup will likely take decades. Nuclear reactors will be addressed in the future. U.S. Department of Energy has recently accelerated cleanup work because of significant funding made available to U.S. Department of Energy through the American Recovery and Reinvestment Act. Site cleanup completion is currently scheduled for 2030 (Environmental Protection Agency, 2011).

3.3.3 Inventory assets exposed to Nuclear Plant Incident

The Alvin W. Vogtle Electric Generating Plant, also known as Plant Vogtle, is a 2-unit nuclear power plant located in Burke County, near Augusta and Waynesboro,

Georgia. Each unit has a Westinghouse pressurized water reactor (PWR), with a General Electric turbine and electric generator. Units 1 and 2 were completed in 1987 and 1989, respectively. Each of Vogtle's units is capable of producing approximately 1,200 MW of electricity when online, for a combined capacity of 2,400 MW. Southern Nuclear lists the capacity as 1,215 MW each, for a combined output of 2,430 MW.[1] The twin cooling towers are 548 ft. (167 m) tall.

During Vogtle's construction, costs skyrocketed from an estimated $660 million to $8.87 billion. This was typical of the time due to increased regulations after the Three Mile Island accident. In 2009, the NRC renewed the licenses for both units for an additional 20 years, to the 2040s.[4] Groundwork for two additional reactors is well underway[5]

Power Uprate 2008

In 2008, both reactors were increased in power by 1.7% by an "Appendix K" uprate,[10] also called a Measurement Uncertainty Recapture uprate. "Measurement uncertainty recapture power uprates are less than 2 percent and are achieved by implementing enhanced techniques for calculating reactor power. This involves the use of state-of-the-art feedwater flow measurement devices to more precisely measure feedwater flow, which is used to calculate reactor power. More precise measurements reduce the degree of uncertainty in the power level, which is used by analysts to predict the ability of the reactor to be safely shutdown under postulated accident conditions."[11]

Because the reactor power can be calculated with much greater accuracy now than with the old venturi type measurement, the plant can safely run within a tighter margin of error to their limit. The new flow meter works by comparing the time it takes ultrasonic sound pulses to travel upstream versus downstream inside the pipe, and uses that time difference to figure the flow rate of the water in the pipe.

The NRC approved Vogtle's License Amendment Request (LAR) in March 2008. "The NRC staff determined that Southern Nuclear could safely increase the reactor's output primarily through more accurate means of measuring feedwater flow. NRC staff also reviewed Southern Nuclear's evaluations showing the plant's design can handle the increased power level."[12] Unit 1 was uprated during its spring 2008 defueling outage, and Unit 2 was uprated in the fall outage of the same year.

Units 3 and 4

On August 15, 2006, Southern Nuclear formally applied for an Early Site Permit (ESP) for two additional units. The ESP will determine whether the site is appropriate for additional reactors, and this process is separate from the Combined Construction and Operating License (COL) Application process.[14] On March 31, 2008, Southern Nuclear announced that it had submitted an application for a COL, a process which will take at least 3 to 4 years.[15]

On April 9, 2008, Georgia Power Company reached a contract agreement for two AP1000 reactors designed by Westinghouse (owned by Toshiba) and the Shaw Group (Baton Rouge, LA).[16] The contract represents the first agreement for new nuclear development since the Three Mile Island accident in 1979, and received approval from the Georgia Public Service Commission (PSC) on March 17, 2009.[17] As stated by a Georgia Power spokesperson Carol Boatright: "If the PSC approves, we are going forward with the new units."[16]

On August 26, 2009, the U.S. Nuclear Regulatory Commission issued an Early Site Permit and a Limited Work Authorization. Construction activities have begun.

The Nuclear Regulatory Commission defines two emergency planning zones around nuclear power plants: a plume exposure pathway zone with a radius of 10 miles (16 km), concerned primarily with exposure to, and inhalation of, airborne radioactive contamination, and an ingestion pathway zone of about 50 miles (80 km), concerned primarily with ingestion of food and liquid contaminated by radioactivity.[6]

3.3.3.1 Planning Area Site Emergency

On March 20, 1990, at 9:20 a.m. a truck carrying fuel and lubricants in the plant's low voltage switchyard backed into a support column for the feeder line supplying power to the Unit 1-A reserve auxiliary transformer (RAT). This set off a complicated chain of events that was exacerbated both by planned maintenance (in which some back-up systems were off-line) and by equipment failures in some back-up systems.

The resulting loss of electrical power in the plant's "vital circuits" shut down the residual heat removal (RHR) pump that was cooling Unit 1 (which was nearing the end of a refueling outage) and prevented the back-up RHR from activating. Even though Unit 1 was not operating at full-power, residual heat from the natural decay of the radioactive fuel needed to be removed to prevent a dangerous rise in core temperature. At 9:40 a.m. the plant operators declared a site area emergency (SAE) per existing procedures which called for an SAE whenever "vital" power is lost for more than 15 minutes. At 9:56 a.m., plant operators performed a manual start of the A-train emergency diesel generator (EDG), which bypassed most of the EDG's protective trips that had prevented it from coming on-line. RHR-A was then started using power from EDG-A. With core cooling restored the SAE was downgraded to an alert at 10:15 a.m. The temperature of the Unit 1 core coolant increased from 90 °F to 136 °F during the 36 minutes required to re-energize the A-side bus.

Ironically, throughout the event, non-vital power was continuously available to Unit 1 from off-site sources. However, the Vogtle electrical system was not designed to permit easy interconnection of the Unit 1 vital busses to non-vital power or to the Unit 2 electrical busses.[13] Since this incident, Plant Vogtle has implemented changes to the plant that allow power to be transferred from one side to the other from an off-site source.

The 2010 U.S. population within 10 miles (16 km) of Vogtle was 5,845, a decrease of 16.3 percent in a decade, according to an analysis of U.S. Census data for msnbc.com. The 2010 U.S. population within 50 miles (80 km) was 726,640, an increase of 8.8 percent since 2000. Cities within 50 miles include Augusta (26 miles to city center).[7]

The Nuclear Regulatory Commission's estimate of the risk each year of an earthquake intense enough to cause core damage to the reactor at Vogtle was 1 in 140,845, according to an NRC study published in August 2010.[8][9]

Savannah River Site. SRS occupies approximately 310 square miles of land adjacent to the Savannah River, principally in Aiken and Barnwell counties of western South Carolina. SRS is bounded on its southwestern border by the Savannah River, which is used as a drinking water supply source for some residents upstream of SRS. The river is also used for commercial and sport fishing, boating and other recreational activities. About 90 percent of SRS's land area consists of natural forests and managed pine plantations. Approximately 10 percent of the total land area is developed or used for industrial facilities.

Savannah River Site Threats and Contaminants. Chemical and radioactive wastes are byproducts of nuclear material production processes. These wastes have been treated, stored and, in some cases, disposed of at SRS. Past disposal practices resulted in significant site contamination. In 1981, the U.S. Department of Energy (DOE) began inventorying waste sites; a total of 515 waste sites were ultimately identified. These range in size from a few square yards to tens of acres; they include basins, pits, piles, burial grounds, landfills, tanks and associated ground water contamination. Of particular concern are "high-level" waste tanks which store highly radioactive liquid waste and are considered by DOE and the South Carolina Department of Health and Environmental Control (SCDHEC) as the greatest human health risk in South Carolina. Initial cleanup activities were led by DOE under a federal Resource Conservation and Recovery Act (RCRA) permit in 1985. Since that time, DOE has initiated cleanup actions addressing contamination and disposal issues under both RCRA and the federal Superfund law (CERCLA).

Site investigations identified contamination in ground water, sediments, soils, sludge, solid waste, debris and surface water that could potentially harm people in the area. Contaminants of concern identified include: arsenic, benzo(a)pyrene, cadmium, cesium, chromium, cobalt, dichloroethylene, lead, mercury, plutonium, potassium, radium, thorium, trichloroethylene, uranium and vinyl chloride. Multiple buildings and facilities at SRS have been contaminated with radioactive contaminants of concern, including cadmium, cesium, cobalt, cesium, plutonium, tritium and uranium.

3.3.4 Estimation of Potential Losses to Nuclear Plant

One of the worst nuclear accidents to date was the Chernobyl disaster which occurred in 1986 in Ukraine. That accident killed 56 people directly, and caused an estimated 4,000 additional cases of fatalities related to cancer, as well as damaging approximately $7 billion of property.[14] Radioactive fallout from the accident was

concentrated in areas of Belarus, Ukraine and Russia. Approximately 350,000 people were forcibly resettled away from these areas soon after the accident.[14]

Benjamin K. Sovacool has reported that worldwide there have been 99 accidents at nuclear power plants from 1952 to 2009 (defined as incidents that either resulted in the loss of human life or more than US $50,000 of property damage, the amount the US federal government uses to define major energy accidents that must be reported), totaling US $20.5 billion in property damages.[4]
Globally, fifty-seven accidents have occurred since the Chernobyl disaster and almost two-thirds (56 out of 99) of all nuclear-related accidents have occurred in the USA. There have been comparatively few fatalities associated with nuclear power plant accidents.[4]

Table 3.9: U.S. Nuclear power plant accidents with multiple fatalities and/or more than US $100 million in property damage, 1952-2011

Date	Location	Description	Deaths	I-131 Release in 1,000	Cost (millions 2006 $US)	INES level
January 3, 1961	Idaho Falls, Idaho,	Explosion at SL-1, National Reactor Testing Station. All 3 operators killed when rod was removed too far causing criticality surge and steam explosion.	3	0.08	22	4
October 5, 1966	Frenchtown Charter Township, Michigan,	Partial core meltdown of the Fermi 1 Reactor at the Enrico Fermi Nuclear Generating Station. No radiation leakage into the environment.	0			
March 28, 1979	Middletown, Pennsylvania	Loss of coolant and partial core meltdown, see Three Mile Island accident and Three Mile Island accident health effects	0	0.017	2,400	5
September 15, 1984	Athens, Alabama,	Safety violations, operator error, and design problems force six year outage at Browns Ferry Unit 2	0		110	
March 9, 1985	Athens, Alabama,	Instrumentation systems malfunction during startup, which led to suspension of operations at all three Browns Ferry Units	0		1,830	
April 11, 1986	Plymouth, Massachusetts,	Recurring equipment problems force emergency shutdown of Boston Edison's Pilgrim Nuclear Power Plant	0		1,001	
March 31, 1987	Delta, Pennsylvania,	Peach Bottom units 2 and 3 shutdown due to cooling malfunctions and unexplained equipment problems	0		400	
December 19, 1987	Lycoming, New York,	Malfunctions force Niagara Mohawk Power Corporation to shut down Nine Mile Point Unit 1	0		150	
March 17, 1989	Lusby, Maryland,	Inspections at Calvert Cliff Units 1 and 2 reveal cracks at pressurized heater sleeves, forcing extended shutdowns	0		120	
February	Waterford,	Leaking valve forces shutdown	0		254	

20, 1996	**Connecticut**	**Millstone Nuclear Power Plant Units 1 and 2, multiple equipment failures found**				
September 2, 1996	**Crystal River, Florida**	**Balance-of-plant equipment malfunction forces shutdown and extensive repairs at Crystal River Unit 3**	**0**		**384**	
February 16, 2002	**Oak Harbor, Ohio**	**Severe corrosion of control rod forces 24-month outage of Davis-Besse reactor**	**0**		**143**	**3**

Table 3.9 lists U.S. Nuclear power plant accidents with multiple fatalities and/or more than US $100 million in property damage during the 1952 to 2011.

NRC Site Area Emergencies

Events are in process or have occurred which involve actual or likely major failures of plant functions needed for protection of the public. Any releases not expected to exceed EPA Protective Action Guideline exposure levels except near site boundary**.**

- LaSalle County Nuclear Generating Station Unit 1, Seneca, Illinois, 20-Feb-2006.[50]
- Honeywell International, Metropolis, Illinois, 22-Dec-2003.[51]
- Idaho National Engineering & Environmental Laboratory, Idaho Falls, Idaho, 27-Jul-2000 and 17-Sep-2000.[52][53]
- Idaho National Engineering & Environmental Laboratory, Idaho Falls, Idaho, 12-Jul-1999.[54]
- Nuclear Fuel Services, Erwin, Tennessee, 2-Apr-1996.[55]
- Nine Mile Point Unit 2, Oswego, New York, 13-Aug-1991.[56]
- Vogtle Electric Generating Plant Unit 1, Burke County, Georgia, 20-Mar-1990.[57]
- Davis-Besse, Oak Harbor, Ohio, 09-Jun-1985. Originally declared as an "Unusual Event" but upgraded by NRC findings.[58]
- Ginna, Ontario, New York, 25-Jan-1982.[59][60][61], (Source: Wikipedia, Nuclear and radiation accidents. http://en.wikipedia.org/wiki/Nuclear_and_radiation_accidents).

The data further reveals nuclear plant incidents in the U.S. resulted in 3 deaths and 6.814 billion dollars in costs (2006 US Dollars).

Alvin W. Vogtle. There is extensive data available on Nuclear Plant Incidents worldwide. The information above, located on the Wikipedia website, reveals a Nuclear Plant Incident at the Vogtle Electric Generating Plant, Unit 1, in Burke County, GA, approximately 26 miles from the City of Augusta and within 30 miles of all residents of Richmond County.

Savannah River Site Losses. To date SRS site cleanup SRS, using $1.6 billion in ARRA funding, has been able to reduce the site's footprint by approximately 67 percent, with a goal of achieving 75 percent reduction by September 2012, according to DOE spokesperson Jim Giusti (Dolianitis, 2011).

3.3.5 Land use and development trends related to Nuclear Plant Incidents

Land Resource Use. The construction of nuclear power plants can destroy natural habitat for animals and plants or contaminate local land with toxic by-products. For example, the storage of radioactive waste may preclude any future re-use of these contaminated lands, (EPA. Nuclear Energy. http://www.epa.gov/cleanenergy/energy-and-you/affect/nuclear.html).

There are land use and development trends related to Nuclear Plant Incidents including significant impact on crops and farmland and reluctance by developers and residents to locate in proximity to a nuclear site. The recent issuance of a new permit to construct additional units at the plant is a cause of concern, particularly during the handling and installation of the radioactive rods.

3.3.6 Multi-Jurisdictional Nuclear Plant Incident Differences

There are no multi-jurisdictional differences related to nuclear plant incidents.

3.3.7 General overall HRV summary of Nuclear Plant Incidents

There are an extensive range of potential impacts from a nuclear plant incident. An incident could be a minor, localized event or a catastrophic event. Radiological Hazards are a threat to facilities, the environment, and human life.

The HMPC provided qualitative information and comments, and damage/loss estimations, using a Low – Moderate – High range, based on their knowledge of community facilities. Committee members considered potential risk to people (loss of life or injury), risk to buildings and critical facilities (primarily structural damage or loss of use) and risk to infrastructure (utilities, communications, and roads). Additional concerns were related to evacuation and sheltering in place in the event of a nuclear plant incident.

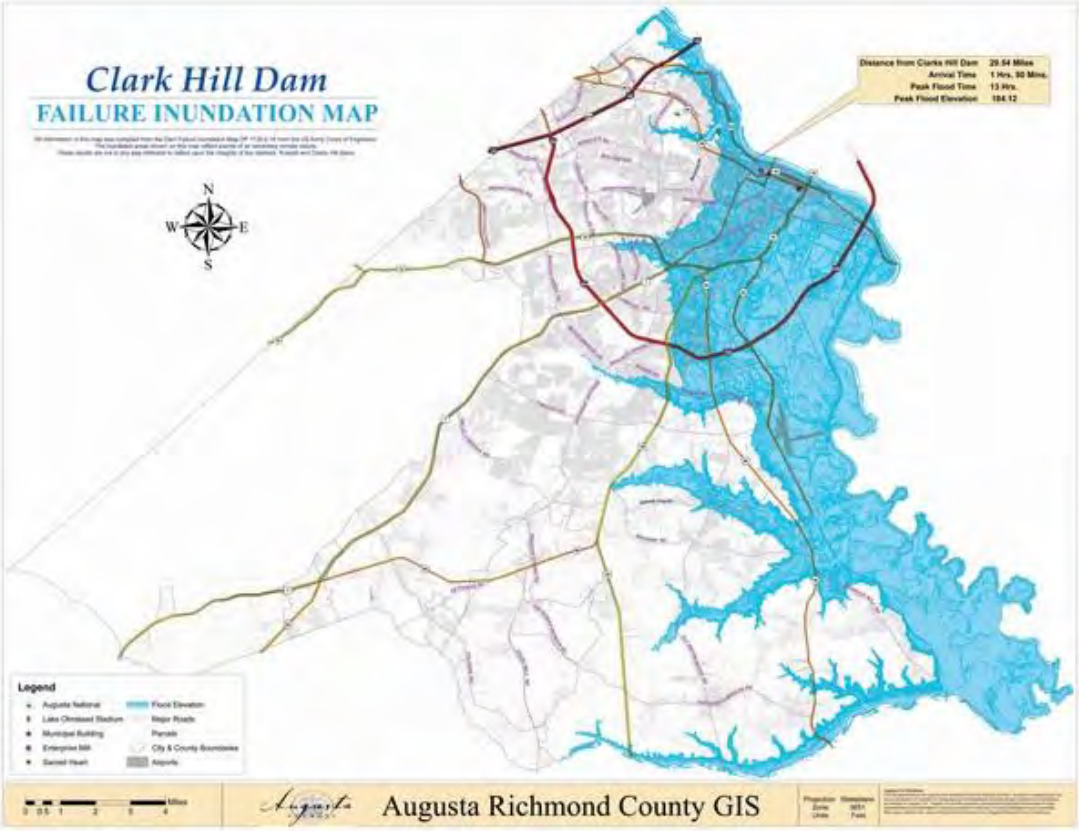
3.4 Technological Hazard D: Dam/Levee Failure

3.4.1 Dam/Levee Failure Identity

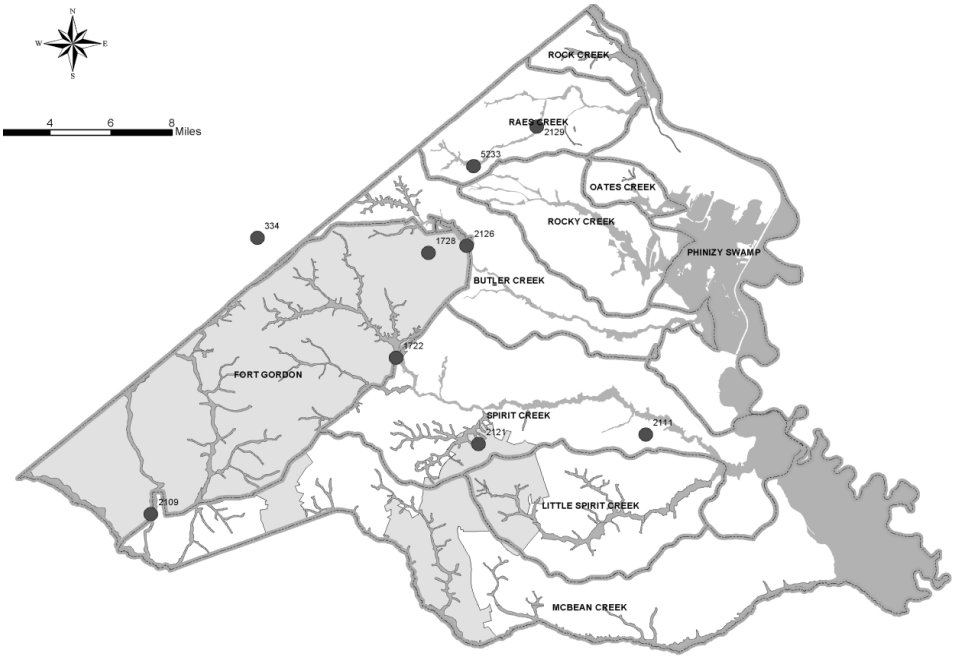
Dams and Flooding. FEMA and the U.S. Army Corps of Engineers maintain the National Inventory of Dams (1998), a database of high and significant hazard dams. For the most part, data is provided by state agencies responsible for regulation and inspection of dams or by the Corps of Engineers. Map Series 1 - B is based on that inventory and shows that eight high hazard dams (and 3 significant hazard dams) are located in planning area. High hazard dams are those of specific height or volume of impounded water that, if failure occurred, there would be a high likelihood of loss of life and substantial property damage. Table 3-10 lists information on the high hazard dams. There is no requirement for owners to develop emergency action or maintenance plans, although high hazard dams are required to be brought up to state specifications to protect public safety and property.

The Augusta Emergency Management Agency reports that the three Savannah River dams are the only high hazard dams for which a response plan and inundation maps are on-file (updated July 1994; DP 1130-2-16). The U.S. Army Corps of Engineers dams, not shown in Map Series 1, are the Hartwell, Richard B. Russell, and J. Strom Thurmond/Clarks Hill Dams. The Corps document considered several dam failure scenarios and predicts the arrival times ranging from 4.5 to 13 hours, and peak flood elevations at various locations. The Corps' Savannah District operates the dams, monitors flood conditions, and notifies emergency management officials in downstream jurisdictions if flooding is predicted. The Augusta Emergency Management Agency has prepared an Emergency Evacuation Plan based on the Corps' report and maintains a response plan for closing the levee openings. Map Series 1, A & B, below are inundation and high hazard dam maps produced by the Augusta – Richmond County GIS Department and the National Inventory of Dams, (Source: National Inventory of Dams, 1998).

Map Series 1 – A : Clark Hill Dam Inundation Map



Map Series 1 – B:



In recent years, stormwater detention ponds have failed during storms that produce flooding conditions. For this reason, and because the consequence of a dam or pond failure is downstream flooding, such events are considered under the broader category of flood hazards rather than as a separate hazard. Without the benefit of analyses of failures of the high hazard dams shown on Map Series 1 - B, the impacts associated with such events cannot be estimated.

3.4.2 Dam/Levee Failure Profile

FEMA working with the Association of State Dam Officials, monitors, inspects, reports and enforces Dam Safety Regulations. The GA Department of Natural Resources, Safe Dams Program serves as the State partner in Georgia.

Table 3.10: Dam Failure History
February 26, 1972 - Buffalo Creek Valley, West Virginia The failure of a coal-waste impoundment at the valley's head took 125 lives, and caused more than $400 million in damages, including destruction of over 500 homes. **June 9, 1972 – Rapid City, South Dakota** The Canyon Lake Dam failure took an undetermined number of lives (estimates range from 33 to 237). Damages, including destruction of 1,335 homes, totaled more than $60 million. **June 5, 1976 – Teton, Idaho** Eleven people perished when Teton Dam failed. The failure caused an unprecedented amount of property damage totaling more than $1 billion. **July 19-20, 1977 – Laurel Run, Pennsylvania** Laurel Run Dam failed, killing over 40 people and causing $5.3 million in damages. **November 5, 1977 – Toccoa Falls, Georgia** Kelly Barnes Dam failed, killing 39 students and college staff and causing about $2.5 million in damages. (Source: Association of State Dam Safety Officials. Historic U.S. Dam Failures. http://www.damsafety.org/news/?p=412f29c8-3fd8-4529-b5c9-8d47364c1f3e#HistoricFailures.)

On May 16, 1874, the Mill River Dam above Williamsburg, Massachusetts failed, killing 139 people, including 43 children under the age of ten. This failure was the worst in U.S. history, up to that time.

Fifteen years later, on May 31, 1889, this tragedy was replayed on a larger scale in Pennsylvania. Over 2,200 people - more than one in five residents of Johnstown - perished in the flood caused by the failure of South Fork Dam, nine miles upstream.

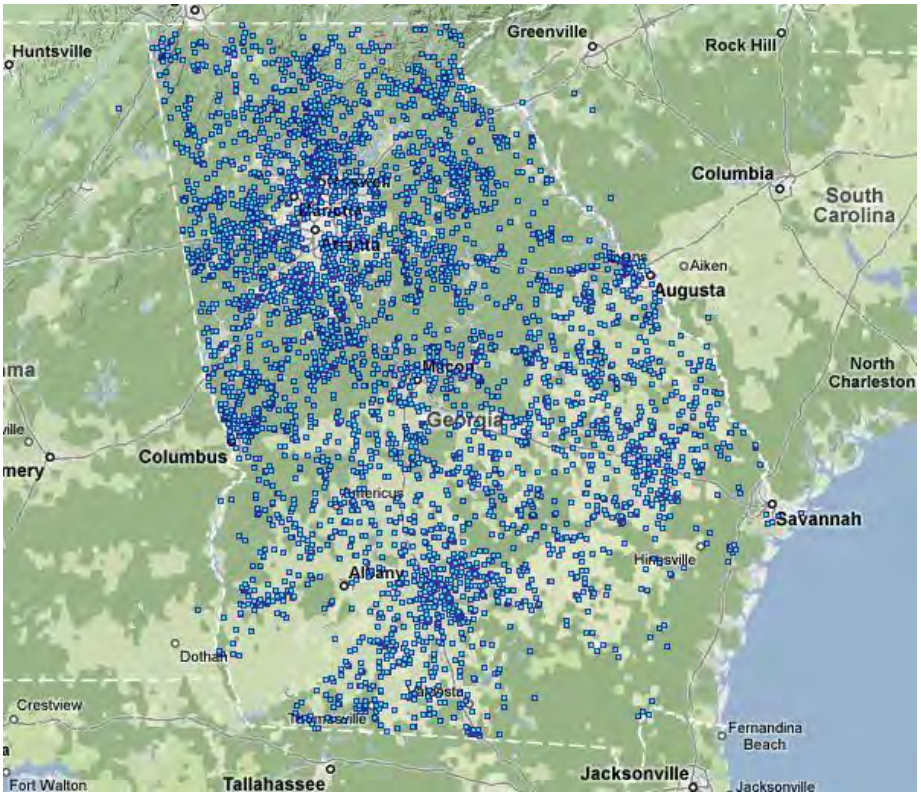
Many more failures - in Arizona, Tennessee, Oregon, North Carolina, Texas, Virginia, West Virginia, and elsewhere across the U.S. - occurred around the turn of the century, and some early state dam safety legislation was passed.

The failure of St. Francis Dam, in March 1928, was a landmark event in the history of state dam safety legislation, spurring legislation not only in California, but in neighboring states as well. However, most states had no substantive dam safety laws prior to a series of dam failures and incidents that occurred in the 1970s:

Current Status of Dams in Georgia

There are 4,606 dams in Georgia, of that number, 78 are rated as 'Significant Risk' and 484 are rated as 'High Risk' for failure, according to the National Inventory of Dams, reported on the US Corps of Engineers (USACE) National Inventory of Dams Website. Map 4 below illustrates dams in Georgia.

Map 4: National Inventory of Dams - Georgia



Dams listed on the website and reflected in Map 4 above are ranked with the following criteria;

The NID consists of dams meeting at least one of the following criteria:

- High hazard classification - loss of one human life is likely if the dam fails;
- Significant hazard classification - possible loss of human life and likely significant property or environmental destruction;
- Equal or exceed 25 feet in height and exceed 15 acre-feet in storage;
- Equal or exceed 50 acre-feet storage and exceed 6 feet in height.

Dam Failures and Incidents

Hundreds of dam failures have occurred throughout U.S. history. These failures have caused immense property and environmental damages and have taken thousands of lives. As the national dams age and population increases, the potential for deadly dam failures grows and the hazard risk increases.

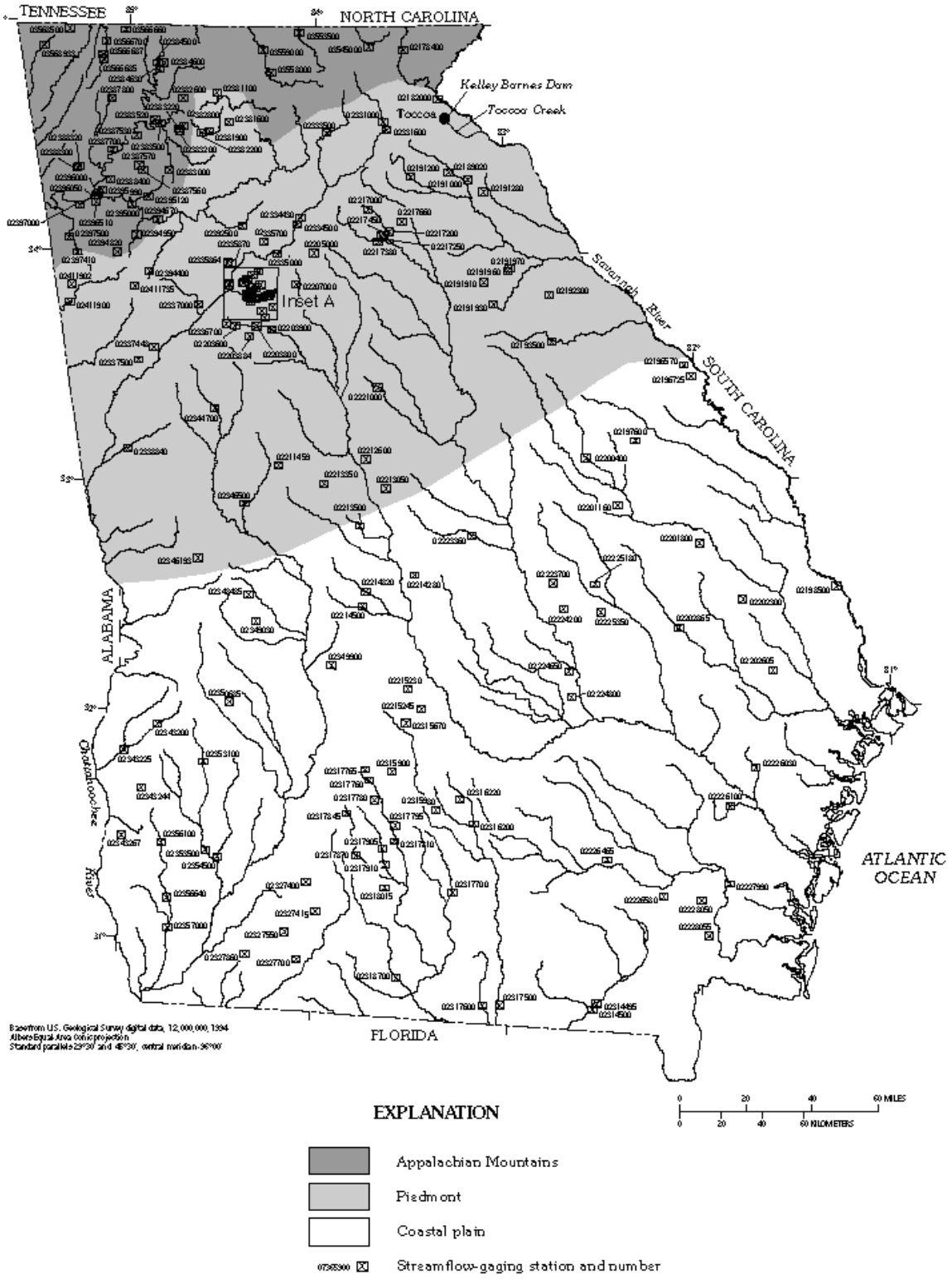
No one knows precisely how many dam failures have occurred in the U.S., but they have been documented in every state. From Jan. 1, 2005 through Jan. 1, 2009, state dam safety programs reported 132 dam failures and 434 'incidents' - episodes that, without intervention, would likely have resulted in dam failure. Of note for the planning area is the failure of the Kelly Barnes Dam in Toccoa Falls, GA.

Rainfall of 5 to 7 in. caused severe flooding on small streams in northern Georgia on November 2-6, 1977 and eventually caused the failure of the Kelly Barnes Dam in Toccoa, Georgia. The dam failed at 1:30 a.m. on November 6, resulting in a 25-ft wave of water rushing down the narrow canyon toward the Toccoa Falls Bible College. The campus was inundated within minutes. One dormitory had 8 ft. of water on the ground floor. A trailer park associated with the college was destroyed as 10 ft. of water rushed through it. Thirty-nine deaths and $2.8 million in damages occurred during this flash flood (Paulson and others, 1991).

Picture 5: Kelly - Barnes Dam Failure Site

Richmond County, GA flooded as a result of the dam failure. Map 5 below illustrates the affected areas in Georgia.

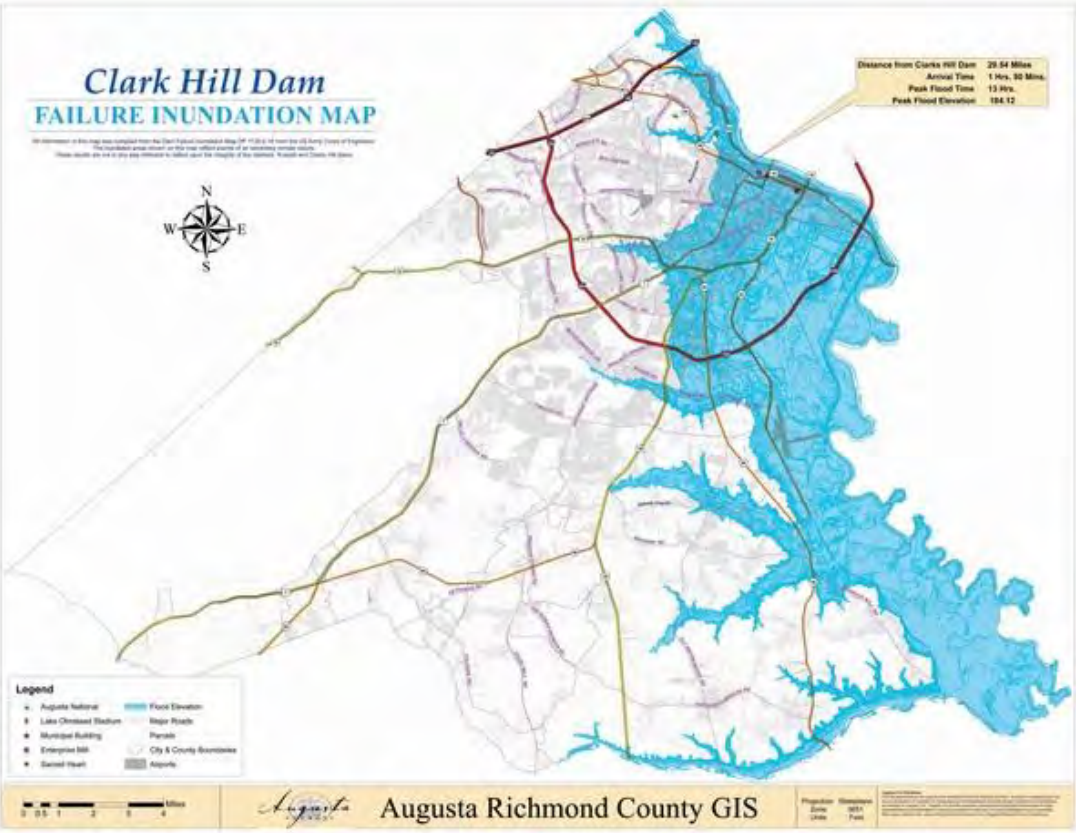
Map 5: Location of Stream flow Gauges with Significant Flooding – Kelly Barnes Dam Failure



3.4.3 Inventory assets exposed to Dam Failure (Totals from worksheets and reports from GMIS On-line tool for each participating jurisdiction) Address any data deficiencies from the original plan or explain why the deficiencies were not addressed. Include proposed development

Army Corps of Engineers releases Augusta Levee rating – (Georgia)

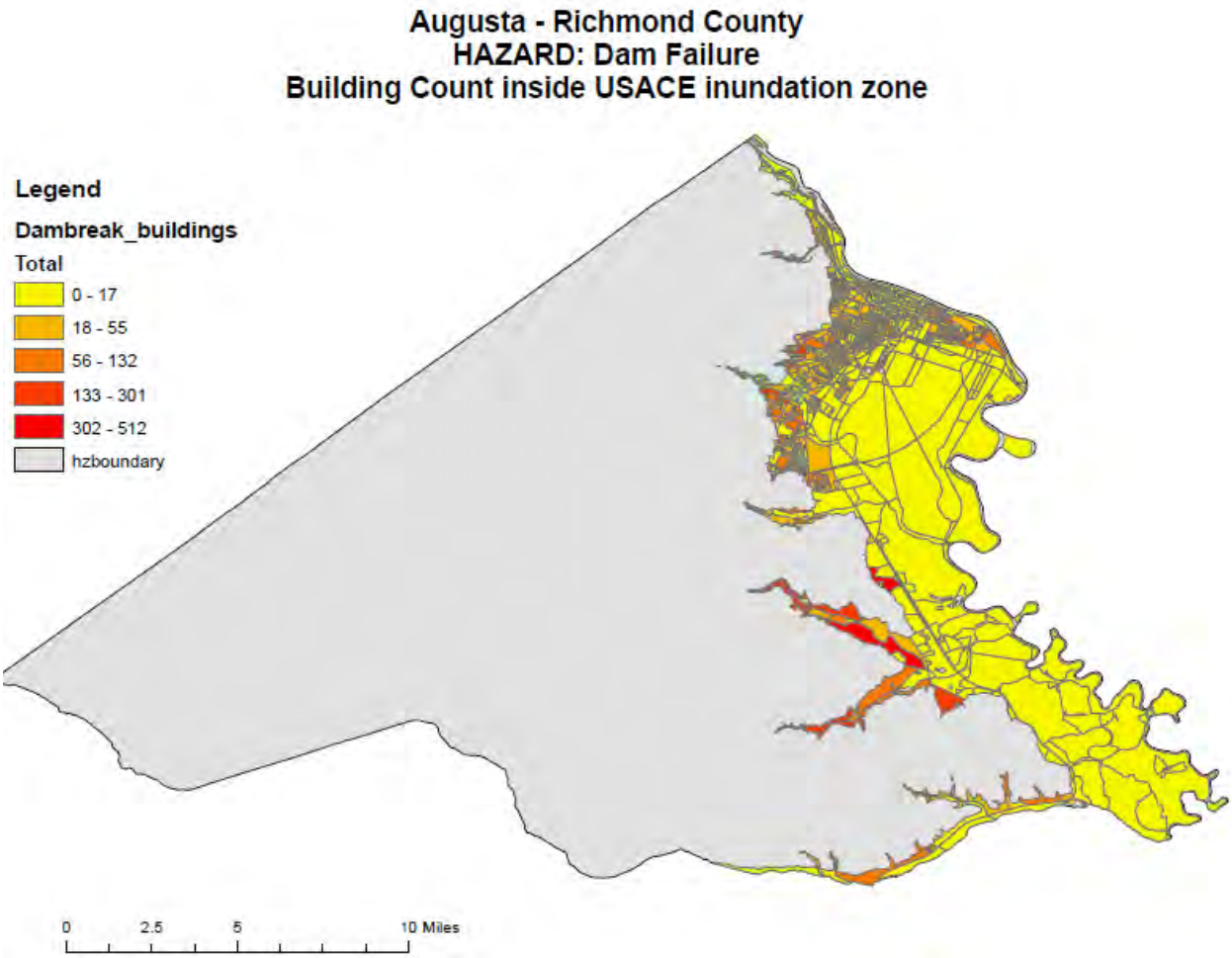
Safety — USACE has rated the condition of the Augusta, Georgia, levee as "Unacceptable," following a physical inspection of the levee completed in March 2010, according to a letter the city received from the Savannah District. The rating is based on the original levee design flood from the 1930s, which is now approximately the 1,000-year flood event (which has a 0.1 percent chance of occurrence in any year). City engineers have been working with USACE staff to resolve these issues. In 2010, the city submitted a vegetation variance request in September, and its review status is pending. Augusta expects to continue discussions on the details of the vegetation variance, with a goal of reaching an agreement with USACE about what vegetation can remain, what has to be removed, and what remedial actions must be taken. Most of the structural encroachments cited by USACE, such as the Marriott and Riverwalk improvements, were originally made with prior approvals from the Savannah District USACE during the past 30 years. The city plans to repair the other minor deficiencies as necessary. (Source: DHS. Sector Open Source Digest Highlights: Dams, February 2011. http://www.learningservices.us/asdso/uploads/Dams%20Sector%20Open%20Source%20Digest%20-%20February%202011.pdf).



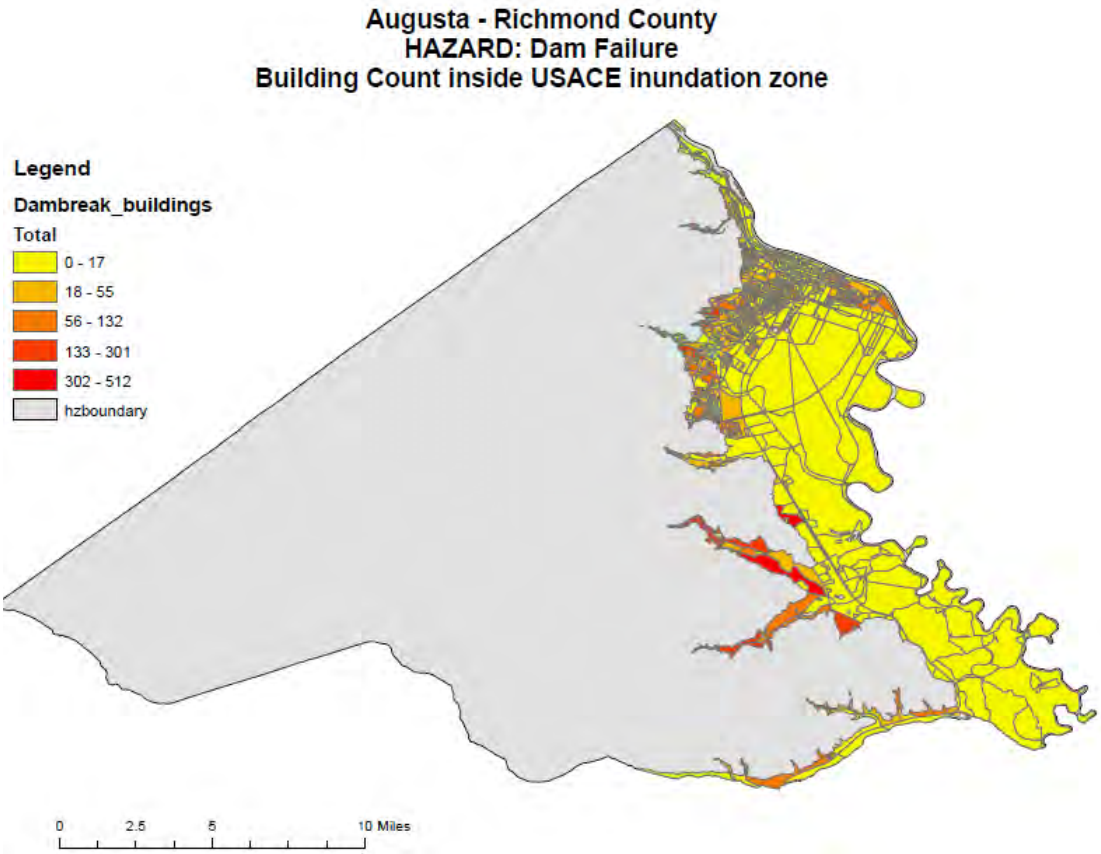
The map above reflects the distance from the planning area to the projected dam failure site as 20.54 miles, the arrival time of floodwaters as 1 hr. 50 min., peak flood time as 13 hours, and the peak flood elevation at 184.12. The area of exposure is primarily the eastern area of the county, with flooding occurring in the downtown and industrial areas. Roads, structures, and infrastructure would likely be impacted. Evacuation of residents, workers, government personnel and medical facilities would occur.

3.4.4 Potential losses related to Dam/Levee Failure

Estimation of losses related to Dam Failure is approximate at best. The damages would likely mirror those of a 100 year flood event. Approximately 9% of all structures would experience damage at an estimated cost of 245 million dollars (See Chapter 2.2 Flooding). The Illustration below reveals the number of structures, structure valuation, and number of people exposed to Dam/Levee Failure in the planning area.



HAZARD:	Dam / Levee Failure								
	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$,000's in Community or State	$,000's in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	71,769	20,794	29.0%	8,967,798	2,362,094	26.3%	199,775	56,994	28.5%
Commercial	4,202	1,719	40.9%	2,707,355	1,417,043	52.3%			N/A
Industrial	961	370	38.5%	495,189	358,114	72.3%			N/A
Agricultural	196	57	29.1%	26,011	6,638	25.5%			N/A
Religious/ Non-profit	515	217	42.1%	312,465	125,917	40.3%			N/A
Government	129	83	64.3%	96,570	63,728	66.0%			N/A
Education	145	62	42.8%	137,831	55,754	40.5%			N/A
Utilities			N/A			N/A			N/A
Total	77,917	23,302	29.9%	12,743,219	4,389,288	34.4%	199,775	56,994	28.5%



Original Plan Deficiencies Related to Dam/Levee Failure

The Dam/Levee Failure Hazard was not included in the original HMP except as a contributing hazard to Flooding.

3.4.5 Land use and development trends related to Dam/Levee Failure

Augusta – Richmond County has and continues to mitigate properties lying in the flood areas and developed stringent standards to inhibit development in hazard zones

3.4.6 Multi-Jurisdictional Differences related to Dam/Levee Failure.

The inundation map for Clarks Hill Dam reveals that the City of Augusta has a greater exposure to dam failure and because of the concentration of population in the inundation area would experience significantly higher structure damage and losses than the Cities of Blythe or Hephzibah.

3.4.7 General overall HRV summary of Dam Failure.

A dam failure at one of the larger dams could potentially destroy infrastructure and could quickly exceed state and local resources. It is anticipated that a significant amount of external resources will be required for a disaster response for such an event. Damaged primary and secondary roads may not be functional for many weeks or months. Damage to transportation, communication, and other infrastructure systems will isolate communities, creating virtual islands within the dam failure inundation areas. Significant aid from state/federal governments may not be immediately available, for at least 72 hours following a dam failure. Affected local governments and individuals should be prepared to meet their own emergency needs during the first three days following the dam failure.

Dam failure inundation of the planning area poses a significant hazard to the citizens of Augusta - Richmond County and the Cities of Blythe and Hephzibah. The identification of goals, objectives, and actions to mitigate dam failure events is a priority of the HMPC.

3.4.8 Default Databases

Default inventory databases provided with HAZUS are of two types. The first type is a national listing of individual facilities, such as dams, bridges, or locations where toxic materials are stored. These databases are modified versions of publicly available databases. The modifications that have been made to eliminate data elements that are not needed for the loss estimation methodology. The second type of default database consists of data aggregated on a census tract or census block scale. Examples are building stock square footage for each census tract and census data. These default databases are also derived from publicly available data, eliminating fields of data that are not needed for the methodology.

The databases are stored on the HAZUS DVDs. When user aggregates a region, HAZUS extracts only those portions of the databases that are relevant to the region. The user can then access these region specific default databases and update them with improved information that was obtained. The following default inventory data are currently supplied with HAZUS:

- Demographic Data
- Population Distribution
- Age, Ethnic, and Income Distribution
- General Building Stock
- Square Footage of Occupancy Classes for Each Census Tract
- Essential Facilities

- Medical Care Facilities
- Emergency Response Facilities (fire stations, police stations, EOCs)
- Schools
- High Potential Loss Facilities
- Dams
- Nuclear Power Plants
- Military Installations
- Facilities Containing Hazardous Materials
- Transportation Lifelines
- Highway Segments, Bridges and Tunnels
- Railroad Tracks, Bridges, Tunnels and Facilities
- Light Rail Tracks, Bridges, Tunnels and Facilities
- Bus Facilities
- Port Facilities
- Ferry Facilities
- Airports Facilities and Runways
- Utility Lifelines
- Potable Water Facilities, Pipelines and Distribution Lines
- Waste Water Facilities, Pipelines and Distribution Lines
- Oil Facilities and Pipelines
- Natural Gas Facilities, Pipelines and Distribution Lines
- Electric Power Facilities and Distribution Lines
- Communication Facilities and Distribution Lines

Note that only the Demographics, General Building Stock, and Essential Facilities are used in the loss models developed for the present version of the Hurricane Model. The remaining default inventory databases can only be viewed in tables or as map layers.

3.5 Technological Hazard E – All Hazards

The HMPC determined that an all hazards approach to analyze the impacts of current policies, ordinances, and plans on community safety from technological hazard risks due to growth decisions losses in Augusta - Richmond County and the Cities of Blythe and Hephzibah would provide a holistic methodology to address community risk.

The specific mitigation strategy and action is the production of a Safe Community Audit Report to inform citizens and decision makers losses in Augusta - Richmond County and the Cities of Blythe and Hephzibah about important safety issues and to relay needed changes in community ordinances, processes, and policies, (Godschalk, 2009).

Chapter 4: Natural Hazards Mitigation Goals and Objectives; Overall Community Mitigation Goals, Policies and Values

Chapter 4 of the HMP describes Natural Hazard Mitigation Goals, Objectives, Policies and Values evaluated by Augusta-Richmond County and the Cities of Blythe and Hephzibah, both on their individual (local), as well on the overall, county-wide level. This chapter provides a plan of action for Augusta - Richmond County and the Cities of Blythe and Hephzibah to increase resilience to natural hazards and is a culmination of work that began through the HRV assessment process outlined in Chapter 2. This Chapter consists of the following sections:

- Introduction;
- Goals And Objectives Update Summary;
- Tornado/Windstorm/Hail Mitigation Strategy;
- Flood Mitigation Strategy;
- Drought/Extreme Heat Mitigation Strategy;
- Severe Winter Storm Mitigation Strategy;
- Wildfire Mitigation Strategy;
- Earthquake Mitigation Strategy; and
- All Hazards Mitigation Strategy.

Table 4.1 below summarizes updates on 2006 HMP mitigation natural hazards ranking and subsequent addition of seismic hazard:

Table 4.1: Updates to Existing Plan Chapter 4

Chapter 4 Section	Updates to 2006 HMP
I. Natural Hazard A: Tornado/Windstorm/Hail	• Renamed from Wind Hazards • Updated Mitigation Goals, Objectives, and Actions
II. Natural Hazard B: Flooding	• Updated Mitigation Goals, Objectives, and Actions
III. Natural Hazard C: Drought/Extreme Heat	• Renamed from Drought • Updated Mitigation Goals, Objectives, and Actions
IV. Natural Hazard D: Severe Winter Storm	• Updated Mitigation Goals, Objectives, and Actions
V. Natural Hazard E: Wildfire	• Renamed from Urban Wildland Interface Fire • Updated Mitigation Goals, Objectives, and Actions
VI. Natural Hazard F: Earthquake	• New Section
VII. All Hazards Strategy	• New Section

Table 4.1: Overview of updates to Chapter 4: Local Natural Hazard Mitigation Goals and Objectives Overall Community Mitigation Goals, Policies and Values

INTRODUCTION

The intent of the Mitigation Strategy is to provide Augusta-Richmond County and the Cities of Blythe and Hephzibah with the goals that will serve as the guiding principles for future mitigation policy and project administration, along with a list of proposed actions deemed necessary to meet those goals and reduce the impact of natural hazards. It is designed to be comprehensive and strategic in nature. The development of the strategy included a thorough review of natural hazards and identified policies and projects intended to not only reduce the future impacts of hazards, but also to assist Augusta-Richmond County and the Cities of Blythe and Hephzibah achieve compatible long-term economic, environmental and social goals.

The development of this section is also intended to be strategic, in that all policies and projects are linked to establish priorities assigned to specific departments or individuals responsible for their implementation and assigned target completion deadlines. Funding sources are identified that can be used to assist in project implementation.

Mitigation goals define strategic development and resilience-strengthening directions that Augusta-Richmond County and the Cities of Blythe and Hephzibah intends to follow. Most often, mitigation goals are expressed through broad policy statements representing desired long - term results.

Mitigation objectives describe more refined action steps directed towards accomplishing mitigation goals. It is not uncommon to have complex mitigation goals accomplished through separate mitigation objectives in different mitigation categories.

Mitigation actions are individual, concrete measures that are quantifiable, both in time and resources. The period of performance for mitigation actions can be defined within five-year plan renewal cycle.

The Augusta HMPC identified a total of four different classes of mitigation actions applicable in this planning process:

Programmatic actions that prevent exposing new development to identified hazards and that protect natural resources (land use, open space, regulations and codes, stormwater management, drainage maintenance, wetlands protection, erosion and sediment control).

Property protection actions address site-specific existing problems (acquisition, elevation, retrofit, backflow prevention)

Structural solutions entail structural strengthening of the critical facilities or building of the new flood control structures (dams/ponds, levees/floodwalls, channel modification).

Public outreach, information gathering and emergency actions entail a variety of measures intended to: educate and alert citizens, elected officials and property owners (through outreach projects, web page content, library materials, flood and tornado warning systems); gather additional information by performing various types of studies (drainage, economic, floodmapping studies). Emergency actions are usually not considered mitigation actions but, when applied, they do reduce hazard impact on lives and property. Emergency actions are usually defined in conjunction with Emergency Operations Plan (EOP).

The HMPC developed local mitigation strategies specific to each community's exposure and impacts by identified natural hazards. The strategy included a list of mitigation goal statements focusing on reduction of risks from the identified natural hazards. Goal development and project prioritization were drafted by the HMPC.

The HMPC drafted a prioritized project list and analysis of a range of specific mitigation actions and projects to reduce the effect of each hazard, emphasizing new and existing buildings and infrastructure.

- Projects included non-structural, (e.g., planning, regulatory measures, property acquisition,) or structural, (e.g., dams, retrofitting, elevation) solutions; and
- Prioritized projects and action based on cost effective hazard mitigation projects, HMPC and public STAPLEE ranking database (Appendix D), a Community Assessment Spreadsheet, (Appendix D) and report.

STAPLEE Mitigation Development, Analysis, and Prioritization

The HMPC STAPLEE analysis of proposed mitigation projects focused on several key areas, including but not limited to: economic (including benefits and cost), engineering, technical, legal, environmental, social, and political feasibility. Selected options were the best fit for Augusta - Richmond County and the Cities of Blythe and Hephzibah to meet the criteria of feasibility analysis;

Coordination with relevant Federal, State and Local agencies for input and technical assistance included FEMA, GEMA, Regional Representatives, HMPC, local hospitals, relief agencies, K-12 school board representatives, businesses, industry, and citizens and Augusta - Richmond County and the Cities of Blythe and Hephzibah;

In short, the product is a concise report of whether the strategies and/or projects worked and recommendations for improvements to existing strategies, deletions of ineffective strategies, and effective new strategies to accomplish the Goals and Objectives of the Plan in a cost effective manner. The STAPLEE Summary below reveals the assessment and prioritization of the Mitigation Strategies, Goals, and Objectives.

Using the STAPLEE criteria and local input the HMPC utilized the HMPC STAPLEE Ranking Subcommittee to determine the effectiveness of mitigation strategies identified in the effective HMP. There were 13 members on the committee

representing Augusta – Richmond County and the Cities of Blythe and Hephzibah, and technical experts representing business, industry, disaster relief agencies, K-12 schools, universities, hospitals, state and regional stakeholders, and citizens. The subcommittee members represent the social, technical, administrative, political, legal, economic, and environmental key informants for the community.

There are 23 assessment criteria in the STAPLEE worksheet and 13 respondents in the HMPC STAPLEE Ranking Sub-committee resulting in a possible ranking number of 299 possible points. The results were then prioritized in the STAPLEE Ranking Summary sheets below.

STAPLEE Summary

AUGUSTA - RICHMOND COUNTY and the CITIES OF BLYTHE AND HEPHZIBAH
MULTI-JURISDICTIONAL HMP UPDATE STAPLEE SUMMARY

Mitigation Actions	STAPLEE Score	STAPLEE Ranking
Natural Hazard A: Tornado/Windstorm/Hail		
MITIGATION ACTION 1.1.1 (multi jurisdictional) Review capacity of the existing tornado shelters and construct new ones if needed	183/299	5
MITIGATION ACTION 1.1.2 (multi jurisdictional) Develop Debris Management Plan	231/299	1
MITIGATION ACTION 1.1.3 Augusta Public Tree Maintenance	216/299	2
MITIGATION ACTION 1.1.4 Promote Enhanced Anchoring of Manufactured Homes	184/299	4
MITIGATION ACTION 1.2.1 (multi jurisdictional) Severe Storm Awareness	203/299	3
Natural Hazard B: Flooding		
MITIGATION ACTION 2.1.1 Drainage and Stormwater Management	149/299	12
MITIGATION ACTION 2.1.2 Sewer Line Infiltration and Inflow	203/299	7
MITIGATION ACTION 2.1.3 Soil Erosion and Sediment Control	173/299	11
MITIGATION ACTION 2.1.4 Flood Hazard Map Revisions and Updates	212/299	5
MITIGATION ACTION 2.1.5 Economic Analysis related to Flood Hazard & critical facilities	197/299	8
MITIGATION ACTION 2.1.6 Policies & Procedures for Flood Mitigation Projects	221/299	3
MITIGATION ACTION 2.1.7 Participation in NFIP Community Rating System (CRS)	176/299	10
MITIGATION ACTION 2.1.8 Dam Safety	215/299	4
MITIGATION ACTION 2.2.1 Public Awareness Initiative	222/299	2

AUGUSTA - RICHMOND COUNTY and the CITIES OF BLYTHE AND HEPHZIBAH
MULTI-JURISDICTIONAL HMP UPDATE STAPLEE SUMMARY

MITIGATION ACTION 2.2.2 Flood Mitigation/Hazard Mitigation Staffing	228/299	1
MITIGATION ACTION 2.2.3 Savannah River Flood Protection and Awareness	195/299	9
MITIGATION ACTION 2.2.4 Flood Warning	208/299	6
Natural Hazard C: Drought/Extreme Heat		
MITIGATION ACTION 3.1.1 (multi jurisdictional) Water Conservation Awareness	202/299	1
Natural Hazard D: Severe Winter Storm		
MITIGATION ACTION 4.1.1 (multi jurisdictional) Severe Winter Storm Awareness	203/299	3
MITIGATION ACTION 4.1.2 Augusta Public Tree Maintenance	205/299	2
MITIGATION ACTION 4.1.3 (multi jurisdictional) Debris Management Plan	244/299	1
Natural Hazard E: Wildfire		
MITIGATION ACTION 5.1.1 Pre-Suppression Planning for City-Owned Lands	241/299	1
MITIGATION ACTION 5.1.2 **Subdivisions & Driveway Access for Fire Vehicles**	212/299	2
Natural Hazard F: Earthquake		
MITIGATION ACTION 6.1.1 Outreach and seismic inspection	155/299	1
Natural Hazard: All Hazards		
MITIGATION ACTION 7.1.1 **Production of a Safe Community Audit Report to inform citizens and decision makers about important safety issues and to relay needed changes in community ordinances, processes,**	234/299	1

AUGUSTA - RICHMOND COUNTY and the CITIES OF BLYTHE AND HEPHZIBAH
MULTI-JURISDICTIONAL HMP UPDATE STAPLEE SUMMARY

Mitigation Actions	STAPLEE Score	STAPLEE Ranking
Technological Hazard A: Chemical Spill/Leak (Chemical Release Airborne)		
MITIGATION ACTION 1.1.1 Environmental Safety and Flood Hazards	210/299	1
MITIGATION ACTION 1.1.2 Downtown Railroad Safety	208/299	2
MITIGATION ACTION 1.2.1 Chemical Spill Awareness	202/299	3
Technological Hazard B: Terrorism		
MITIGATION ACTION 2.1.1 (multi jurisdictional) Terrorism Awareness	197/299	1
Technological Hazard C: Nuclear Plant Incident		
MITIGATION ACTION 3.1.1 (multi jurisdictional) Nuclear Plant Incident Awareness	200/299	1
Technological Hazard D: Dam/Levee Failure		
MITIGATION ACTION 4.1.1 Dam / Levee Break Flood Hazard Considerations	207/299	1
Technological Hazard: All Hazards		
MITIGATION ACTION 5.1.1 Production of a Safe Community Audit Report to inform citizens and decision makers about important safety issues and to relay needed changes in community ordinances, processes, and policies (Godschalk,	234/299	1

STAPLEE SCORES: The Mitigation Action raw numeric scores reflect a possible STAPLEE Score (SS) of 299 (**13 respondents X 23 ranking criteria = 299**). The results were then ranked using the baseline number of **SS/299**.

EXISTING HMP REVIEW, GOALS AND OBJECTIVES UPDATE SUMMARY

In Chapter 2 of this Plan Update, members of the Augusta-Richmond County HMPC conducted quantitative and qualitative evaluation of the community's exposure to natural hazards through HRV process. As a direct result of the prevalent natural hazard evaluation, the HMPC reviewed the 2006 Effective HMP mitigation strategies and established the following 2011 mitigation goals and objectives:

Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County and the Cities of Blythe and Hephzibah due to tornado/windstorms/hail.

Objective 1.1: Increase resilience of critical facilities (including shelters) to the effects of tornados, windstorms, and hail.

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of tornado/windstorm/hail in Augusta – Richmond County and the Cities of Blythe and Hephzibah.

Goal 2: To minimize losses of life and property, and other economic losses in Augusta - Richmond County and the Cities of Blythe and Hephzibah due to the riverine and localized flooding.

Objective 2.1: Increase resilience of building stock, critical infrastructure, and essential facilities to the effects of flooding.

Objective 2.2: Increase public awareness and increase level of protection to local population from the effects of flooding.

Goal 3: To minimize losses of life and property, and other economic losses in Augusta - Richmond County and the Cities of Blythe and Hephzibah due to the effects of drought and extreme heat.

Objective 3.1: Increase public awareness and level of protection to local population and economy from the effects of drought and extreme heat in Augusta - Richmond County and the Cities of Blythe and Hephzibah.

Goal 4: To minimize losses of life and property, and other economic losses in Augusta - Richmond County and the Cities of Blythe and Hephzibah due to effects of severe winter storms.

Objective 4.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of severe winter storms.

Goal 5: To minimize losses of life and property, and other economic losses in Augusta - Richmond County and the Cities of Blythe and Hephzibah due to effects of wildfire.

Objective 5.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of wildfire in Augusta - Richmond County and the Cities of Blythe and Hephzibah.

Goal 6: To minimize losses of life and property, and other economic losses in Augusta - Richmond County and the Cities of Blythe and Hephzibah due to effects of earthquakes.

Objective 6.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of seismic activity.

Goal 7: Analyze the impacts of current policies, ordinances, and plans in Augusta - Richmond County and the Cities of Blythe and Hephzibah on community safety from natural hazard risks due to growth decisions.

Objective 7.1: Production of a Safe Community Audit Report to inform citizens and decision makers about important safety issues and to relay needed changes in community ordinances, processes, and policies (Godschalk, 2009).

SECTION 1. TORNADO/WINDSTORM/HAIL MITIGATION STRATEGY

COMMUNITY MITIGATION GOALS

Goal 1: To minimize losses of life and property, and other economic losses in Augusta - Richmond County Augusta - Richmond County and the Cities of Blythe and Hephzibah due to tornadoes, wind, storms, and hail.

IDENTIFICATION AND ANALYSIS OF RANGE OF MITIGATION OPTIONS

Mitigation options to address potential damage due to winds include structural (e.g., strengthening critical facilities), programmatic (e.g., requirements related to design and construction of buildings, public safety and information), and non-structural (e.g., efficiently handling debris). Despite the relative ranking of "high" (due to frequency of wind events rather than degree of past damage), the members of HMPC determined that building-specific retrofits were inappropriate and unnecessary.

EXISTING POLICIES, REGULATIONS, ORDINANCES, AND LAND USE

Current building code requirements administered by Augusta, Blythe and Hephzibah that are related to resisting certain wind conditions apply to new construction,

installation of manufactured homes, and some work on existing buildings such as re-roofing and additions. There is no evidence to suggest that the code requirements are inadequate. Application of the building code continues to be the best mitigation against damage to new buildings and structures (for damage other than direct impacts from tornadoes).

NEW AND EXISTING BUILDINGS AND INFRASTRUCTURE

Public projects and construction projects that are undertaken by Augusta, Blythe and Hephzibah must comply with current building codes, including:

- New buildings and critical facilities (such as the new Fire Station #15 on Flowing Wells Road);
- Work on existing buildings and critical facilities (such as recent renovation of a Fire Station); and
- Rehabilitation and reconstruction housing projects managed by Housing & Economic Development.

The entire planning area is exposed to the same potential wind conditions; there are no land uses or zoning elements that are directly related to tornadoes and wind hazards.

Mitigation Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to tornadoes, wind, storms, and hail.

Objective 1.1: Increase resilience of critical facilities (including shelters) to the effects of tornado winds, violent storms, and hail.

GOAL 1- Objective 1.1 – Mitigation Action 1.1.1 (MULTI JURISDICTIONAL)	
Review capacity of the existing tornado shelters, construct new ones if needed	
Responsible Department	Augusta - Richmond County EMA with support of the Cities of Hephzibah and Blythe
Anticipated cost	TBD
Existing and potential funding sources	FEMA's Hazard Mitigation Grant Program (HMGP) and FEMA's Pre-Disaster Mitigation (PDM) Funds
Jurisdiction	Augusta - Richmond County and the Cities of Hephzibah and Blythe
Timeframe	5 years
STAPLEE Priority	5 (183/299)
Status (deferred or new)	NEW

GOAL 1- Objective 1.1 – Mitigation Action 1.1.2 (MULTI JURISDICTIONAL)	
Debris Management Plan - Work with the cities, GEMA, FEMA, and power companies, to gain approval and funding of existing Debris Management Plan.	
Responsible Department	Augusta - Richmond County EMA with support of cities of Hephzibah and Blythe
Anticipated cost	TBD
Existing and potential funding sources	GEFA Grants for Communities and Solid Waste Authorities, FEMA Public Assistance (PA) Program, and Within existing budget
Jurisdiction	Augusta - Richmond County and the Cities of Hephzibah and Blythe
Timeframe	5 years
STAPLEE Priority	1 (231/299)
Status (deferred or new)	ONGOING

GOAL 1- Objective 1.1 – Mitigation Action 1.1.3	
Augusta Public Tree Maintenance - Continue tree maintenance on City of Augusta streets and city-owned property (reduce debris, impacts of falling).	
Responsible Department	Augusta - Richmond County with support of Recreation and Parks
Anticipated cost	TBD
Existing and potential funding sources	Georgia Forestry Commission Urban & Community Forestry Grant and Within existing budget
Jurisdiction	Augusta - Richmond County
Timeframe	Continuous
STAPLEE Priority	2 (216/299)
Status (deferred or new)	DEFERRED

GOAL 1- Objective 1.1 – Mitigation Action 1.1.4	
Promote Enhanced Anchoring of Manufactured Homes – making them less susceptible to tornado damages and detachment from the pad.	
Responsible Department	Augusta - Richmond County EMA with support of the Cities of Hephzibah and Blythe
Anticipated cost	TBD
Existing and potential funding sources	Potential FEMA funding through PA
Jurisdiction	Augusta - Richmond County and the Cities of Blythe and Hephzibah
Timeframe	5 years
STAPLEE Priority	4 (184/299)
Status (deferred or new)	NEW

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of tornado winds, violent storms, and hail in Augusta - Richmond County and the Cities of Blythe and Hephzibah.

GOAL 1- Objective 1.2 – Mitigation Action 1.2.1 (MULTI JURISDICTIONAL)	
Severe Storm Awareness - Continue public outreach on severe storm and tornado risks; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of representatives from Augusta, Blythe, Hephzibah, and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the National Weather Service, FEMA, the American Red Cross, and others and determine whether changes are appropriate. Expand use of Augusta's website to make information readily available to the public.	
Responsible Department	Augusta - Richmond County with support of Recreation and Parks and the Cities of Blythe and Hephzibah
Anticipated cost	TBD
Existing and potential funding sources	State Farm Safety Grant, Within existing budget
Jurisdiction	Augusta-Richmond County
Timeframe	Continuous
STAPLEE Priority	3 (203/299)
Status (deferred or new)	DEFERRED

SECTION 2. FLOOD MITIGATION STRATEGY

COMMUNITY MITIGATION GOALS

Goal 2: To minimize losses of life and property, and other economic losses in Augusta - Richmond County and the Cities of Blythe and Hephzibah due to the riverine and localized flooding.

IDENTIFICATION AND ANALYSIS OF RANGE OF MITIGATION OPTIONS

Four categories of options are generally considered when addressing flood hazards:

- Programmatic actions that prevent exposing new development to flood risks and that protect natural resources (land use, open space, regulations and codes, stormwater management, drainage maintenance, wetlands protection, erosion and sediment control);
- Property protection actions that address site-specific existing problems (acquisition, elevation, retrofit, backflow prevention);
- Structural solutions (dams/ponds, levees/floodwalls, channel modification);
- Public information and emergency actions (outreach projects, web page content, library materials, flood map determinations, flood warning)

Augusta addresses flood hazards through a number of existing mechanisms, including some actions from each of the above-listed categories. For some of the existing mitigation initiatives, site-specific problems were examined to identify feasible and cost-effective solutions, including drainage improvements and property acquisition.

EXISTING POLICIES, REGULATIONS, ORDINANCES AND LAND USE

Chapter 6 contains a detailed overview of Augusta's capability to address hazards, including how the City plans and grows and how different departments have been affected by and how they handle hazards. Similarly, the Chapter briefly describes the cities of Blythe and Hephzibah and how hazards are addressed in normal city functions.

EXISTING FLOOD MITIGATION INITIATIVES

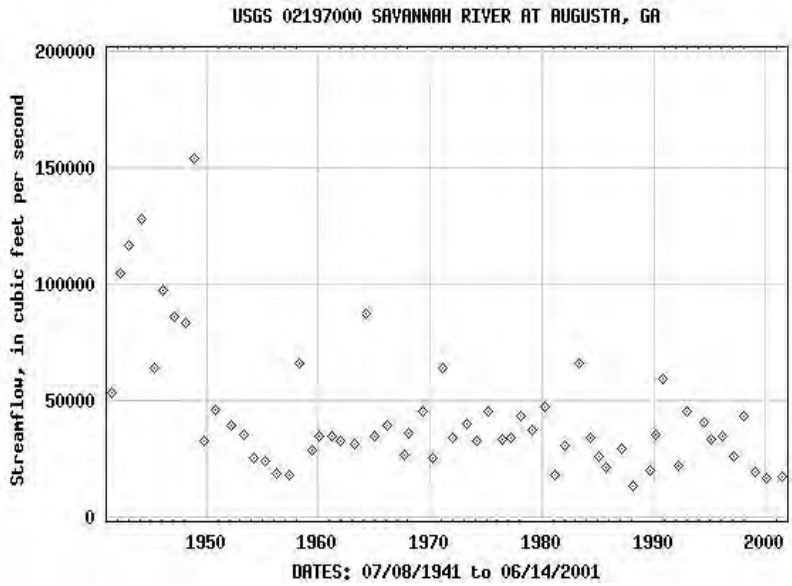
Floodplain Acquisitions Prompted by significant flooding in 1998, which resulted in Presidential Declaration DR 1209, the City began to consider seeking federal grant funds to acquire a number of flood-damaged homes. There were many more damaged homes than available funding; for the most part the selection was driven by federal and state emphasis and the limited amount of available funds.

Another flood in 2002, although not qualifying as a major disaster declaration, caused extensive damage to homes in Augusta. As a result, the City applied for and received a grant to pursue more floodplain acquisitions (Phase 2). Phase 3 was funded by a grant that was approved in late August 2003, and Phase 4 was funded by a Pre-Disaster Mitigation Grant approved in 2004. The latest grant came from 2010 HMGP program, and was approved in April of 2011. A total of 11 homes are in process of being acquired.

As a condition of the mitigation grants, the acquired lands must be retained as open space. As shown on Figure 2-3, these lots are in several locations, complicating re-use for recreational purposes or other compatible open space purposes. The Hollywood area, where some homes have been acquired and several others have been abandoned due to repetitive flood damage, may be a suitable site for wetlands restoration. If buildings can be removed from a large, contiguous area, the land would likely revert to wetlands, given the frequency of flooding.

Augusta/Savannah River Levee. The Augusta/Savannah River Levee is about 11.5 miles long, running from the high ground on the south side of Rae's Creek to the high ground at New Savannah Bluff, just south of Butler Creek. There are five gate structures; two railroad crossings, one road crossing, two combined road/rail crossings, and several road ramps, and one section of sheet pile wall. Figure 4-1 below depicts the USGS Savannah River Gage at Augusta, GA.

Figure 4-1. USGS Savannah River Gage at Augusta



Started in 1908 and completed between 1914 and 1916, the Flood of 1929 damaged certain sections that were rebuilt to "stand up against greater floods." In 1936, the U.S. Congress authorized improvements by the U.S. Army Corps of Engineers, which completed work in 1941. Initially, the Levee was designed to have two-feet of freeboard under a design discharge of 550,000 cubic feet per second (measured at the 5th Street Bridge water level gage, which is not operational).

The Clarks Hill Dam and Lake project began impounding water in December 1951 and continues to control the Savannah River. Analyses in the early 1980s suggested the Levee would overtop during flows greater than 55,000 cfs, which had a stage of 30-feet on the Butler Creek gage and 51.8-feet at the 5th Street gage. At the time, this was characterized as the 0.2% annual chance flood (500-year). However, as shown in Figure 4-1, USGS measurements at Gage 02197000 (Savannah River at Augusta), discharges on this well-regulated river has exceeded 50,000 cfs only five times since 1950.

The City of Augusta is the local sponsor and owns, operates, and maintains the Levee. The Operations and Maintenance Manual, prepared in 1984 by the Corps of Engineers, acknowledges that the effectiveness of the levee depends on people in three key ways, each is addressed in detail: routine maintenance; inspection and periodic reporting; and operations and flood fight. In conjunction with the Corps, the Augusta Emergency Management Agency prepared the *Emergency Levee Closure Plan* (1999), which is exercised every two years (last exercise was in 2004). The exercise includes mobilization all City departments involved, deployment of a crane, and the actual closure of at least one gate structure.

With respect to permanent development on the Levee, the Corps did not have the authority (under then-current legislation) to approve permanent modifications. General criteria for encroachments are set forth and a procedure is outlined,

including a requirement that the City Engineer certify that the design of any encroachment "does not affect the levee integrity or impair his ability to operate or maintain the levee and perform flood fights."

Oates Creek Project In 1986, the U.S. Army Corps of Engineers prepared the Oates Creek Flood Control Project design. The project, constructed in the late 1980s, was expected to provide an average annual flood damage reduction benefit of $1.78 million (1979 dollars). The project was designed to carry discharges for the 10-year to 25-year floods and is expected to reduce or eliminate flooding of 218 homes by the 1%-annual chance flood (100-year). The channel improvement project modified the Oates Creek mainstream and Tributary No. 1 and consisted of several components:

- Realignment of the waterway from its confluence with Beaver Dam Ditch upstream to the New Savannah Road Bridge;
- Just over a mile of rectangular cross-section, concrete-lined channel, ranging from 30- to 40-feed wide;
- Over 6,600 feet of grass-lined channel with sloped sides and bottom widths of 10- to 60 feet;
- A low earth levee on the south bank downstream of Central of Georgia Railroad crossing, extending 1,800 feet long and ranging from 4- to 9-feet high; and
- Modifications to a bridge and utilities.

Richmond County was the original non-federal sponsor and project owner. As part of the consolidation of governments, the City of Augusta became the project owner. The City, in conjunction with the Corps of Engineers, inspects the project twice a year. Reportedly, "high flood control efficiency" is achieved, but modifications are planned to reduce excessive annual maintenance requirements and costs. To concentrate low flows and to minimize sediment deposition, the bottom of the upper portion of earthen channel will be re-graded and concrete pilot channel will be constructed in the lower portion of earthen channel. Rip-rap was placed on channel slopes and at other locations to reduce erosion. Construction was expected completed in 2005.

Rae's Creek Improvements Prompted by repeated flooding in the early 1990s, the City undertook a $1.4 million stream improvement project on Rae's Creek. From Lake Olmstead upstream to about Wrightsboro Road, the stream was cleaned and widened. To reduce streambank erosion, riprap was placed on the banks.

Georgia DOT and Crane Creek Project. Georgia Department of Transportation is completed two projects in the Crane Creek watershed to provide some flood relief:

The I-20/Crane Creek project to prevent flooding of Interstate 20 at Crane Creek; and; The I-20/I-520 Interchange project with stormwater detention ponds.

Two other DOT projects in Crane Creek are completed; both included stormwater management measures to manage runoff increases associated with the project only:

The Davis Road Widening project and The Interstate 20 Widening project from Bel-Air Road to the Augusta Canal.

A significant flooding event occurred on June 20, 2000, when Crane Creek overtopped Interstate 20. Interstate 20 is a major hurricane evacuation route for this area of Georgia and South Carolina. Many homes in the area were also flooded.

These homes have had repetitive flood losses and several were abandoned as a result of the June 20, 2000 flooding. In late spring of 2003, the concept for the final alternative and the environmental document were approved by the Georgia Department of Transportation and FHWA and the project was completed in 2009.

The Georgia DOT project for the I-20/I-520 Interchange Reconstruction includes grade separation of one nearby intersection (I-520 at Scott Nixon Memorial Drive), new loop ramps that will be reconfigured to flyover ramps, and realignment of the other two loop ramps. The new loop ramps and flyovers allow for construction of twelve stormwater detention ponds to provide additional flood relief by staggering the peak release rates of stormwater flows along Crane Creek. These ponds were designed beyond the Georgia Department of Transportation guidelines for detention ponds to provide "over-detention" of the stormwater flows draining to the ponds, although the degree to which the "over-detention" may reduce downstream flood elevations will not be finalized until the final design phase is completed.

Corps of Engineers: Flood Reduction Study. The U.S. Army Corps of Engineers, Savannah District, initially looked at six watersheds in the City of Augusta. Four were selected for further consideration and basic studies were completed in 2004: Rae's Creek; Augusta Canal; Phinizy Ditch; and Rocky Creek (not selected were Beaver Dam Ditch and Butler Creek). As of early 2005, progress is slowed due to funding constraints; examination of flood reduction alternatives will be undertaken only for the Rae's Creek and Rocky Creek areas.

As of May 2011, the City of Augusta let funding for the Rae's Creek basin improvements in the amount of $ 1, 984,000 for three drainage improvements projects.

- The hydrology and hydraulic analyses for both existing conditions and future conditions (extrapolated from the 1995 Land Use Plan and the 1992 Comprehensive Plan) have been completed. FEMA is represented on the team. The Corps' modeling meets FEMA specifications and is expected to support FEMA's planned map revisions (scheduled to be effective and ready for adoption in 2007). Detailed elevation data (ground, lowest floor) have been collected by survey. Initial impacts indicated:
    - Rocky Creek: average annual damages of $1,450,000 (not including industrial). Flood-prone structures include approximately 1,000 homes (average value $30,000) and 200 commercial/industrial facilities.

- Rae's Creek: average annual damages of $1,480,000 (for only half the structures in Rocky Creek, reflecting higher home values). The confluence with Crane Creek is a primary damage area. The upper reach was not analyzed in detail, in part because of assumed flood reduction benefits associated with a Georgia DOT project.

Rae's Creek Hydrology Study (2009). In 2000, the City contracted for a study to examine four known or potential problem areas along Rae's Creek between Jackson Road and Walton Way. As of mid-2009, specific actions have been implemented pending the outcome of the Corps of Engineers' study. The report recommended:

- Repair existing spillway and construct additional emergency spillway capacity at Walton Way/Lake Aumond;
- To meet target flood elevations at West Lake Forest Drive and Heirs Pond, construction additional outlet culvert at Heirs Pond and stabilize downstream banks to correct existing slope erosion;
- Discontinue routine operation of gates on Heirs Pond and Lake Aumond because they do not provide any peak flow reduction benefits for Forest Hills Racquet Club and downstream areas; without measurable benefits, City personnel are placed at risk unnecessarily while operating the gates; and
- Widen Rae's Creek from the upstream end of Heirs Pond upstream to Jackson Road; throughout this reach, remove block walls that obstruct and divert flows; replace Courtside Drive with box Beam Bridge.

Mitigation Goal 2: To minimize losses of life and property, and other economic losses in Augusta - Richmond County and the Cities of Blythe and Hephzibah due to the riverine and localized flooding.

Objective 2.1: Increase resilience of building stock, critical infrastructure, and essential facilities to the effects of flooding.

GOAL 2- Objective 2.1 – Mitigation Action 2.1.1	
Drainage and Stormwater Management. Implement central database for staff to record drainage and flooding problems (build on existing software). Train staff of all departments that receive citizen calls to use the database to register appropriate information to ensure quality data. Develop method to consider the database contents in setting priorities for drainage projects and to support identification of flood mitigation opportunities. Formalize inventory of and detention basin maintenance procedures and system to prioritize maintenance.	
Responsible Department	Engineering Services with Support of Planning and Zoning
Anticipated cost	TBD
Existing and potential funding sources	City of Augusta
Jurisdiction	Augusta-Richmond County
Timeframe	5 years
STAPLEE Priority	12 (149/299)
Status (deferred or new)	DEFERRED

GOAL 2- Objective 2.1 – Mitigation Action 2.1.2	
Sewer Line Infiltration and Inflow. Continue to undertake projects to identify and resolve infiltration and inflow. During wet weather and flooding conditions, water infiltrates into sewer lines and flows into the system through submerged manhole covers, based on qualitative assessment of cost/effort and long-term benefits.	
Responsible Department	Augusta Utilities
Anticipated cost	TBD
Existing and potential funding sources	City of Augusta CIP
Jurisdiction	Augusta-Richmond County
Timeframe	5 years
STAPLEE Priority	7 (203/299)
Status (deferred or new)	DEFERRED

GOAL 2- Objective 2.1 – Mitigation Action 2.1.3	
Soil Erosion and Sediment Control Sedimentation in waterways may be contributing to drainage problems and flooding Due to the significant size and duration of four projects proposed by Georgia DOT for the upper part of the Crane Creek basin, and the high visibility of downstream flooding, request GDOT's continued attention to exemplary sediment and erosion control practices. Communicate with City crews and contractors that City projects are to be undertaken with exemplary sediment and erosion control practices. Examine the feasibility of offering training for local contractors to reinforce proper installation and maintenance of sediment control measures; seek cooperative partners, including the District Soil Conservation Office, Georgia DOT, and GA Department of Natural Resources. Increase frequency of inspections of sediment control measures and work with project owner/contractor to maintain effective measures throughout construction. Continue cooperative efforts with Columbia County regarding installation and maintenance of sediment and erosion control measures on active construction sites in the upper portions of waterways that drain into Augusta, with particular attention to Crane Creek, Rae's Creek, and Butler Creek.	
Responsible Department	Augusta Engineering Services, License and Inspections, supported by Soil Conservation and Planning and Zoning
Anticipated cost	TBD
Existing and potential funding sources	Additional staff and funding needed
Jurisdiction	Augusta-Richmond County
Timeframe	5 years
STAPLEE Priority	11 (173/299)
Status (deferred or new)	DEFERRED

GOAL 2- Objective 2.1 – Mitigation Action 2.1.4	
Flood Hazard Map Revisions and Updates Continue pursuit of City-wide revision of the Flood Insurance Rate Maps, building on the City's new digital topography and work underway by the U.S. Army Corps of Engineers to prepare flood studies as part of the *Flood Reduction Study* (including Rocky Creek, Rae's Creek, Crane Creek, Augusta Canal and Phinizy Swamp), and including other studies and identified watersheds. Communicate to the Georgia Department of Natural Resources and FEMA Region IV the importance of conducting new engineering studies to produce revised maps in the Digital Flood Insurance Rate Map format for incorporation into the City's existing GIS DFIRMs. When available for local use, annotate digital map with the "lower floodway fringe" delineation to facilitate awareness of and application of the Flood Damage Prevention Ordinance and to more clearly identify areas targeted for greenspace purposes. Develop a database of property owners for use in public awareness activities.	
Responsible Department	Planning and Zoning, support Engineering, IT
Anticipated cost	Low cost
Existing and potential funding sources	Within budget
Jurisdiction	Augusta-Richmond County
Timeframe	5 years
STAPLEE Priority	5 (212/299)
Status (deferred or new)	DEFERRED

GOAL 2- Objective 2.1 – Mitigation Action 2.1.5	
Economic Analysis related to Flood Hazard and critical facilities Perform economic analysis related to identifying the most effective flood mitigation projects. Utilize newly developed FEMA DFIRMs and new topography to ascertain economic impact of flooding at various frequencies. Develop several scenarios and identify the most cost-beneficial mitigation measures. Map critical facilities information using the city GIS platform.	
Responsible Department	Planning and Zoning, support Engineering, IT
Anticipated cost	TBD
Existing and potential funding sources	ESRI Government Grant Program, Seek various grants
Jurisdictions	Augusta - Richmond County and the Cities of Blythe and Hephzibah
Timeframe	2 years
STAPLEE Priority	8 (197/299)
Status (deferred or new)	NEW

GOAL 2- Objective 2.1 – Mitigation Action 2.1.6	
Policies & Procedures for Flood Mitigation Projects. Develop Flood Mitigation Project Policies and Procedures Manual. Establish systematic method for using and prioritizing funds, including a mechanism to account for changes in priorities as a function of several variables (such as the funding agency's priorities, recent flooding, degree of damage, damage history, predicted depth of flooding, existing drainage problems, sewer infiltration, proximity to other public open space/ greenspace, etc.). Continue to gather data on buildings in FEMA-mapped floodways and repetitive loss areas to have available in the post-flood period; use to target efforts for recovery, permitting, and grant application development. Obtain FEMA's Residential Substantial Damage Estimator software and maintain ability to use it to facilitate damage estimates and substantial damage determinations. Develop policy on abandoned homes in SFHA (donations, condemn, demolish, HUD funds). Examine the Corps' database of buildings in the SFHA and pre-identify those most likely to sustain significant damage if floods equivalent to the SFHA or greater occur, i.e., those predicted to have more than 2-feet of water above the lowest floor. Coordinate with EMA and GIS Departments to determine and map areas likely to experience flooding Use the identified list to target post-flood inspections. Maintain awareness of different sources of mitigation funding (pre-disaster, post-disaster, CDBG/HOME, NFIP flood insurance claims payments, etc.). Continue to seek mitigation grant funds to implement mitigation in high priority actions. Explore with GDOT if, as part of its environmental enhancement and wetlands mitigation requirements, funding could support additional buyouts areas where the frequency of flooding indicates the hydrology would support allowing areas to return to wetland functions. Include consideration of flood mitigation opportunities in the City's identification of projects for which ISTEA applications will be prepared, which may include projects to preserve floodway greenspace or floodplain buyouts in areas where detention is required or wetlands are desirable.	
Responsible Department	Planning and Zoning, other Departments/Committee
Anticipated cost	TBD
Existing and potential funding sources	Additional funds and staff required FEMA Planning Grant, GDOT ISTEA Grants
Jurisdiction	Augusta-Richmond County
Timeframe	5 years
STAPLEE Priority	3 (221/299)
Status (deferred or new)	NEW

GOAL 2- Objective 2.1 – Mitigation Action 2.1.7	
The National Flood Insurance Program's (NFIP) Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS: 1) Reduce flood losses; 2)Facilitate accurate insurance rating; and 3)Promote the awareness of flood insurance. Work to improve Augusta' CRS rating.	
Responsible Department	Planning and Zoning, support Engineering, IT
Anticipated cost	TBD
Existing and potential funding sources	Additional staff needed
Jurisdiction	Augusta-Richmond County
Timeframe	Continuous
STAPLEE Priority	10 (176/299)
Status (deferred or new)	DEFERRED

GOAL 2- Objective 2.1 – Mitigation Action 2.1.8	
Dam Safety. For State-designated Category I dams that are located in the City or on waterways that drain through the City, estimate potential impacts and determine if the downstream risks are sufficient to contact owners to encourage their development of limited emergency action plan procedures, and periodic inspections, that are coordinated with the City.	
Responsible Department	Emergency Management with support of IT Department, GA EPD, NRCS and USACE, and Cities of Blythe and Hephzibah
Anticipated cost	TBD
Existing and potential funding sources	Additional staff needed
Jurisdiction	Augusta - Richmond County and Cities of Blythe and Hephzibah
Timeframe	Continuous
STAPLEE Priority	4 (215/299)
Status (deferred or new)	NEW

Mitigation Goal 2: To minimize losses of life and property, and other economic losses in Augusta - Richmond County and the Cities of Blythe and Hephzibah due to the riverine and localized flooding.

Objective 2.2: Increase public awareness and increase level of protection to local population from the effects of flooding.

GOAL 2- Objective 2.2 – Mitigation Action 2.2.1	
Public Awareness Initiative. Mitigation is a partnership and citizens are both obligated and responsible for certain actions to help reduce exposure to flooding and to improve the City's ability to recover from flooding. To increase public awareness and responsibility, convene a work group (e.g., City departments, neighborhood associations, NRCS/SCS, Corps of Engineers, others) to prepare and implement a multi-year plan for public awareness. The Plan may contain the following actions: Encourage property owner purchase of flood insurance to provide financial protection that helps personal recovery; Encourage property owner purchase of flood insurance to increase options for post-flood mitigation (because of Increased Cost of Compliance insurance coverage). Prepare articles for publication emphasizing what property owners can do to plan and prepare for floods and to reduce losses (flooded road safety, low cost mitigation measures, insurance, the automated 911 Message flood warning alerts). Coordinate with campaigns undertaken by the State (flood awareness, winter storm awareness, etc.). Develop web-based materials; link to other sites (GEMA, FEMA, Red Cross, and Extension Service). Co-op with stormwater management initiative to distribute periodic mailing to property owners along waterways to inform them of their responsibility to keep drainageways clear (don't dump debris, yard clippings, tree limbs, etc.). Develop materials for the Planning Commission and License and Inspections to handout with permits or mailings (tailored for homeowners, business owners, and owners of vacant lands). Topics to include flood insurance, mitigation options, flood safety, permit requirements, etc. Improve consistency of communication to the public regarding flooding, prepare briefing of basic information for City staff that field calls or meet with citizens groups. Establish a hotline for citizen reports of flooding and drainage problems. Create a database to record citizens and local government personnel reports of drainage issues and to document mitigation actions. Request and sponsor periodic NFIP workshops provided by others (GADNR, FEMA) for lenders, insurance agents, real estate professionals and others. To facilitate preparation of Elevation Certificates and other uses, post database of elevation benchmarks and reference marks on the City's webpage and notify local surveyors and engineers of its availability. Conduct training to developers, contractors, citizens, and other on the preparation of Elevation Certificates. Research options to improve disclosure of flood hazards as part of the property transfer process.	
Responsible Department	Emergency Management with support
Anticipated cost	TBD
Existing and potential funding sources	Additional staff and training funds needed.
Jurisdiction	Augusta-Richmond County
Timeframe	Continuous
STAPLEE Priority	2 (222/299)
Status (deferred or new)	DEFERRED

GOAL 2- Objective 2.2 – Mitigation Action 2.2.2	
Flood Mitigation Staffing. Seek new staff position to coordinate the City's floodplain management and mitigation efforts. Functions would include: leadership for implementation and tracking of priority action items identified in the Plan; provide staff review of permit applications for floodplain development; function as the City's Community Rating System Coordinator; develop flood mitigation policies and procedures; apply for and administer mitigation grants; coordinate the City's interaction with the U.S. Army Corps of Engineers; coordinate multi-year effort to revise FIRMs; coordinate the Flood Damage Assessment Team (with L&I) for substantial damage determinations; serve as liaison with press and the public on matters related to flooding.	
Responsible Department	Augusta Emergency Services, Planning and Zoning
Anticipated cost	TBD
Existing and potential funding sources	Not within existing budget
Jurisdiction	Augusta-Richmond County
Timeframe	5 years
STAPLEE Priority	1 (228/299)
Status (deferred or new)	DEFERRED

GOAL 2- Objective 2.2 – Mitigation Action 2.2.3	
Savannah River Flood Protection and Awareness. Although there is a low probability that flood levels on the Savannah River will prompt closure of the eight breaches in the Levee, the consequences of flooding would be catastrophic. Existing residential and nonresidential uses on the riverside of the levee (some on City property) may be subject to damage at higher floodwater levels. To enhance protection and awareness: Convene a City workgroup to review and revise the Emergency Levee Closure Plan. Examine lease conditions for City-owned property on the riverside of the Levee leased to private entities, for adequate language to protect the City. Consider if lessees should be notified of: the flooding risk, the City periodically conducts a levee closing exercise; and that predicted flood levels by the U.S. Army Corps of Engineers may prompt the City to require evacuation. Other topics for consideration: the availability of flood insurance to cover losses (both structure and contents); the requirement to obtain permits for building improvements, additions, and repair of damage; termination of leases under certain circumstances (e.g., if buildings are substantially damaged by any cause, flood or fire, etc.). Notify owners of private property on the river side of the Levee about flooding risk, levee closing procedures, requirement to evacuate, flood insurance availability, and the requirement to obtain permits. Continue the Emergency Levee Closure Plan exercise every two years.	
Responsible Department	Emergency Management
Anticipated cost	TBD
Existing and potential funding sources	Implementation within existing budget
Jurisdiction	Augusta - Richmond County
Timeframe	Continuous
STAPLEE Priority	9 (195/299)
Status (deferred or new)	DEFERRED

GOAL 2- Objective 2.2 – Mitigation Action 2.2.4	
Flood Warning - Augusta's watersheds are relatively small and respond rapidly to heavy rainfall, making it difficult to use the traditional door-to-door notification to adequately warn residents to evacuate. For the same reason, placing barricades or stationing City personnel at flood-prone roads is problematic, especially in the upper reaches of watersheds. To enhance flood safety: Use GIS and flood maps to identify buildings within flood hazard areas and develop phone groups for automated, generalized flood warning announcements through 911 Messages; exercise the announcement system periodically. Explore if automated rain gages installed by Augusta Utilities as part of watershed assessments can be used to augment the City's preparations during times when flooding is likely. Improve the list of flood-prone roads; evaluate whether the most frequently flooded areas warrant warning signs to alert the traveling public.	
Responsible Department	Emergency Management with support of Engineering, IT, and Utilities
Anticipated cost	TBD
Existing and potential funding sources	NOAA Integrated Flood Observing and Warning System (IFLOWS - 11.450 Grant), Exploring grant funds to support gages; implementation within existing budget
Jurisdiction	Augusta - Richmond County
Timeframe	Continuous
STAPLEE Priority	6 (208/299)
Status (deferred or new)	DEFERRED

SECTION 3. DROUGHT AND EXTREME HEAT MITIGATION STRATEGY

COMMUNITY MITIGATION GOALS

Goal 3: To minimize losses of life and property, and other economic losses in Augusta - Richmond County and the Cities of Blythe and Hephzibah due to drought and effects of extreme heat.

IDENTIFICATION AND ANALYSIS OF RANGE OF MITIGATION OPTIONS

Other than the effects of drought on crops, landscaping, street trees, and forested areas, drought rarely causes physical property damage. Since the early 1990s about 20 older homes have sustained foundation damage due to settling associated with falling water table and soil consolidation; current foundation requirements appear to adequately guard against this problem.

Public education and water conservation, along with imposed water use restrictions, can address the most significant impacts of drought.

EXISTING POLICIES, REGULATIONS, ORDINANCES AND LAND USE

The City of Augusta prepared the Augusta Water Conservation Plan pursuant to State and federal rules for outdoor water use. The purpose of the Plan is to conserve the available water supply and to protect the integrity of water supply facilities. The Plan places emphasis on domestic water use, sanitation, and fire protection, and protection of public health, welfare, and safety. To minimize the adverse impacts of water supply shortage or other water supply emergency conditions, the Plan calls for restrictions on water use as a function of drought conditions and available supplies. Certain non-essential uses are regulated and may be curtailed during times of water shortage or other emergency water supply conditions. Violators may be assessed penalties.

The Georgia Forestry Commission and the Augusta Fire Department restrict outside burning (May 1 – September 30) with particular attention during prolonged periods of rainfall deficit.

The availability of water is a significant factor that influences development. Land use and development patterns show that most growth occurs in areas served by City water.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of drought and extreme heat in Augusta - Richmond County and the Cities of Blythe and Hephzibah.

GOAL 3- Objective 3.1 – Mitigation Action 3.1.1 (MULTI JURISDICTIONAL)	
Water Conservation Awareness. Augusta Utilities to continue implementation of the Water Conservation Plan; continue to comment on proposed development site and landscaping plans; continue to report on and encourage conservation and to highlight water conservation tips on its web page. The Cities of Blythe and Hephzibah will continue to follow and implement the State's water conservation guidelines and well as water use ordinances.	
Responsible Department	Augusta Utilities, Blythe, Hephzibah, County Extension Service, Georgia DNR
Anticipated cost	TBD
Existing and potential funding sources	Implementation within existing budget
Jurisdiction	Augusta - Richmond County and the Cities of Blythe and Hephzibah
Timeframe	Continuous
STAPLEE Priority	1 (202/299)
Status (deferred or new)	DEFERRED

SECTION 4. SEVERE WINTER STORM MITIGATION STRATEGY

COMMUNITY MITIGATION GOALS

Goal 4: To minimize losses of life and property, and other economic losses in Augusta - Richmond County and the Cities of Blythe and Hephzibah due to effects of severe winter storms.

IDENTIFICATION AND ANALYSIS OF RANGE OF MITIGATION OPTIONS

Other than ice on roads and bridges, which limits traffic and may contribute to accidents, the most significant damage due to severe winter storms is tree damage, downed power lines, and an increase in structure fires when occupants employ unsafe methods to stay warm.

The power companies respond to downed lines. As part of Augusta's response activities, emergency transportation assistance may be coordinated by the Augusta Emergency Management Agency.

Public education about preparing for cold weather and power outages can address the most significant impacts of winter storms. Messages should explain safe use of heaters and the importance of turning off automatic outdoor watering systems to prevent road icing.

EXISTING POLICIES, REGULATIONS, ORDINANCES AND LAND USE

Within budget constraints, Augusta maintains and trims City trees to improve tree health and to minimize damage during storms.

All new buildings must be designed and constructed to meet current building code requirements, including snow loads. New and renovated public buildings must meet current building code requirements for snow loads.

The effects of severe winter storms are not influenced by land use and development trends. The Augusta Emergency Management Agency posts storm awareness materials on its web page and distributes materials to citizens.

Objective 4.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of ice and winter storms.

GOAL 4- Objective 4.1 – Mitigation Action 4.1.1 (MULTI JURISDICTIONAL)	
Severe Winter Storm Awareness - Continue public outreach on severe winter storm and ice; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of representatives from Augusta, Blythe, Hephzibah, and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the National Weather Service, FEMA, the American Red Cross, and others and determine whether changes are appropriate. Expand use of EMA and Augusta's website to make information readily available to the public.	
Responsible Department	Augusta - Richmond County EMA and the Cities of Blythe and Hephzibah with support of Recreation and Parks
Anticipated cost	TBD
Existing and potential funding sources	NOAA Integrated Flood Observing and Warning System (IFLOWS - 11.450 Grant), Within existing budget
Jurisdiction	Augusta - Richmond County and the Cities of Blythe and Hephzibah
Timeframe	Continuous
STAPLEE Priority	3 (203/299)
Status (deferred or new)	DEFERRED

GOAL 4- Objective 4.1 – Mitigation Action 4.1.2	
Augusta Public Tree Maintenance - Continue tree maintenance on city streets of and City-owned property (reduce debris, impacts of falling).	
Responsible Department	Augusta - Richmond County with support of Recreation and Parks and the Cities of Blythe and Hephzibah
Anticipated cost	TBD
Existing and potential funding sources	Georgia Forestry Commission Urban & Community Forestry Grant and Within existing budget
Jurisdiction	Augusta - Richmond County and the Cities of Blythe and Hephzibah
Timeframe	Continuous
STAPLEE Priority	2 (205/299)
Status (deferred or new)	DEFERRED

GOAL 4- Objective 4.3 – Mitigation Action 4.1.3 (MULTI JURISDICTIONAL)	
Debris Management Plan - Work with the cities, Georgia Forestry Commission, power companies, and other entities to revise and support Debris Management Plan. Note: FEMA has a guidebook for developing debris management strategies and examples from other jurisdictions are available.	
Responsible Department	Augusta-Richmond County EMA with support of cities of Hephzibah and Blythe
Anticipated cost	TBD
Existing and potential funding sources	FEMA HMP Grant, Within existing budget
Jurisdiction	Augusta-Richmond County, cities of Hephzibah and Blythe
Timeframe	5 years
STAPLEE Priority	1 (244/299)
Status (deferred or new)	DEFERRED

SECTION 5: WILDFIRE MITIGATION STRATEGY

Goal 5: To minimize losses of life and property, and other economic losses in Augusta – Richmond County and the Cities of Blythe and Hephzibah due to effects of wildfires.

IDENTIFICATION AND ANALYSIS OF RANGE OF MITIGATION OPTIONS

Many communities in the Western U.S. adopt regulations that require property owners to maintain separation between buildings and forest interfaces and some building codes in those communities specify fire-resistant roofing materials. Given the low occurrence of wildland interface fires, such measures are not appropriate for the Augusta area.

Public education about outdoor fire risks – especially during periods of drought – can address the most significant impacts of urban wildland interface fires (most of which are started by carelessness). The Georgia Forestry Commission undertakes a variety of activities to educate the public about outdoor burning and risks of forest and wildland interface fires.

EXISTING POLICIES, REGULATIONS, ORDINANCES AND LAND USE

The Augusta Fire Department's capability to suppress wildland fires is an important factor that prevents small fires from growing into large fires. In 2011, the department was awarded a FEMA Assistance to Firefighters Grants in the amount of $344,750 for the purchase of personal protective equipment. This is a matching grant with FEMA paying 80 percent, or $275,800, and the Fire Department paying 20 percent, $68,950.

When regional conditions warrant it, the State may impose bans on outdoor burning. In addition, Augusta, Blythe and Hephzibah all have the authority to impose burn bans independent of whether the State restricts such activities.

Augusta does not have specific provisions in land use regulations and ordinances related to minimizing the effects of urban wildland interface fires. However, as growth extends south into forested areas, it will be important that fire suppression capability be increased to maintain adequate response time.

Objective 5.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of wildfire in Augusta - Richmond County and the Cities of Blythe and Hephzibah.

GOAL 5- Objective 5.1 – Mitigation Action 5.1.1	
Pre-Suppression Planning for City-Owned Lands. Request assistance from the Georgia Forestry Commission to evaluate fire risks on City-owned parks and greenspace to develop prevention plans to improve forest health.	
Responsible Department	Augusta and Hephzibah Fire Departments with support from EMA and Georgia Forestry Commission
Anticipated cost	TBD
Existing and potential funding sources	Georgia Forestry Urban & Community Forestry Grant, Southern Wildfire Risk Assessment Project, and Within existing budget
Jurisdiction	Augusta - Richmond County
Timeframe	Continuous
STAPLEE Priority	1 (241/299)
Status (deferred or new)	DEFERRED

GOAL 5- Objective 5.1 – Mitigation Action 5.1.2	
Subdivisions & Driveway Access for Fire Vehicles. Request that the Quarterly Subdivision Regulations Review Committee consider new standards for widths of subdivision roads and shoulders, and for common driveways for multiple flagpole lots to provide safer access by larger fire trucks.	
Responsible Department	Planning Divisions with Augusta Fire Department
Anticipated cost	TBD
Existing and potential funding sources	Within existing budget
Jurisdiction	Augusta-Richmond County
Timeframe	Continuous
STAPLEE Priority	2 (212/299)
Status (deferred or new)	DEFERRED

SECTION 6: EARTHQUAKE MITIGATION STRATEGY

Goal 6: To minimize losses of life and property, and other economic losses in Augusta - Richmond County and the Cities of Blythe and Hephzibah due to effects of earthquakes.

IDENTIFICATION AND ANALYSIS OF RANGE OF MITIGATION OPTIONS

In Richmond County, seismic hazard has not been previously recognized as a source of credible risk. However, the relative proximity of Augusta - Richmond County and the Cities of Blythe and Hephzibah to three major eastern seaboard faults at New Madrid, Appalachian Mountains and, in particular, Charleston, SC, indicates that the risks cannot be ignored any longer. Recent seismic events on the eastern seaboard region began a national dialogue about earthquakes and risks. The principal mitigation measures for this hazard would be inspection of the structurally compromised buildings and public outreach and education efforts.

EXISTING POLICIES, REGULATIONS, ORDINANCES AND LAND USE

Augusta - Richmond County and the Cities of Blythe and Hephzibah do not have regulations that pertain specifically to existing seismic exposure.

Objective 6.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of seismic activity.

GOAL 6- Objective 6.1 – Mitigation Action 6.1.2	
Outreach and seismic inspection. Request that the building inspectors conduct field verification of the building structural soundness and field operator Seismic inspection of residential structures**.**	
Responsible Department	EMA with Engineering and License and Inspections Department
Anticipated cost	TBD
Existing and potential funding sources	Within existing budget
Jurisdiction	Augusta - Richmond County and the Cities of Blythe and Hephzibah
Timeframe	Continuous
STAPLEE Priority	1 (155/299)
Status (deferred or new)	NEW

SECTION 7: ALL HAZARDS MITIGATION STRATEGY

Goal 7: Analyze the impacts of current policies, ordinances, and plans on community safety from hazard risks due to growth decisions.

IDENTIFICATION AND ANALYSIS OF RANGE OF MITIGATION OPTIONS

In Augusta - Richmond County and the Cities of Blythe and Hephzibah, the customary approach to natural hazards mitigation has been hazard event specific. Recent federal and state mitigation efforts focus on an all hazards approach provide an integrated platform to assess specific community conditions and risk factor variables. Safe growth is a significant factor in community resilience assessment.

Based on safe growth principles, resilient communities are able to anticipate, weather, and recover from the impacts of natural hazards. The principal mitigation

measure for the Safe Growth Audit is the analysis of existing community regulations, processes and policies to determine the viability of each and the need for revision of each.

EXISTING POLICIES, REGULATIONS, ORDINANCES AND LAND USE

Augusta – Richmond County and the Cities of Blythe and Hephzibah do not currently have policies, regulations, ordinances and land use policies that pertain specifically to an all hazards assessment.

Objective 7.1: Production of a Safe Community Audit Report to inform citizens and decision makers about important safety issues and to relay needed changes in community ordinances, processes, and policies.

GOAL 7- Objective 7.1 – Mitigation Action 7.1.1	
Conduct Safe Communities Audit Request that the Planning and Development Department to create a safe growth steering committee to develop vision for the community, conduct workshops, and post analysis information and reports on local government websites. Develop potential safe growth regulations, policies and processes to revise existing community documents, regulations and plans.	
Responsible Department	Planning and Development with EMA, Engineering, and HMPC Members
Anticipated cost	TBD
Existing and potential funding sources	Within existing budget
Jurisdiction	Augusta-Richmond County and the Cities of Blythe and Hephzibah
Timeframe	24 Months
STAPLEE Priority	1 (234/299)
Status (deferred or new)	NEW

HMPC Community Capability and Gap Assessment

Following the STAPLEE process the HMPC began a community capability and gap assessment survey and analysis for Augusta – Richmond County and the Cities of Blythe and Hephzibah. The capability assessment builds on the STAPLEE process and provides information on existing hazard mitigation conditions and identifies areas where gaps exist in personnel, equipment, resources, funding and training along with needed regulatory and process assessment activities. The resulting information serves to inform next steps for the communities in building an all hazards mitigation, education, and outreach program.

The assessment results are compelling (Appendix D). Significant gaps in personnel, equipment, resources, funding, training, regulatory documents, and review processes were reported by all sectors of the community and all jurisdictions. The HMPC proposes a Safe Growth Audit process and report to maximize community assets and resources and to begin addressing community needs to improve the

HMPC COMMUNITY CAPABILITY ASSESSMENT

PERSONNEL		EQUIPMENT		FACILITIES		TRAINING NEEDS and COMMUNITY ASSESSEMENT PROCESSES		REGULATORY CHANGES		COMMUNICATION EQUIPMENT		PUBLIC OUTREACH	
EXISTING	NEEDS	EXISTING	NEEDS	EXISTING	NEEDS	EXISTING	NEEDS	EXISTING	NEEDS	EXISTING	NEEDS	EXISTING	NEEDS
Emergency Management 2 personnel	NEEDS planners officers, training officers, & promote current assistant to deputy director, need adm. Assistance, PIO	Outdated equipment	Updated equipement projectors, screens, ID equipment etc. WEB EOC, computer connectivity,	Emergency Operation Center in flood zone area, too small	Build a state of the art Emergency Management out of the flood zone, storage warehouse for diaster supplies	Drills, exercise to include GEMA, FEMA regulations	Drills, Exercises support with funding workshops, to include supplies and food	Zoning, Subdivision Regs, Comp Plan, EOP, LEOP, Stormwater Mgmt. Plan, Site & Development Review Forms, Policies, & Documents, Inter-agency, Inter-departmental coordination	Safe Growth Audit and Report for revision of Existing Documents, Policies, Regulation, & Review Processes	Outdated equipment & under supplied amount of equipment	Updated equipment to include laptops, repeater antenna, portable radios opeatons with satallite down, satallite phone, video conference system, community wide alert to include siren system	Media awareness, website, emergency notification system, LEPC, CAER, CAPP Meeting, 9-1-1 Day Community Education, Fire Department end of School Public Fire education Day	Workshop funding, campaign to heighten awarness for all hazards,PIO
Manpower for Debis removal, Tree inspections	Additional Manpower	Older equipment	Equipment necessary to maintain adequate road, debris & clearing capabilites	Building for housing equipment	Updated building for housing equipment	Training for job duties thorough out department for handling equipment	Training for brush and sick tree removal, right of way program			No radios for communication with 911, Emergency Operation Center	Updated radio communicatio n equipement	Media awareness, website,	Campaign for enforcing and revising clean up maintance, work with cable, radio media enhance broadcast public educations on emergency prepareness with EOC PIO

HMPC COMMUNITY CAPABILITY ASSESSMENT

Road & Bridges not enough personnel for Severe Weather Clean up	Additional personnel for perparing roadway for hard weather	Older equipment	Equipment necessary to maintain adequate roadway, & winter weather conditions, 4 wheel drive equipment	Building for housing equipment	Updated building for housing equipment	Job duty training	Training & work shops for handling larger amount of road pre-pro weather conditions			No radios for communication with 911, Emergency Operation Center	Updated radio communicatio n equipement	Media awareness,	Campaign for enforcing and revising clean up maintance, campaign to heighter awarness about brush/wildfire and preventative maintenance to homeowners
Debris Management Plan- EMA 2 personnel	Need additional personnel in EMA for Planning officer	Equipment outdated	Need updated equipment for planning process, street sweepers, road barriers	EOC in Flood plain	build a state of the art Emergency Management out of the flood zone, storage warehouse for diaster supplies	Training in planning	Training in planning and grant awards, funding			Older equipment with manual usage	Need VTC with the GEMA, FEMA	Media awarness, website	PIO, Funding for workshops on debris clean up and maintance
Planning & Zoning personnel responsible for Moblile Home Ordinances	Planning & Zoning needs personnel to keep with inspections, revising ordinances for tie downs	Plans & ordinances in place	Updated plans and ordinances, mapping digital for updates in land use	Small area to work in with mapping	New offices with mapping updates,	Personnel trained in planning and zoning	Personnel training with Mobile Home anchoring enhancemen t			Older equipment with manual usage	need VTC with the Emergency Operation Center	Media awareness, website	Implement a county awarness program for enhanced Manufactored Homes anchoring
Environmenta l Services short staffed	Provide Emergency response personnel capable of responding to the effects of all hazards	Equipment shortage, and out dated	Updated equipment to include digital mapping, properly sized culverts to drainage basins	Building is in need of repairs and updates	Updated building for housing equipment	Training personnel in maintance of sewer lines	Training updated for stormwater managemen t sewer inflow			No radios for communication with 911, Emergency Operation Center	Need updated radio equipment	Media awareness, website	Continue to monitor and revise as necessary to ensure maximun provisions for stormwater control ordinances awareness, water saving campaigns

HMPC COMMUNITY CAPABILITY ASSESSMENT

Planning & Zoning personnel responsible for Flood Hazard local mapping	Additional Hazard Mitigation Planner needed to update plan and mapping	Mapping equipment older model	Update mapping to digital for staff and public easily updates	Small area to work in with mapping		Personnel trained in planning and zoning	Personnel training with Flood mapping			Older equipment with manual usage	WEB EOC	Media awareness, website	WEB EOC
Planning & Zoning personnel responsible for Flodd Mitigation Projects	Need additional Hzd Mitigation Planner	Older Mapping equipment	Digital Equipment	Small area to work in with mapping		Personnel trained in planning and zoning, flooding projects	Buys outs for flood properties			Older equipment with manual usage	Updated equipment	Media awarness, website	Continue to incorporate any revisions to the State building codes inot local code enforcement procdures and to bigorously enfornce minimum building standards.
Water Utilities shortage personnel	Additional personnel	equipment for lawn developmen t and landscaping	additional equipment for land development to conserve water	Structures renews	Structures could use some additional additions	Personnel trained in water conservaton	Training for preserving environment al protection for water shortage			Not adquate radios	Additional radios for all utilities vehicles	Media awarness, website	Educated community, and farmers on potential negetive effects that arise from extended drought conditions, conserving our water
Complete this spreadsheet to identify existing conditions and community needs. Please enter detailed information for each topic and identify gaps in coverage, equipment, training, software, assessment data, (i.e. Safe Communities, personnel, equipment, facility gaps, need for intergovernmental agreements, etc.). The information will inform SPLOST, Comp Plan STWP, Capital Improvements Programs, Local Government Budget and Regulatory Processes and Documents, Grant and other Sources of funding, and Community Outreach efforts.													

CHAPTER 5: LOCAL TECHNOLOGICAL HAZARDS MITIGATION GOALS AND OBJECTIVES; OVERALL COMMUNITY MITIGATION GOALS, POLICIES AND VALUES

Chapter 5 of the HMP describes Technological Hazard Mitigation Goals, Objectives, Policies and Values evaluated by Augusta - Richmond County and the Cities of Blythe and Hephzibah, both on their individual (local), as well on the overall, county-wide level. This chapter provides a plan of action for Augusta - Richmond County and the Cities of Blythe and Hephzibah to increase resilience to technological hazards and is a culmination of a process that started with HRV assessment in Chapter 3. This Chapter consists of the following sections:

- Introduction;
- Goals And Objectives Update Summary;
- Chemical Leak/Release Mitigation Strategy;
- Terrorism Mitigation Strategy;
- Nuclear Plant Incident Mitigation Strategy;
- Dam/Levee Failure Mitigation Strategy; and
- All Hazards Mitigation Strategy.

The table below summarizes updates on 2006 HMP mitigation technological hazards ranking and subsequent addition of three more hazards:

Table 5.1 Updates to Chapter 5	
Chapter 5 Section	**Updates to 2006 HMP**
I. Technological Hazard A Chemical Leak/Spill; Chemical Release (Airborne)	• Renamed from Hazardous Materials • Updated Mitigation Goals, Objectives, and Actions
II. Technological Hazard B Terrorism	• New Section
III. Technological Hazard C Nuclear Plant Incident	• New Section
IV. Technological Hazard D Dam / Levee Failure	• New Section
V. All Hazards Strategy	• New Section

Table 5.1: Overview of updates to Chapter 5: Local Technological Hazard Mitigation Goals and Objectives
Overall Community Mitigation Goals, Policies and Values

INTRODUCTION

The purpose of this Chapter is to highlight prevalent technological hazards, as previously identified by the members of Augusta-Richmond County HMPC. As mandated by the State regulations, all technological hazards and actions related to their prevention and mitigation are the responsibility of the local Emergency Management Agency. The primary guiding document is the Augusta Local Emergency Operations Plan (LEOP) (updated October, 2009), that identifies 15 Emergency Support Functions (ESFs), naming principal and supporting agencies for each one of them. For the purpose of this Plan Update, the hazards and the strategies are reviewed primarily from the mitigation standpoint. As in Chapter 4, each hazard is addressed through mitigation goals, objectives and actions.

The HMPC developed local mitigation strategies specific to each community's exposure and impacts by identified technological hazards. The strategy included a list of mitigation goal statements focusing on reduction of risks from the identified natural hazards. Goal development and project prioritization were drafted by the HMPC.

The HMPC drafted a prioritized project list and analysis of a range of specific mitigation actions and projects to reduce the effect of each hazard, emphasizing new and existing buildings and infrastructure.

Projects included non-structural, (e.g., planning, regulatory measures, property acquisition,) or structural, (e.g., dams, retrofitting, elevation) solutions; and

Prioritized projects and actions based on cost effective hazard mitigation projects, HMPC and public STAPLEE ranking database (Appendix D), a Community Assessment Spreadsheet, (Appendix D) and report.

STAPLEE Mitigation Development, Analysis, and Prioritization

The HMPC STAPLEE analysis of proposed mitigation projects focused on several key areas, including but not limited to: economic (including benefits and cost), engineering, technical, legal, environmental, social, and political feasibility. Selected options were the best fit for Augusta - Richmond County and the Cities of Blythe and Hephzibah to meet the criteria of feasibility analysis;

Coordination with relevant Federal, State and Local agencies for input and technical assistance included FEMA, GEMA, Regional Representatives, HMPC, local hospitals, relief agencies, K-12 school board representatives, businesses, industry, and citizens and Augusta - Richmond County and the Cities of Blythe and Hephzibah;

In short, the product is a concise report of whether the strategies and/or projects worked and recommendations for improvements to existing strategies, deletions of ineffective strategies, and effective new strategies to accomplish the Goals and Objectives of the Plan in a cost effective manner. The STAPLEE Summary below

reveals the assessment and prioritization of the Mitigation Strategies, Goals, and Objectives.

Using the STAPLEE criteria and local input the HMPC utilized the HMPC STAPLEE Ranking Subcommittee to determine the effectiveness of mitigation strategies identified in the 2006 effective HMP. There were 13 members on the committee representing Augusta – Richmond County and the Cities of Blythe and Hephzibah, and technical experts representing business, industry, disaster relief agencies, K-12 schools, universities, hospitals, state and regional stakeholders, and citizens. The subcommittee members represent the social, technical, administrative, political, legal, economic, and environmental key informants for the community.

There are 23 assessment criteria in the STAPLEE worksheet and 13 respondents in the HMPC STAPLEE Ranking Sub-committee resulting in a possible ranking number of 299 possible points. The results were then prioritized in the STAPLEE Ranking Summary sheets below.

STAPLEE Summary

AUGUSTA - RICHMOND COUNTY and the CITIES OF BLYTHE AND HEPHZIBAH
MULTI-JURISDICTIONAL HMP UPDATE STAPLEE SUMMARY

Mitigation Actions	STAPLEE Score	STAPLEE Ranking
Natural Hazard A: Tornado/Windstorm/Hail		
MITIGATION ACTION 1.1.1 (multi jurisdictional) Review capacity of the existing tornado shelters and construct new ones if needed	183/299	5
MITIGATION ACTION 1.1.2 (multi jurisdictional) Develop Debris Management Plan	231/299	1
MITIGATION ACTION 1.1.3 Augusta Public Tree Maintenance	216/299	2
MITIGATION ACTION 1.1.4 Promote Enhanced Anchoring of Manufactured Homes	184/299	4
MITIGATION ACTION 1.2.1 (multi jurisdictional) Severe Storm Awareness	203/299	3
Natural Hazard B: Flooding		
MITIGATION ACTION 2.1.1 Drainage and Stormwater Management	149/299	12
MITIGATION ACTION 2.1.2 Sewer Line Infiltration and Inflow	203/299	7
MITIGATION ACTION 2.1.3 Soil Erosion and Sediment Control	173/299	11
MITIGATION ACTION 2.1.4 Flood Hazard Map Revisions and Updates	212/299	5
MITIGATION ACTION 2.1.5 Economic Analysis related to Flood Hazard & critical facilities	197/299	8
MITIGATION ACTION 2.1.6 Policies & Procedures for Flood Mitigation Projects	221/299	3
MITIGATION ACTION 2.1.7 Participation in NFIP Community Rating System (CRS)	176/299	10
MITIGATION ACTION 2.1.8 Dam Safety	215/299	4
MITIGATION ACTION 2.2.1 Public Awareness Initiative	222/299	2

AUGUSTA - RICHMOND COUNTY and the CITIES OF BLYTHE AND HEPHZIBAH
MULTI-JURISDICTIONAL HMP UPDATE STAPLEE SUMMARY

MITIGATION ACTION 2.2.2 Flood Mitigation/Hazard Mitigation Staffing	228/299	1
MITIGATION ACTION 2.2.3 Savannah River Flood Protection and Awareness	195/299	9
MITIGATION ACTION 2.2.4 Flood Warning	208/299	6
Natural Hazard C: Drought/Extreme Heat		
MITIGATION ACTION 3.1.1 (multi jurisdictional) Water Conservation Awareness	202/299	1
Natural Hazard D: Severe Winter Storm		
MITIGATION ACTION 4.1.1 (multi jurisdictional) Severe Winter Storm Awareness	203/299	3
MITIGATION ACTION 4.1.2 Augusta Public Tree Maintenance	205/299	2
MITIGATION ACTION 4.1.3 (multi jurisdictional) Debris Management Plan	244/299	1
Natural Hazard E: Wildfire		
MITIGATION ACTION 5.1.1 Pre-Suppression Planning for City-Owned Lands	241/299	1
MITIGATION ACTION 5.1.2 **Subdivisions & Driveway Access for Fire Vehicles**	212/299	2
Natural Hazard F: Earthquake		
MITIGATION ACTION 6.1.1 Outreach and seismic inspection	155/299	1
Natural Hazard: All Hazards		
MITIGATION ACTION 7.1.1 **Production of a Safe Community Audit Report to inform citizens and decision makers about important safety issues and to relay needed changes in community ordinances, processes,**	234/299	1

AUGUSTA - RICHMOND COUNTY and the CITIES OF BLYTHE AND HEPHZIBAH
MULTI-JURISDICTIONAL HMP UPDATE STAPLEE SUMMARY

Mitigation Actions	STAPLEE Score	STAPLEE Ranking
Technological Hazard A: Chemical Spill/Leak (Chemical Release Airborne)		
MITIGATION ACTION 1.1.1 Environmental Safety and Flood Hazards	210/299	1
MITIGATION ACTION 1.1.2 Downtown Railroad Safety	208/299	2
MITIGATION ACTION 1.2.1 Chemical Spill Awareness	202/299	3
Technological Hazard B: Terrorism		
MITIGATION ACTION 2.1.1 (multi jurisdictional) Terrorism Awareness	197/299	1
Technological Hazard C: Nuclear Plant Incident		
MITIGATION ACTION 3.1.1 (multi jurisdictional) Nuclear Plant Incident Awareness	200/299	1
Technological Hazard D: Dam/Levee Failure		
MITIGATION ACTION 4.1.1 Dam / Levee Break Flood Hazard Considerations	207/299	1
Technological Hazard: All Hazards		
MITIGATION ACTION 5.1.1 Production of a Safe Community Audit Report to inform citizens and decision makers about important safety issues and to relay needed changes in community ordinances, processes, and policies (Godschalk,	234/299	1

STAPLEE SCORES: The Mitigation Action raw numeric scores reflect a possible STAPLEE Score (SS) of 299 (**13 respondents X 23 ranking criteria = 299**). The results were then ranked using the baseline number of **SS/299**.

EXISTING PLAN REVIEW, GOALS AND OBJECTIVES UPDATE SUMMARY

In Chapter 3 of the Plan Update, members of the Augusta - Richmond County HMPC conducted quantitative and qualitative evaluation of the community's exposure to technological hazards through HRV process. As a direct result of the prevalent technological hazard evaluation, HMPC reviewed the 2006 Effective HMP mitigation strategies and established the following 2011 mitigation goals and objectives:

Goal 1: To minimize losses of life and property, and other economic losses in Augusta - Richmond County and the Cities of Blythe and Hephzibah due to Chemical Leak/Spill; Chemical Release (Airborne).

Objective 1.1: Increase environmental safety with respect to flood hazards and downtown Augusta railroad infrastructure.

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of Chemical Leak/Spill; Chemical Release (Airborne).

Goal 2: To minimize losses of life and property, and other economic losses in Augusta - Richmond County and the Cities of Blythe and Hephzibah due to Terrorism.

Objective 2.1: Increase public awareness and increase level of protection to local population from the effects of Terrorism.

Goal 3: To minimize losses of life and property, and other economic losses in Augusta - Richmond County and the Cities of Blythe and Hephzibah due to Nuclear Plant Incident.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of Nuclear Plant Incident.

Goal 4: To minimize losses of life and property, and other economic losses in Augusta - Richmond County and the Cities of Blythe and Hephzibah due to Dam/Levee Failure.

Objective 4.1 (in conjunction with Objective 1.1):
Maintain public awareness and increase level of protection to critical infrastructure and local population from the effects of Dam/Levee Failure.

Goal 5: Analyze the impacts of current policies, ordinances, and plans on community safety from technological hazard risks due to growth decisions losses in Augusta - Richmond County and the Cities of Blythe and Hephzibah.

> **Objective 5.1**: Production of a Safe Community Audit Report to inform citizens and decision makers losses in Augusta - Richmond County and the Cities of Blythe and Hephzibah about important safety issues and to relay needed changes in community ordinances, processes, and policies (Godschalk, 2009).

SECTION 1. CHEMICAL SPILL/LEAK; CHEMICAL RELEASE (AIRBORNE) MITIGATION STRATEGY

COMMUNITY MITIGATION GOALS

Goal 1: To minimize losses of life and property, and other economic losses in Augusta - Richmond County and the Cities of Blythe and Hephzibah due to Chemical Spill/Leak; Chemical Release (Airborne).

IDENTIFICATION AND ANALYSIS OF RANGE OF MITIGATION OPTIONS

As stated before, mitigation does not replace the importance and need for a response plan tailored to the presence of hazardous materials in a community. The Augusta Emergency Management Agency is responsible for planning, coordinating and responding to hazardous materials incidents. For the purposes of this Plan Update, the focus of this mitigation is on three areas:

- Chemical Spill/Leak; Chemical Release (Airborne) at the site facilities or off-site at any location;
- Chemical Spill/Leak; Chemical Release (Airborne) in transit throughout Augusta - Richmond County and the Cities of Blythe and Hephzibah; and
- Chemical Spill/Leak; Chemical Release (Airborne) in adjacent communities with contamination risk and EMA response involvement in Augusta - Richmond County and the Cities of Blythe and Hephzibah

EXISTING POLICIES, REGULATIONS, ORDINANCES, AND LAND USE

The responsibilities of the Augusta Fire Department include environmental compliance by handlers of hazards materials. State licensed facilities are inspected annually; other locations with hazardous materials also are scheduled for annual inspections. The Augusta Commission established the Augusta - Richmond County Local Emergency Planning Committee (LEPC). The LEPC consists of members of the community representing industry, chemical transporters, local government, emergency response departments, schools, environmental groups, citizens, utility companies, and the news media. The primary purpose of the LEPC is to address many of the public concerns of industry and the community regarding the use, storage, manufacturing, and transporting of hazardous materials. In cooperation with local industries, the LEPC sponsors numerous annual events such as

community meetings, open houses, bus tours of industries, training exercises, shelter-in-place training, and special seminars about risk management plans.

The Augusta-Richmond County EOP identifies several Emergency Service Functions (ESFs), directly related to this Objective: ESF-5 (Emergency Management Services), ESF-8 (Public Health and Medical Services), ESF-10 (Hazardous Materials) and ESF-14 (Long Term Recovery and Mitigation).

Objective 1.1: Increase environmental safety with respect to chemical transport and storage.

GOAL 1- Objective 1.1 – Mitigation Action 1.1.1	
Environmental Outreach. Continue geo-location collection data for the locations of hazardous materials. Map sites near centers of population and environmentally sensitive areas such as flood zones, water withdrawal and recharge areas. Request the LEPC share Flood hazard areas identified both from FEMA DFIRMs and USACE inundation maps with chemical transport and storage owners/operators and advise them of protective measures for inclusion in company risk management plans.	
Responsible Department	Augusta-Richmond County EMA with support of LEPC members and IT
Anticipated cost	TBD
Existing and potential funding sources	Within existing budget
Jurisdiction	Augusta-Richmond County
Timeframe	5 years
STAPLEE Priority	1 (210/299)
Status (deferred or new)	DEFERRED

GOAL 1- Objective 1.1 – Mitigation Action 1.1.2	
Downtown Railroad Safety. Continue railroad relocation activities (engineering, land acquisition, etc.) in downtown Augusta; in particular, NS Railroad mainline off the 6th Street ROW, stated in the Augusta-Richmond County Comprehensive Plan.	
Responsible Department	EMA, Planning & Zoning with support of LEPC, GDOT, Railroad companies
Anticipated cost	TBD
Existing and potential funding sources	Within existing budget
Jurisdiction	Augusta-Richmond County and the Cities of Blythe and Hephzibah
Timeframe	Ongoing
STAPLEE Priority	2 (208/299)
Status (deferred or new)	DEFERRED

Objective 1.2: Increase public awareness and increase protection of local population from the effects of Chemical Spill/Leak; Chemical Release (Airborne) hazard.

GOAL 1- Objective 1.2 – Mitigation Action 1.2.1	
Chemical Spill Awareness - Continue public outreach on Chemical Spill/Leak; Chemical Release (Airborne) hazard; encourage citizens to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a workgroup of representatives from Augusta, LEPC, and citizens, including nonprofit and neighborhood organizations, to review outreach efforts and materials provided by the National Weather Service, FEMA, American Red Cross, and others and determine appropriate actions. Expand use of Augusta's website for public information on the hazard.	
Responsible Department	Augusta-Richmond County EMA, IT with LEPC members
Anticipated cost	TBD
Existing and potential funding sources	Within existing budget
Jurisdiction	Augusta - Richmond County and the Cities of Blythe and Hephzibah
Timeframe	Continuous
STAPLEE Priority	3 (202/299)
Status (deferred or new)	DEFERRED

SECTION 2. TERRORISM MITIGATION STRATEGY

COMMUNITY MITIGATION GOALS

Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County and the Cities of Blythe and Hephzibah due to Terrorism.

Objective 2.1: Increase public awareness and increase level of protection to local population from the effects of Terrorism.

IDENTIFICATION AND ANALYSIS OF RANGE OF MITIGATION OPTIONS

The counterterrorism measures in Augusta - Richmond County and the Cities of Blythe and Hephzibah are within jurisdiction of law enforcement and the judicial system as mandated by State and Federal laws. Deployment of resources and incident management actions during an actual or potential terrorist incident are conducted in coordination with the Federal Bureau of Investigation, (FBI). The role of the local Emergency Management Agency is to coordinate, plan and respond to incidents caused by terrorism. This role is regulated in detail in the local EOP.

The mitigation options applicable to this hazard are directed primarily the education of the public and owners/operators of critical facilities.

EXISTING POLICIES, REGULATIONS, ORDINANCES AND LAND USE

The counterterrorism measures are regulated by the State and Federal Laws and Law enforcement regulations.

Objective 2.1: Increase public awareness and increase level of protection to local population from the effects of Terrorism.

GOAL 2- Objective 2.1 – Mitigation Action 2.1.1 (MULTI JURISDICTIONAL)	
Terrorism Awareness - Continue public outreach on terrorism; encourage citizens to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of emergency management and law enforcement representatives from Augusta, Blythe, Hephzibah, LEPC and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the Department of Homeland Security, Georgia Bureau of Investigation (GBI), and GEMA. Ensure that all essential facilities conduct terrorism threat evaluation and contingency plan integration activities. Provide training and emergency drills for operators of all essential facilities. Expand use of Augusta's website public information activities.	
Responsible Department	Augusta-Richmond County EMA, IT Law enforcement in Augusta, Hephzibah, and Blythe
Anticipated cost	TBD
Existing and potential funding sources	Various federal sources
Jurisdiction	Augusta-Richmond County, cities of Hephzibah and Blythe
Timeframe	Continuous
STAPLEE Priority	1 (197/299)
Status (deferred or new)	NEW

SECTION 3: NUCLEAR PLANT INCIDENT MITIGATION STRATEGY

Goal 3: To minimize losses of life and property, and other economic losses in Augusta - Richmond County and the Cities of Blythe and Hephzibah due to the Nuclear Plant Incident hazard.

IDENTIFICATION AND ANALYSIS OF RANGE OF MITIGATION OPTIONS

In light of the recent tragic events at the Fukushima Nuclear Plant in Japan, public awareness and the level of concern in Augusta Richmond County and the Cities of Blythe and Hephzibah rose in recent months. The Planning Area is within several miles of two nuclear facilities: the Savannah River Site and the Vogtle Electric Generating Plant.

Plant Vogtle sits on the southern, Georgia side of the Savannah River in Burke County, Georgia and is situated 40 miles south of Augusta and is east of Waynesboro, Georgia. Plant Vogtle is one of two nuclear facilities owned by Georgia Power and one of three owned by the Southern Company. There are currently two units producing nuclear energy at the site. Southern Company has a "Safety Calendar" a web publication with extensive information on evacuation procedures. SRS has a very similar link, "Community Emergency Preparedness Information", on their web site.

The Savannah River Site (SRS), operated by Savannah River Nuclear Solutions (SRNS), is a 310 square mile site and sits on the northern side of the Savannah

River in Aiken County, Barnwell County and Allendale County in SC. The major focus of the site is the cleanup of waste related to the nation's buildup of nuclear products from the Cold War. The SRS site is located 25 miles from the planning area.

Mitigation options in the Augusta-Richmond County planning area are relatively limited, except for the efforts related to public education, outreach, information and alert, most of which are already ongoing. Augusta EMA, the principal agency coordinating nuclear incident emergencies, can count on significant State and Federal resources in case of the General Event (the most severe incident level) at any of the two facilities.

EXISTING POLICIES, REGULATIONS, ORDINANCES AND LAND USE

The operation of both nuclear facilities is regulated by Federal laws and is under jurisdiction of the Federal Department of Energy.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of nuclear plant incident.

GOAL 3- Objective 3.1 – Mitigation Action 3.1.1 (MULTI JURISDICTIONAL)	
Nuclear Plant Incident Awareness - Continue public outreach on nuclear hazard; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of emergency management and representatives from Augusta, Blythe, Hephzibah, LEPC, SRNS, Southern Company and members of the public, including nonprofit and neighborhood organizations and others, to evaluate existing outreach efforts and materials and propose improvements, if necessary. Provide training and emergency drills for operators of all essential facilities. Expand use of Augusta's website to make information readily available to the public.	
Responsible Department	EMA, LEPC, IT
Anticipated cost	TBD
Existing and potential funding sources	Within existing budget
Jurisdiction	Augusta-Richmond County, Hephzibah and Blythe
Timeframe	Continuous
STAPLEE Priority	1 (200/299)
Status (deferred or new)	NEW

SECTION 4: DAM / LEVEE BREAK MITIGATION STRATEGY

Goal 4: To minimize losses of life and property, and other economic losses in Augusta - Richmond County and the Cites of Blythe and Hephzibah due to Dam/Levee Failure.

IDENTIFICATION AND ANALYSIS OF RANGE OF MITIGATION OPTIONS

FEMA and the USACE maintain the National Inventory of Dams (1998), a database of high and significant hazard dams. For the most part, data is provided by state agencies responsible for regulation and inspection of dams or by the Corps of Engineers. The records show that eight high hazard dams (and 3 significant hazard dams) are located in Richmond County.

High hazard dams are those of specific height or volume of impounded water that, if failure occurred, there would be a high likelihood of loss of life and substantial property damage. There is no requirement for owners to develop emergency action or maintenance plans, although high hazard dams are required to be brought up to state specifications to protect public safety and property.

EXISTING POLICIES, REGULATIONS, ORDINANCES AND LAND USE

The Augusta EMA reports that the three Savannah River dams are the only high hazard dams for which a response plan and inundation maps are on-file (updated July 1994; DP 1130-2-16). The USACE dams are the Hartwell, Richard B. Russell, and J. Strom Thurmond/Clarks Hill Dam. The Corps document considered several dam failure scenarios and predicts arrival times ranging from 4.5 to 13 hours, and peak flood elevations at various locations.

The USACE Savannah District operates the dams, monitors flood conditions, and notifies emergency management officials in downstream jurisdictions if flooding is predicted. The Augusta EMA has prepared an Emergency Evacuation Plan based on the USACE report and maintains a response plan for closing the levee openings.

Objective 4.1 (in conjunction with Objective 1.1): Maintain public awareness and increase level of protection to critical infrastructure and local population from the effects of dam / levee break.

GOAL 4- Objective 4.1 – Mitigation Action 4.1.1	
Dam/Levee Break Flood Hazard Considerations. Continue to improve geo-location data for the actual physical locations of hazardous materials and use the GIS-based mapped flood hazard areas to identify sites that are in or near mapped floodplains. For sites determined to have some degree of flood risk, request that the LEPC continue to use the information to inform owners/operators and encourage including flood threat recognition and protective measures into risk management plans. Continue public outreach and maintain awareness of the dam/levee break hazard; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a workgroup of EMA and representatives from USACE, smaller dam owners and members of the public, including nonprofit and neighborhood organizations and others, to evaluate existing outreach efforts and materials and propose improvements, if necessary. Provide training and emergency drills for operators of all essential facilities. Expand use of Augusta's website to make information readily available to the public. Evaluate existing Dam/Levee Failure warning systems.	
Responsible Department	EMA, Engineering Department, with support from USACE
Anticipated cost	TBD
Existing and potential funding sources	Within existing budget
Jurisdiction	Augusta - Richmond County and the Cities of Blythe and Hephzibah
Timeframe	Continuous
STAPLEE Priority	1 (207/299)
Status (deferred or new)	NEW

SECTION 5: ALL HAZARDS MITIGATION STRATEGY

Goal 5: Analyze the impacts of current policies, ordinances, and plans on community safety from hazard risks due to growth decisions.

IDENTIFICATION AND ANALYSIS OF RANGE OF MITIGATION OPTIONS

In Augusta - Richmond County and the Cities of Blythe and Hephzibah, the customary approach to natural hazards mitigation has been hazard event specific. Recent federal and state mitigation efforts focus on an all hazards approach provide an integrated platform to assess specific community conditions and risk factor variables. Safe growth is a significant factor in community resilience assessment.

Based on safe growth principles, resilient communities are able to anticipate, weather, and recover from the impacts of natural hazards. The principal mitigation measure for the Safe Growth Audit is the analysis of existing community regulations, processes and policies to determine the viability of each and the need for revision of each.

EXISTING POLICIES, REGULATIONS, ORDINANCES AND LAND USE

Augusta – Richmond County and the Cities of Blythe and Hephzibah do not currently have policies, regulations, ordinances and land use policies that pertain specifically to an all hazards assessment.

Objective 5.1: Production of a Safe Community Audit Report to inform citizens and decision makers about important hazard mitigation, community safety issues and to relay needed changes in community ordinances, processes, and policies.

GOAL 5- Objective 5.1 – Mitigation Action 5.1.1	
Conduct Safe Communities Audit Request that the Planning and Development Department create a safe growth steering committee to develop a vision for the community, conduct workshops, and post analysis information and reports on local government websites. Develop potential safe growth regulations, policies and processes to revise existing community documents, regulations and plans.	
Responsible Department	Planning and Development with EMA, Engineering, and HMPC Members
Anticipated cost	TBD
Existing and potential funding sources	Within existing budget
Jurisdiction	Augusta-Richmond County and the Cities of Blythe and Hephzibah
Timeframe	24 Months
STAPLEE Priority	1 (234/299)
Status (deferred or new)	NEW

HMPC Community Capability and Gap Assessment

Following the STAPLEE process the HMPC began a community capability and gap assessment survey and analysis for Augusta – Richmond County and the Cities of Blythe and Hephzibah. The capability assessment builds on the STAPLEE process to provide information on existing hazard mitigation conditions and identifies gap areas in personnel, equipment, resources, funding and training along with needed regulatory and process revision activities. The resulting information informs next steps in building an all hazards mitigation, education, and outreach program.

The assessment results are compelling (Appendix D). Significant gaps in personnel, equipment, resources, funding, training, regulatory documents, and review processes were reported by all sectors of the community and all jurisdictions. The HMPC proposes a Safe Growth Audit process and report to maximize community assets and resources and to begin addressing community needs to improve the multi-jurisdictional hazard mitigation program. The pictures below reveal the HMPC Community Capability and Gap Assessment results.

HMPC Community Capability and Gap Assessment Results

HMPC COMMUNITY CAPABILITY ASSESSMENT

PERSONNEL		EQUIPMENT		FACILITIES		TRAINING NEEDS and COMMUNITY ASSESSEMENT PROCESSES		REGULATORY CHANGES		COMMUNICATION EQUIPMENT		PUBLIC OUTREACH	
EXISTING	**NEEDS**	**EXISTING**	**NEEDS**	**EXISTING**	**NEEDS**	**EXISTING**	**NEEDS**	**EXISTING**	**NEEDS**	**EXISTING**	**NEEDS**	**EXISTING**	**NEEDS**
Emergency Management 2 personnel	NEEDS planners officers, training officers, & promote current assistant to deputy director, need adm. Assistance, PIO	Outdated equipment	Updated equipement projectors, screens, ID equipment etc. WEB EOC, computer connectivity,	Emergency Operation Center in flood zone area, too small	Build a state of the art Emergency Management out of the flood zone, storage warehouse for diaster supplies	Drills, exercise to include GEMA, FEMA regulations	Drills, Exercises support with funding workshops, to include supplies and food	Zoning, Subdivision Regs, Comp Plan, EOP, LEOP, Stormwater Mgmt. Plan, Site & Development Review Forms, Policies, & Documents, Inter-agency, Inter-departmental coordination	Safe Growth Audit and Report for revision of Existing Documents, Policies, Regulation, & Review Processes	Outdated equipment & under supplied amount of equipment	Updated equipment to include laptops, repeater antenna, portable radios opeatons with satallite down, satallite phone, video conference system, community wide alert to include siren system	Media awareness, website, emergency notification system, LEPC, CAER, CAPP Meeting, 9-1-1 Day Community Education, Fire Department end of School Public Fire education Day	Workshop funding, campaign to heighten awarness for all hazards,PIO
Manpower for Debis removal, Tree inspections	Additional Manpower	Older equipment	Equipment necessary to maintain adequate road, debris & clearing capabilites	Building for housing equipment	Updated building for housing equipment	Training for job duties thorough out department for handling equipment	Training for brush and sick tree removal, right of way program			No radios for communication with 911, Emergency Operation Center	Updated radio communicatio n equipement	Media awareness, website,	Campaign for enforcing and revising clean up maintance, work with cable, radio media enhance broadcast public educations on emergency prepareness with EOC PIO

HMPC COMMUNITY CAPABILITY ASSESSMENT

Road & Bridges not enough personnel for Severe Weather Clean up	Additional personnel for perparing roadway for hard weather	Older equipment	Equipment necessary to maintain adequate roadway, & winter weather conditions, 4 wheel drive equipment	Building for housing equipment	Updated building for housing equipment	Job duty training	Training & work shops for handling larger amount of road pre-pro weather conditions			No radios for communication with 911, Emergency Operation Center	Updated radio communicatio n equipement	Media awareness,	Campaign for enforcing and revising clean up maintance, campaign to heighter awarness about brush/wildfire and preventative maintenance to homeowners
Debris Management Plan- EMA 2 personnel	Need additional personnel in EMA for Planning officer	Equipment outdated	Need updated equipment for planning process, street sweepers, road barriers	EOC in Flood plain	build a state of the art Emergency Management out of the flood zone, storage warehouse for diaster supplies	Training in planning	Training in planning and grant awards, funding			Older equipment with manual usage	Need VTC with the GEMA, FEMA	Media awarness, website	PIO, Funding for workshops on debris clean up and maintance
Planning & Zoning personnel responsible for Moblile Home Ordinances	Planning & Zoning needs personnel to keep with inspections, revising ordinances for tie downs	Plans & ordinances in place	Updated plans and ordinances, mapping digital for updates in land use	Small area to work in with mapping	New offices with mapping updates,	Personnel trained in planning and zoning	Personnel training with Mobile Home anchoring enhancemen t			Older equipment with manual usage	need VTC with the Emergency Operation Center	Media awareness, website	Implement a county awarness program for enhanced Manufactored Homes anchoring
Environmenta l Services short staffed	Provide Emergency response personnel capable of responding to the effects of all hazards	Equipment shortage, and out dated	Updated equipment to include digital mapping, properly sized culverts to drainage basins	Building is in need of repairs and updates	Updated building for housing equipment	Training personnel in maintance of sewer lines	Training updated for stormwater managemen t sewer inflow			No radios for communication with 911, Emergency Operation Center	Need updated radio equipment	Media awareness, website	Continue to monitor and revise as necessary to ensure maximun provisions for stormwater control ordinances awareness, water saving campaigns

HMPC COMMUNITY CAPABILITY ASSESSMENT

Planning & Zoning personnel responsible for Flood Hazard local mapping	Additional Hazard Mitigation Planner needed to update plan and mapping	Mapping equipment older model	Update mapping to digital for staff and public easily updates	Small area to work in with mapping		Personnel trained in planning and zoning	Personnel training with Flood mapping			Older equipment with manual usage	WEB EOC	Media awareness, website	WEB EOC
Planning & Zoning personnel responsible for Flodd Mitigation Projects	Need additional Hzd Mitigation Planner	Older Mapping equipment	Digital Equipment	Small area to work in with mapping		Personnel trained in planning and zoning, flooding projects	Buys outs for flood properties			Older equipment with manual usage	Updated equipment	Media awarness, website	Continue to incorporate any revisions to the State building codes inot local code enforcement procdures and to bigorously enfornce minimum building standards.
Water Utilities shortage personnel	Additional personnel	equipment for lawn developmen t and landscaping	additional equipment for land development to conserve water	Structures renews	Structures could use some additional additions	Personnel trained in water conservaton	Training for preserving environment al protection for water shortage			Not adquate radios	Additional radios for all utilities vehicles	Media awarness, website	Educated community, and farmers on potential negetive effects that arise from extended drought conditions, conserving our water

Complete this spreadsheet to identify existing conditions and community needs. Please enter detailed information for each topic and identify gaps in coverage, equipment, training, software, assessment data, (i.e. Safe Communities, personnel, equipment, facility gaps, need for intergovernmental agreements, etc.). The information will inform SPLOST, Comp Plan STWP, Capital Improvements Programs, Local Government Budget and Regulatory Processes and Documents, Grant and other Sources of funding, and Community Outreach efforts.

CHAPTER 6: EXECUTING THE PLAN

Chapter 6 of this Plan update discusses how the Mitigation Strategies will be implemented by Augusta-Richmond County, Blythe and Hephzibah and how the overall updated Hazard Mitigation Plan will be evaluated and enhanced over time. This chapter also describes how the public and participating stakeholders will continue to be involved in the hazard mitigation planning process.

SECTION 1. IMPLEMENTATION ACTION PLAN

ADMINISTRATIVE ACTIONS AND DISTRIBUTION. Upon adoption by the HMPC, and subsequently, by Augusta - Richmond County and the Cities of Blythe, and Hephzibah the updated Hazard Mitigation Plan will be posted on the Planning Commission's web site and notices of its availability will be distributed to the following:

- The Federal and State agencies that were notified and invited to participate in HMP update development;
- Adjacent counties and cities;
- Citizens who attended public meetings (if contact information provided); and
- The organizations, agencies, and elected officials who received notices of public meetings.

AUTHORITY AND RESPONSIBILITY. Proposed mitigation action in Chapters 4 and 5 is assigned a lead agency (and supporting agency or authority in most cases). The lead agency for each mitigation action is responsible for incorporating that action into its work plan and schedule over the indicated period of performance. In collaboration with Augusta – Richmond County Planning Commission and Augusta Emergency Management Agency, lead agencies will report on progress and issues in conducting these actions.

PRIORITIZATION

Methodology for Prioritization (for grant funding). This updated HMP does not pre-identify projects that entail hazard mitigation on private property due to multiple factors under consideration when defining such projects. Some of the factors include: history of damages, interest of owners to participate in the program, and the availability of the non-federal cost share; a factor that cannot be projected outside the local budgetary process.

Natural Hazards Mitigation Action 2.1.6 (Policies and Procedures for Flood Mitigation Projects), requires the establishment of a systematic methodology for the use and prioritization of funds. Projects potentially qualifying for grant funds administered by State and Federal agencies, will be evaluated and prioritized using the factors below when developing site-specific projects for grant submission:

- Exposure to hazard and frequency;
- Documented history of past damages;

- Probability and magnitude of future damage;
- Eligibility as defined by potential funding source;
- Interest of affected citizens and property owners in participation;
- Estimate of project costs and benefits using FEMA's flood insurance claims histories and Benefit/Cost Modules where applicable; and
- Availability of local share of the mitigation project cost.

Use of cost-benefit. In a preliminary project selection, it is important that the local community ascertain benefits of each proposed mitigation project (or action) applying STAPLEE criteria: Social, Technical, Administrative, Political, Legal, Economic, and Environmental. By using this methodology, the community has an opportunity to objectively rank projects and to successfully document and defend decisions based on such ranking. While the STAPLEE assessment approach utilizes a stand-alone cost-benefit analysis in its economic section, the methodology as a whole is far more comprehensive and applicable to many more non-technical activities.

Alternative prioritizing methodologies. Many of the mitigation actions identified in this Plan update are administrative or programmatic in nature, including addressing how hazards are incorporated into local processes, public awareness and warning, flood map revisions, sediment control on construction sites, staffing, water conservation, debris management, and refining what is known about flood risks at locations where hazardous materials are handled. The designated rankings are recommended by the HMPC and are largely based on whether actions are ongoing or can be incorporated into current workloads, budgets and staffing. In effect, this assessment is similar to balancing the benefits of an action with its costs of implementation (although a formal analysis of that comparison was not performed). Each lead agency is responsible for determining priorities within the framework of their overall responsibilities.

Incorporating Mitigation in Other Plans. Augusta - Richmond County and the Cities of Blythe and Hephzibah each address hazards in their respective Comprehensive Plans through current planning mechanisms and processes, including land development, Greenspace, infrastructure design, and public outreach.

Certain types of site-specific projects (such as flood mitigation projects that have been undertaken by Augusta) must be identified in the Special Purpose Local Option Sales Tax (SPLOST) plan. When projects and potential funding sources are identified, amendments to SPLOST will be recommended.

The Short Term Work Plan (2008-2012) included in the Augusta-Richmond County Comprehensive Plan (2008) identifies a number of capital projects that have bearing on natural hazards, including drainage projects. During the next revision of the Comprehensive Plan, the Planning Commission will review the updated 2011 Hazard Mitigation Plan to determine if any mitigation action is appropriate for inclusion in the Short Term Work Plan section of the Plan.

SECTION 2. EVALUATION, MONITORING, UPDATING

The Augusta – Richmond County Planning Commission and the Augusta Emergency Management Agency are charged with monitoring this Plan and mitigation activities and preparing quarterly progress reports. An HMPC meeting may be held, or the mayors of Blythe and Hephzibah and the agencies assigned lead functions contacted and asked to report on the status of implementation, including obstacles to progress and recommended solutions. The reports will be compiled into a single document and submitted to the Georgia Emergency Management Agency.

In addition to the annual report, an HMPC meeting will convene after damage-causing natural hazard events to review the effects of such events. Based on an evaluation of those effects, adjustments to the mitigation actions and priorities could occur or additional event-specific actions may be identified (especially if funds to support projects become available).

Critical Facilities Update. The City Clerk or designee of the cities of Blythe and Hephzibah will work with Augusta – Richmond County to update the GMIS online database and all local plans and documents with Critical Facility Information throughout the five year life-cycle of the HMP update.

Multi-Jurisdictional Considerations. The Cities of Blythe and Hephzibah will be included in all communications related to executing the updated Plan. They will be responsible for reporting on any damage due to the occurrence of a hazard event and for reporting any actions taken to reduce future damage and risk.

SECTION 3. PLAN UPDATE AND MAINTENANCE

3.1 Existing Plan Maintenance. The Augusta Planning Commission and the Augusta Emergency Management Agency (EMA) were charged with the maintenance and monitoring the Effective 2006 HMP (Cities of Blythe, Hephzibah, and Augusta, GA , 2006) and mitigation activities and preparing annual progress reports. Meeting held between EMA, community stakeholders, and the agencies assigned lead functions reported on the status of implementation, including obstacles to progress and recommended solutions. Reports were compiled into a single document and submitted to the Georgia Emergency Management Agency and all stakeholders.

In addition to the annual report, a meeting was convened after damage-causing natural hazard events to review the effects hazard events. These after actions reports were incorporated in the community LEOP and supporting response functions. Based on evaluation of those effects, adjustments to the mitigation actions and priorities were made and additional event-specific actions identified for inclusion in the Joint Comprehensive Plan Short Term Work Program, Flood Mitigation Plan, Capital Improvements Plan, and Green Space Program.

Certain types of site-specific projects (such as flood mitigation projects that have been undertaken by Augusta) are identified in the Special Purpose Local Option

Sales Tax (SPLOST) plan. When projects and potential funding sources are identified, amendments to SPLOST were recommended.

3.2 Future Plan Maintenance Strategies. The Short Term Work Plan (2008-2012) included in the Augusta-Richmond County Comprehensive Plan (2008) identifies a number of capital projects that have bearing on natural hazards, including drainage projects. During the next revision of the Comprehensive Plan, the Planning Commission will review the updated 2011 Hazard Mitigation Plan to determine if any mitigation action is appropriately included in the Short Term Work Plan.

Revisions that warrant changing the text or incorporating new information may be prompted by a number of other circumstances, including identification of specific new mitigation projects, completion of several mitigation actions, or to satisfy requirements to qualify for specific funding. Minor revisions may be handled by addenda.

Major comprehensive review of and revisions to this Plan will be considered on a five-year cycle. Because the Plan is adopted in 2011, it will enter the next evaluation and review cycle sometime in 2015, with adoption of revisions anticipated in August of 2016. The Multi-Jurisdictional HMPC will reconvene to conduct the comprehensive evaluation and revision. At that time, natural hazard events that have occurred will be incorporated and the risk assessment will be updated if such events indicate new or altered exposures. Particular attention will be given to progress made on the mitigation actions. Actions that have not been completed and additional actions will be re-prioritized and examined in terms of feasibility given authorities, staff resources, goals, and budget limitations that will need to be taken into account at the time.

The public will be involved during the major comprehensive review to the Plan in the same ways used during the original Plan development in 2006 and the subsequent Plan update in 2011. The public will be notified when the revision process is started and provided the opportunity to review and comment on changes to the Plan and the priority action items. It is expected that a combination of informational public meetings, surveys and questionnaires, draft documents posted on the web site, and/or public meetings may be undertaken.

3.3 Augusta – Richmond County and the Cities of Blythe and Hephzibah Adoption of the Multi-Jurisdictional HMP Update

The participating jurisdiction in the Multi-Jurisdictional HMP Update drafted a resolution of adoption according in compliance with the FEMA and GEMA update guidance documents. The resolutions are included in Appendix D, pp. E 112 – 120. Adoption of the HMP update will take place post GEMA review of the Plan and during the FEMA Plan review process.

CHAPTER 7 CONCLUSIONS

7.1 – Summary

The jurisdictions of Augusta - Richmond County and the Cities of Blythe and Hephzibah gained a wealth of knowledge about the County's disaster history and potential for future disasters as a result of the multi-jurisdictional hazard mitigation planning process. Research on the hazard history of during the past fifty years and a comprehensive assessment of vulnerability provided invaluable information to inform the planning process. The critical facilities database containing detailed information on facility structures, equipment, and population hazard exposure for each jurisdiction gave insight to vulnerability and mitigation strategies. The HMPC and community stakeholders shared experiences, ideas, and actions to minimize exposure and protect the citizens and assets of the planning area.

Community involvement was extensive and proactive, and the HMPC was responsive and supportive of input, suggestions, and concerns. The planning process included stakeholders representative of the community at large, public and private agencies, and other stakeholder entities. Multiple public planning sessions and hearings were conducted to provide every planning area citizen with opportunities to participate in the HMP update.

As the planning process evolved, the community as a whole embraced the project and contributed energy, time, resources, and insight to guide the Plan update. An additional benefit of the planning process is evidenced in increased communication between local government, citizens, and businesses. The exhaustive efforts of each produced a Plan update that provides sound, doable measures to mitigate exposure to Natural and Technological Hazards. The Augusta – Richmond County and the Cities of Blythe and Hephzibah Multi-Jurisdictional Hazard Mitigation Plan (HMP) is truly a collaborative effort between local government and those it serves to implement measures for a safer, sustainable future for its citizens.

7.2 References

7.2.2 Publications

Augusta - Richmond County Emergency Management Agency. (2009). *Emergency Operations Plan (EOP).* Augusta, GA.: City of Augusta, GA.

Cities of Blythe, Hephzibah, and Augusta, GA . (2006). *City of Augusta, Georgia and the cities of Blythe & Hephzibah Hazard Mitigation Plan, A Plan to Reduce the Impacts of Natural Hazards.* Augusta, Blythe, & Hephzibah, GA.: Cities of Augusta, Blythe, & Hephzibah, GA.

City of Augusta, GA. (2008). *Augusta-Richmond County Comprehensive Plan.* Augusta, GA.: City of Augusta, GA.

WAGT. (2011, July 26). Is it Hotter This Summer Than Last? Augusta, GA, US.

7.2.3 Websites

Dolianitis, A. (2011, May 13). *Aiken Standard.* Retrieved August 29, 2011, from Aikenstandard.com: http://www.aikenstandard.com/local/0514-DOE-cleanup.

Environmental Protection Agency. (2011, July 27). *Savannah River Site (USDOE)*. Retrieved August 29, 2011, from Environmental Protection Agency: http://www.epa.gov/region4/waste/sf/sites/fedfacs/savrivsc.html.

Environmental Protection Agency. (2011, July 27). *Savannah River Site (USDOE)*. Retrieved August 29, 2011, from Environmental Protection Agency: http://www.epa.gov/region4/waste/sf/sites/fedfacs/savrivsc.html

Georgia Mitigation Information System. (2011, July 18). *GMIS.* Retrieved July 18, 2011, from GMIS: https://www.itos.uga.edu/gema/Login.do.

Godschalk, D. R. (2009, October). *Safe Growth Audits*. Retrieved July 21, 2011, from American Planning Association: http://www.planning.org/zoningpractice/2009/pdf/oct.pdf.

Hazards & Vulnerability Research Institute. (2011, May 18). *Hazards & Vulnerability Research Institute*. Retrieved June 10, 2011, from Social Vulnerability Index: http://webra.cas.sc.edu/hvri/products/sovi.aspx.

NOAA. (2011, May 16). *National Climatic Data Center*. Retrieved August 24, 2011, from Georgia, Climate Division 6, Palmer Drought Severity Index (PDSI), July 1895-2011: http://www.ncdc.noaa.gov/temp-and-precip/time-series/index.php?parameter=pdsi&month=7&year=2011&filter=1&state=9&div=6.

NOAA. (2011, June 18). *National Oceanic and Atmospheric Administration*. Retrieved June 18, 2011, from National Climatic Data Center: http://www.ncdc.noaa.gov/oa/ncdc.html.

The Engineering Toolbox. (2011, August 24). *Beaufort Wind Scale*. Retrieved August 24, 2011, from The Engineering Toolbox: http://www.engineeringtoolbox.com/beaufort-wind-scale-d_184.html.

USGS. (2008, September 17). *Georgia Flood Summary Reports*. Retrieved August 15, 2011, from United States Geological Survey: http://ks.water.usgs.gov/floodsummary/fs_state_pg4.php?state=ga,.

USGS. (2011, July 19). *Earthquake Hazards Program*. Retrieved July 19, 2011, from Earthquake Facts and Statistics: http://earthquake.usgs.gov/earthquakes/eqarchives/year/eqstats.php.

WAGT. (2011, July 26). Is it Hotter This Summer Than Last? Augusta, GA, US.

Wikipedia. (2011, February 27). *Wikipedia The Free Encyclopedia*. Retrieved August 15, 2011, from Tropical Storm Marco (1990): http://en.wikipedia.org/wiki/Tropical_Storm_Marco_(1990)#cite_note-nytimes-8.

WRDW - Augusta, GA. (2010, July 30). Highest number of heat-related deaths Coroner's ever seen. Augusta, GA, US.

7.2.4 Other References

FEMA. (2011). *HAZUS - MH Report of Damages for Richmond County.* Atlanta: FEMA.

Appendix A: Hazard Vulnerability Assessment Data

A.1 NATURAL HAZARD A: Tornado – Windstorm - Hail Description

The HMPC ranked Tornado – Windstorm – Hail as the greatest community hazard risk. Because the three events frequently occur simultaneously and the human and critical facility exposure is widespread, the choice is logical and supported by independent risk analysis. HMPC members reviewed Federal, State, Regional, and Local data sources to inform the profile process and completed the RF analysis to reach the hazard ranking determination.

A.1.1 Tornado Windstorm Hail Critical Facilities Report

Critical Facilities Reports are below.

A.1.2 Tornado Windstorm Hail GMIS Maps

The GMIS Maps are included in Chapter 2

A.2 Natural Disaster B: Flooding Description

Currently and historically floods are the most frequent, destructive, and costly natural hazard in the State of Georgia. Most of the State's damage reported for major disasters is associated with floods.

Since 1990, Augusta has been impacted by significant flood events, although not all qualified for major disaster declarations. Localized flooding concerns among citizens are the impacts to homes, yards and streets. Augusta and Hephzibah participate in the National Flood Insurance Program (NFIP), with 3055 flood policies in place.

A.2.1 Flooding Critical Facilities Report

Critical Facilities Reports are below

A.2.2 Flooding GMIS Maps

The GMIS Maps are included in Chapter 2

A.3 Natural Hazard C: Drought – Extreme Heat Description

Drought is a deficiency of moisture that results in adverse impacts on people, animals, or vegetation over a sizeable area. Severe drought conditions can profoundly impact agriculture, water resources, tourism, ecosystems, and human welfare. According to NOAA, the economic impact of drought in the United States has been estimated to be $6-8 billion annually (FEMA, 1995). Drought may become a more common issue in the future, as suggested by NOAA climate data, showing increased warm U.S. and global temperatures since the mid-1990s. Climate models have also suggested that the likelihood of heat waves could increase in intensity

and frequency over several decades, strengthening the environmental conditions for drought and wild fire events, (NOAA, National Oceanic and Atmospheric Administration, 2011).

A.3.1 Drought – Extreme Heat Critical Facilities Report

Critical Facilities Reports are below

A.3.2 Drought – Extreme – Heat Maps

The GMIS Maps are included in Chapter 2

A.4 Natural Hazard D: Winter Storms Description

Heavy snowfall and severe icing events are anticipated by emergency planners across the United States during the winter season. However, these events can cause considerable disruptions to society, as they distress transportation systems, utilities infrastructure, and general commerce. A large snowfall or icing event can cause billions of dollars, in lost business productivity and retail sales revenue, as workers and consumers are forced to stay home. Travel by road, rail, and air often becomes much slower and dangerous, particularly in regions that do not commonly deal with extreme winter weather. To help quantify the socioeconomic impact of snowstorm events, NOAA has developed the Northeast Snowfall Impact Scale (NESIS). This scale uses an algorithm to characterize and rank the severity of Northeastern U.S. snowstorms based on snowfall depth, snowfall area and the mean population affected (NOAA, NOAA Economics, 2011).

A.4.1 Winter Storm Critical Facilities Report

Critical Facilities Reports are below

A.4.2 Winter Storm Maps

The GMIS Maps are included in Chapter 2

A.5 Natural Hazard E – Wildfires Description

A wildfire is an uncontrolled fire spreading through vegetative fuels, such as brush, marshes, grasslands or field lands, exposing and possibly consuming structures. They often begin unnoticed in sparsely populated areas and may spread quickly. The risk of wildfire, and the nature fire behavior, is associated with a combination of several factors, notably stands of timber and open areas of vegetative fuels, prolonged dry weather, sloping topography, and development within the zone commonly referred to as the 'urban-wildland interface'. Within this zone, buildings become additional fuel for fires and prompt fire-fighting efforts. The causes of urban-wildland fires include lightning, human carelessness and arson. Wildland fires can occur during any month of the year, and the season length and peak months may vary appreciably from year to year. Generally, fires are more likely when seasonal precipitation levels are low, ambient humidity is low, and vegetation is

dry. The potential for property damage increases as development continues to take place in the interface. In areas with active forest-based economy, including tourism, extensive wildfires can have adverse economic impacts. If burned-out woodlands, grasslands, and farmlands do not quickly re-vegetate, increased erosion may contribute to reduced water quality or increased downstream flooding.

A.5.1 Wildfire Critical Facilities Report

Critical Facilities Reports are below

A.5.2 Wildfire Maps

The GMIS Maps are included in Chapter 2

A.6 Natural Hazard F – Earthquakes Description

"Earthquakes are generally defined as the sudden motion or trembling of the Earth's surface caused by an abrupt release of slowly accumulated strain.

This release typically manifests on the surface as ground shaking, surface faulting, tectonic uplifting and subsidence, or ground failures, and tsunamis. Because the seismic waves have different frequencies of vibration, the waves disseminate differently through subsurface materials. The second manifestation of earthquakes is surface faulting. Structures built across active faults tend to sustain damage regularly. The third earthquake phenomenon that causes damage is tectonic uplift and subsidence. The fourth earthquake damage-causing phenomena are earthquake-induced ground failures, including liquefaction and landslides. Landslides form when earthquake shaking or seismic activity dislodges rock and debris on steep slopes triggering rock falls, avalanches, and slides (GEMA, 2011).

A.6.1 Earthquake Critical Facilities Report

Critical Facilities Reports are below

A.6.2 Earthquake Maps

The GMIS Maps are included in Chapter 2

A.7 Technological Hazard A: Chemical Hazard Description

For the purposes of mitigation planning, hazardous materials are defined as any materials that may have negative impacts on human health, animal health, or the environment. Hazardous materials vary widely in their toxicity to humans. Exposure to hazardous materials may result in injury, illness, or death. The impacts of a hazardous materials exposure may be short-term immediate negative effects, defined as a few seconds, minutes or hours, or long-term negative effects within days, weeks, or years after exposure.

A.7.1 Critical Facilities Report

Critical Facilities Reports are below

A.7.2 Chemical Hazard Maps

The Hazard Maps are included in Chapter 3

A.8 Technological Hazard B: Terrorism Description

After the September 11 attacks, the Georgia Information Sharing & Analysis Center (GISAC) was created to solve the information / intelligence sharing challenges between federal, state, and local agencies. GISAC's primary mission is to serve as the state's focal point for the collection, assessment, analysis, and dissemination of terrorism intelligence relating to Georgia.

GISAC was not intended to replace or duplicate the counter-terrorism functions of the Federal Bureau of Investigation (FBI), but rather to enhance and facilitate the collection of information from local and state sources, and to integrate that information into a system that would benefit homeland security and counter-terrorism intelligence programs at all levels.

A.8.1 Critical Facilities Report

Critical Facilities Reports are below

A.8.2 Terrorism Maps

The Maps are included in Chapter 3

A.9 Technological Hazard C: Nuclear Plant Incident Description

GEMA's Radiological Programs Section is responsible for the Radiological Emergency Preparedness (REP) Program, the Waste Isolation Pilot Plant (WIPP) Program, and Local Emergency Planning Committee (LEPC) Program.

The mission of the REP Program is to ensure the health and safety of the public living in the vicinity of Georgia's nuclear power facilities in the event of an accident. The primary emphasis of the program is on nuclear power plants; however plans also address other fixed nuclear facilities and radiological incidents. The REP program is responsible for plan development, plan reviews, responder training, and exercises to ensure that state and local governments are ready to respond in the unlikely event of an accident.

A.9.1 Critical Facilities Report

Critical Facilities Reports are below

A.9.2 Nuclear Plant Incident Maps

The Maps are included in Chapter 3

A.10 Technological Hazard D: Dam – Levee Failure Description

Dams and Flooding. FEMA and the U.S. Army Corps of Engineers maintain the National Inventory of Dams (1998), a database of high and significant hazard dams. For the most part, data is provided by state agencies responsible for regulation and inspection of dams or by the Corps of Engineers. Map Series 1 - B is based on that inventory and shows that seven high hazard dams (and 3 significant hazard dams) are located in Augusta and one high hazard dam is located outside the City in the upper portion of Spirit Creek. High hazard dams are those of specific height or volume of impounded water that, if failure occurred, there would be a high likelihood of loss of life and substantial property damage. Table 3-10 lists information on the high hazard dams. There is no requirement for owners to develop emergency action or maintenance plans, although high hazard dams are required to be brought up to state specifications to protect public safety and property.

A.10.1 Critical Facilities Report

Critical Facilities Reports are below

A.10.2 Dam/Levee Failure Maps

The GMIS Maps are included in Chapter 3

This Appendix contains the following:

1. GMIS Critical Facilities in Hazard Areas (Community Asset Information Completed in GMIS Database and attached).
2. GEMA Worksheets #3 (a) (b).
3. GEMA Worksheet #2 Mapping Products.
4. Additional Maps and Supporting Documentation.
5. GEMA Hazard Frequency Table.

COUNTY **RICHMON**D
HAZARD FREQUENCY TABLE

Hazard	Number of Events in Historic Record	Number of Years in Historic Record	Number of Events in Past 10 Years	Number of Events in Past 20 Years	Number of Events in Past 50 Years	Historic Recurrence Interval (years)	Historic Frequency % chance/year	Past 10 Year Record Frequency Per Year	Past 20 Year Record Frequency Per Year	Past 50 Year Record Frequency Per Year
Hurricane Surge - Cat 1	1	76	0	0	0	76.00	1.32	0	0	0
Hurricane Surge - Cat 2						#DIV/0!	#DIV/0!	0	0	0
Hurricane Surge - Cat 3						#DIV/0!	#DIV/0!	0	0	0
Hurricane Surge - Cat 4						#DIV/0!	#DIV/0!	0	0	0
Hurricane Surge - Cat 5						#DIV/0!	#DIV/0!	0	0	0
Hurricane Wind						#DIV/0!	#DIV/0!	0	0	0
Floods	12	61	4	12	12	5.08	19.67	0.4	0.6	0.24
Wildfire	0	0	0	0	0	0.00	#DIV/0!	0	0	0
Earthquake						#DIV/0!	#DIV/0!	0	0	0
Tornado	9	61	2	6	9	6.78	14.75	0.2	0.3	0.18
Thunderstorm Wind	140	56	54	88	134	0.40	250.00	5.4	4.4	2.68
Hail	62	61	41	56	62	0.98	101.64	4.1	2.8	1.24
Drought	49	108	10	11	17	0.00	0.00	0	0.55	0.34
Extreme Heat	5	10	5			2.00	50.00	0.5	0	0
Snow & Ice	6	5	5	5	5	0.83	120.00	0.5	0.25	0.1
Landslide						#DIV/0!	#DIV/0!	0	0	0
Dam Failure	1	31	0	0	1	31.00	3.23	0	0	0.02
High Wind	2	61	1	2		30.50	3.28	0.1	0.1	0
HazMat Release (fixed)						#DIV/0!	#DIV/0!	0	0	0
HazMat Release (trans)	2	6	2	2	2	3.00	33.33	0.2	0.1	0.04
Radiological Release						#DIV/0!	#DIV/0!	0	0	0

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

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

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

GEMA Worksheet #3a Inventory of Assets

Jurisdiction: Richmond County

Hazard: Tornado/Wind Storm/Hail

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

(Source: U.S. Census 2000, HAZUS-MR4 data)

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$,000's in Community or State	$,000's in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	71,769	71,769	100%	8,967,798	8,967,798	100%	199,775	199,775	100%
Commercial	4,202	4,202	100%	2,707,355	2,707,355	100%			N/A
Industrial	961	961	100%	495,189	495,189	100%			N/A
Agricultural	196	196	100%	26,011	26,011	100%			N/A
Religious/ Non-profit	515	515	100%	312,465	312,465	100%			N/A
Government	129	129	100%	96,570	96,570	100%			N/A
Education	145	145	100%	137,831	137,831	100%			N/A
Utilities			N/A			N/A			N/A
Total	77,917	77,917	100%	12,743,219	12,743,219	100%	199,775	199,775	100%

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

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

GMIS Reporting for Wind Hazard by Jurisdiction
Grouped by Hazard Score

NOTE: Only completed facilities will be reported

Government Jurisdiction	Type	Name or Structure Description	Essential Facility	Transportation System	Lifeline System	High Potential Loss	Haz Mat Facility	Important Facility	Vulnerable Population	Economic Assets	Special Considerations	Historic Considerations	Other	Size of Bldg. (sq. ft.)	Replace Value ($)	Replace Value Year	Contents Value ($)	Contents Value Year	Functional Value ($)	Displace Cost ($ per day)	Occupancy	Hazard Score
Augusta-Richmond County	Middle School	Langford Middle School	X											82352	$1,366,119	2004					802	2
Augusta-Richmond County	Elementary School	Lamar Elementary School	X											57833	$2,136,510	2004					401	2
Augusta-Richmond County	Elementary School	Willis Foreman Elem	X											59022	$11,069,120	2004					894	2
Augusta-Richmond County	Elementary School	Bayvale Elem School	X											42297	$600,000	2004					375	2
Augusta-Richmond County	Elementary School	Meadowbrook Elementary School	X											60954	$3,984,000	2004					754	2
Augusta-Richmond County	Middle School	Morgan Road Middle School	X											99141	$6,913,000	2004					879	2
Augusta-Richmond County	Elementary School	Bungalow Road Elementary School						X						43272	$1,130,000	2004					347	2
Augusta-Richmond County	Public Four-Year College	Guard House										X		952	$210,000	2007	$100,000	2,007			7	2
Augusta-Richmond County	Public Four-Year College	Human Resources								X				2271	$685,000	2007	$200,000	2,007			170	2
Augusta-Richmond County	Public Four-Year College	Alumni House										X		4423	$3,000,000	2007	$250,000	2,007			53	2
Augusta-Richmond County	Public Four-Year College	Boykin Wright Hall										X		7800	$2,900,000	2007	$500,000	2,007			180	2
Augusta-Richmond County	Private School	Westminster Schools, Band/Weight Room Bldg						X						1740	$114,561	1992	$13,415				50	2
Augusta-Richmond County	Private School	Westminster Schools, Media Center						X						5290	$384,293	1988	$40,758				150	2
Augusta-Richmond County	Public Four-Year College	Allgood Hall								X				123190	$29,200,000	2007	$4,000,000	2,007			1,832	2
Augusta-Richmond County	Public Four-Year College	Archelogy Lab										X		978	$225,000	2007	$25,000	2,007			11	2
Augusta-Richmond County	Public Four-Year College	Bellevue Hall										X		5113	$1,900,000	2007	$300,000	2,007			38	2
Augusta-Richmond County	Public Four-Year College	Benet Hall										X		9389	$3,400,000	2007	$300,000	2,007			35	2
Augusta-Richmond County	Public Four-Year College	Fine Arts						X						20651	$11,000,000	2007	$1,000,000	2,007				2

Augusta-Richmond County	Public Four-Year College	Galloway Hall								X				16271	$6,000,000	2007	$500,000	2,007				2
Augusta-Richmond County	Public Four-Year College	Fanning Hall								X				10179	$5,500,000	2007	$1,000,000	2,007			75	2
Augusta-Richmond County	Public Four-Year College	Science Hall					X							121487	$36,900,000	2007	$3,000,000	2,007			1,500	2
Augusta-Richmond County	Public Four-Year College	Payne Hall										X		16540	$6,000,000	2007	$500,000	2,007			155	2
Augusta-Richmond County	Public Four-Year College	Performing Arts								X				28803	$21,000,000	2007	$1,000,000	2,007			1,000	2
Augusta-Richmond County	Public Four-Year College	Rains Hall										X		9564	$5,200,000	2007	$300,000	2,007			50	2
Augusta-Richmond County	Public Four-Year College	Washington Hall								X				44708	$15,200,000	2007	$3,000,000	2,007			233	2
Augusta-Richmond County	Public Four-Year College	Christenberry Field House	X											129870	$22,000,000	2007	$3,000,000	2,007			4,904	2
Augusta-Richmond County	Public Four-Year College	JSAC Student Activities						X						51435	$16,000,000	2007	$712,300	2,007			1,000	2
Augusta-Richmond County	Public Four-Year College	Public Safety (Police Department)	X											2641	$650,000	2007	$200,000	2,007			25	2
Augusta-Richmond County	Public Four-Year College	Reese Library										X		79337	$24,000,000	2007	$10,000,000	2,007			830	2
Augusta-Richmond County	Public Four-Year College	Carpentry Whse.						X						17187	$3,200,000	2007	$500,000	2,007			35	2
Augusta-Richmond County	Public Four-Year College	HazMat Building					X							128	$300,000	2007	$0	2,007				2
Augusta-Richmond County	Public University	Physical Plant Ofc Bldg RA												3417	$99,956	2005						2
Augusta-Richmond County	Public University	Facilities Management Storage Bldg RD												11974	$92,500	2005						2
Augusta-Richmond County	Public University	Lee Warehouse Bldg RE												114235	$1,238,055	2005						2
Augusta-Richmond County	Public University	MCG Animal Care Facility Bldg OB												20017	$324,100	2005						2
Augusta-Richmond County	Public Four-Year College	Central Utilities Plant								X				13791	$12,000,000	2007	$3,000,000	2,007			131	2
Augusta-Richmond County	Public Four-Year College	University Hall								X				112370	$25,200,000	2007	$6,000,000	2,007			1,123	2
Augusta-Richmond County	Public University	Child Care Center Bldg OC												6058	$342,000	2005						2
Augusta-Richmond County	Public University	President's Main House Bldg OF												13848	$251,080	2005						2
Augusta-Richmond County	Public University	President's House Garage Apt Bldg OG												2576	$47,100	2005						2
Augusta-	Public University	President's House												910	$19,033	2005						2

Richmond County		Cottage Bldg OH																					
Augusta-Richmond County	Public University	Grounds Maintenance Bldg RB												4832	$26,900	2005							2
Augusta-Richmond County	Public University	Grounds Maint Storage Bldg RC												1232	$3,900	2005							2
Augusta-Richmond County	Public University	Community Medicine Offices Bldg HH												2511	$69,518	2005							2
Augusta-Richmond County	Public University	Mark Bldg HF												10213	$453,010	2005							2
Augusta-Richmond County	Public University	Physical Plant Shops Bldg HP												27655	$429,000	2005							2
Augusta-Richmond County	Public University	Respiratory Therapy Annex Bldg HN												1100	$864,000	2005							2
Augusta-Richmond County	Public University	Annex Building HS												168616	$2,574,316	2005							2
Augusta-Richmond County	Public University	Annex II Bldg HT												42352	$307,640	2005							2
Augusta-Richmond County	Public University	Employee Assistance Bldg FE												1145	$7,613	2005							2
Augusta-Richmond County	Public University	Dermatology Offices Bldg FH												4140	$36,192	2005							2
Augusta-Richmond County	Public University	Alumni Center Bldg FI												68000	$1,725,657	2005							2
Augusta-Richmond County	Public University	Residence VI Bldg FM												33840	$342,144	2005							2
Augusta-Richmond County	Public University	Faculty Office Bldg HB												34463	$966,749	2005							2
Augusta-Richmond County	Private University	Community Medicine Offices Bldg HH												2511	$69,518	2005							2
Augusta-Richmond County	Public University	Residence V Laundry Bldg DG												803	$4,200	2005							2
Augusta-Richmond County	Public University	Telemedicine Center Bldg EA												2648	$18,408	2005							2
Augusta-Richmond County	Public University	Jennings Wing Bldg EB												16717	$50,402	2005							2
Augusta-Richmond County	Private University	Shepard MT/OT Bldg EF												21101	$53,448	2005							2
Augusta-Richmond County	Public University	School of Nursing Bldg EG												18780	$118,750	2005							2
Augusta-Richmond County	Public University	Sickle Cell Adult Clinic Bldg FF												6438	$36,192	2005							2
Augusta-Richmond County	Public University	Liquid Transfer Bldg CM												400	$656,000	2005							2
Augusta-Richmond	Public University	Material Safety Storage Facilty Bldg												2000	$60,000	2005							2

County		CS																					
Augusta-Richmond County	Private University	Residence V Bldg D Bldg DF												12848	$153,000	2005							2
Augusta-Richmond County	Public University	Public Safety Sub Station Bldg DH												273	$6,200	2005							2
Augusta-Richmond County	Public University	Residence V Bldg B Bldg DD												16269	$190,000	2005							2
Augusta-Richmond County	Public University	Residence V Bldg C Bldg DE												16269	$190,000	2005							2
Augusta-Richmond County	Public University	Sanders Research & Education Bldg CB												303667	$25,777,198	2005							2
Augusta-Richmond County	Public University	Hamilton Wing Bldg CL												46695	$2,792,652	2005							2
Augusta-Richmond County	Public University	Cancer Research Center Bldg CN												26586	$12,262,605	2005							2
Augusta-Richmond County	Public University	RA Dent Blvd Deck Bldg CT												136069	$1,870,000	2005							2
Augusta-Richmond County	Public University	Environmental Health & Safety Bldg CI												4726	$26,600	2005							2
Augusta-Richmond County	Public University	Physical Therapy Bldg CH												13112	$217,000	2005							2
Augusta-Richmond County	Public University	Student Center Bldg DA												76145	$874,000	2005							2
Augusta-Richmond County	Public University	Student Study Center Bldg CK												23331	$874,000	2005							2
Augusta-Richmond County	Public University	Residence IV Bldg DB												22316	$259,000	2005							2
Augusta-Richmond County	Public University	Residence V Building A Bldg DC												16269	$190,000	2005							2
Augusta-Richmond County	Public University	Auditoria Center Bldg BC												18519	$196,000	2005							2
Augusta-Richmond County	Public University	Research Center Lab Building CA												109583	$49,305,675	2005							2
Augusta-Richmond County	Private University	School of Dentristy Bldg AD												198312	$4,875,000	2005							2
Augusta-Richmond County	Public University	Murphey Building BF												47007	$163,000	2005							2
Augusta-Richmond County	Public University	Dugas Building BG												43231	$279,000	2005							2
Augusta-Richmond County	Public University	Central Energy Plant Bldg BH												38151	$656,000	2005							2
Augusta-Richmond County	Public University	Pavillion III Bldg CJ												65938	$1,904,000	2005							2
Augusta-Richmond County	Public University	Goss Lane Parking Deck Bldg CP												153984	$1,505,000	2005							2

Augusta-Richmond County	Public University	Environmental Svcs Storage Bldg AG												1266	$26,600	2005						2
Augusta-Richmond County	Public University	Telemedicine Bldg AR												2709	$18,325	2005						2
Augusta-Richmond County	Public University	Telemedicine HIM Bldg AI												7439	$18,325	2005						2
Augusta-Richmond County	Public University	Student Health Bldg AJ												4646	$142,921	2005						2
Augusta-Richmond County	Public University	Classroom Services Bldg AK												4220	$84,345	2005						2
Augusta-Richmond County	Public University	Health Info. Management Bldg AL												3792	$75,612	2005						2
Augusta-Richmond County	Public University	Administration Bldg AA												40618	$485,000	2005						2
Augusta-Richmond County	Public University	Pavillion II Bldg AF												26000	$337,000	2005						2
Augusta-Richmond County	Public University	Pavilion I Bldg AE												37183	$487,000	2005						2
Augusta-Richmond County	Public University	Crosswalk Talmadge to Pavillion III Bldg AP												4030	$261,000	2005						2
Augusta-Richmond County	Public University	Greenblatt Libary Bldg AB												77583	$1,598,000	2005						2
Augusta-Richmond County	Public University	Protein Chemistry Laboratory Bldg AC												4080	$75,000	2005						2
Augusta-Richmond County	Other	May Park Community Center						X						17000	$2,500,000	2004	$800,000	2,004			500	2
Augusta-Richmond County	Other	Merry Street Ceramic Shop						X						1400	$100,000	2002	$30,000				35	2
Augusta-Richmond County	Other	Minnick Park						X						2400	$65,000	2002	$7,500				45	2
Augusta-Richmond County	Other	Sand Hills Community Center						X						7300	$600,000	2004	$60,000				200	2
Augusta-Richmond County	Other	Sue Reynolds Park						X						2375	$85,000	2004	$20,000				60	2
Augusta-Richmond County	Other	Warren Road Community Center						X						14000	$2,500,000	2004	$100,000	2,004			500	2
Augusta-Richmond County	Fire Station	AFD- Engine Co #5	X											23958	$442,000	2004	$330,000	2,004			4	2
Augusta-Richmond County	Fire Station	AFD- Engine Co #6	X											37897	$65,720	2002	$1,105,000	2,002			9	2
Augusta-Richmond County	Fire Station	AFD- Engine Co #7	X											4800	$1,206,000	2004	$800,000	2,004			4	2
Augusta-Richmond County	Other	AFD- (Old Engine Co #1) Child Advocacy Group						X						2100	$1,281,238	2004						2
Augusta-	Other	Julian Smith Bar B						X						5400	$175,000	2002	$40,000				200	2

Richmond County		Que Pit																					
Augusta-Richmond County	Other	Julian Smith Casino						X						10500	$250,000	2002	$40,000					400	2
Augusta-Richmond County	Fire Station	AFD- Engine Co #18	X											4589	$57,000	2004	$830,000	2,004				4	2
Augusta-Richmond County	Fire Station	AFD- Engine Co #19 (Abandoned)											X	1600	$73,000	2004							2
Augusta-Richmond County	Fire Station	AFD- Engine Co #1	X											52708	$1,438,000	2004	$750,000	2,004					2
Augusta-Richmond County	Fire Station	AFD- Engine Co #2	X											5000	$65,000	2004	$300,000	2,004				4	2
Augusta-Richmond County	Fire Station	AFD- Engine Co #3	X											21780	$394,000	2004						22	2
Augusta-Richmond County	Fire Station	AFD- Engine Co #4	X											10890	$168,000	2004	$600,000	2,004				4	2
Augusta-Richmond County	Other	Hickman Park						X						1350	$75,000	2002	$25,000					40	2
Augusta-Richmond County	Other	Jamestown Center						X						3840	$250,000	2004	$65,000	2,004				125	2
Augusta-Richmond County	Fire Station	AFD- Engine Co #13	X											14810	$94,000	2004	$330,000					4	2
Augusta-Richmond County	Fire Station	AFD- Engine Co #15	X											4572	$100,000	2004	$300,000					3	2
Augusta-Richmond County	Fire Station	AFD- Engine Co #16	X											3742	$251,000	2004	$330,000	2,004					2
Augusta-Richmond County	Fire Station	AFD- Engine Co #17	X											2800	$121,528	2004	$330,000	2,004				5	2
Augusta-Richmond County	Other	Doughty Park						X						2016	$100,000	2004	$15,000	2,004				75	2
Augusta-Richmond County	Other	Dyess Park						X						3125	$130,000	2004	$30,000	2,004				125	2
Augusta-Richmond County	Other	Eastview Park						X						4275	$600,000	2004	$50,000	2,004				120	2
Augusta-Richmond County	Other	Fleming Athletic Office							X					4600	$120,000	1999	$75,000					45	2
Augusta-Richmond County	Other	Bernie Ward Community Center						X						17000	$2,900,000	2003	$100,000					500	2
Augusta-Richmond County	Other	Gracewood Park						X						3840	$150,000	2004	$60,000					125	2
Augusta-Richmond County	Other	Blythe Area Community Center						X						5850	$600,000	2002	$30,000					125	2
Augusta-Richmond County	Other	The Boathouse						X						7800	$1,250,000	2004	$90,000	2,004				250	2
Augusta-Richmond	Other	H.H. Brigham Swim Center						X						13600	$950,000	2002	$175,000					300	2

County																							
Augusta-Richmond County	Other	H.H. Brigham Community Center						X						14000	$950,000	2002	$90,000				500	2
Augusta-Richmond County	Other	H.H. Brigham Senior Center						X						7700	$600,000	2002	$70,000				125	2
Augusta-Richmond County	Other	Carrie Mays						X						15960	$850,000	2004	$100,000	2,004			425	2
Augusta-Richmond County	Library	Friedman Branch Library											X	10300	$775,325	2004	$1,179,410	2,004		$282	27	2
Augusta-Richmond County	Library	Jeff Maxwell Branch Library											X	7158	$587,883	2004	$1,685,698	2,004		$196	28	2
Augusta-Richmond County	Library	Wallace Branch Library											X	5147	$372,978	2004	$656,895	2,004		$141	10	2
Augusta-Richmond County	Other	Administrative Office at Elliott Park						X						9100	$750,000	2004	$100,000				30	2
Augusta-Richmond County	Other	Augusta Aquatic Center						X						29200	$5,000,000	2004	$300,000				700	2
Augusta-Richmond County	Other	Augusta Municipal Golf Course						X						14150	$850,000	2004	$145,000				105	2
Augusta-Richmond County	Other	WT Johnson Community Center						X						27000	$1,400,000	2004	$100,000	2,004			500	2
Augusta-Richmond County	Other	Old Government House						X						7000	$350,000	2004	$160,000	2,004			100	2
Augusta-Richmond County	Hospital, Admissions Entrance	Gracewood State School & Hospital	X											4500	$10,040,079	2004						2
Augusta-Richmond County	Fire Station	AFD- Engine Co #8	X											174240	$1,295,000	2004	$1,200,000					2
Augusta-Richmond County	Police Station	AFD- Engine Co #8 (Abandoned)	X											2100	$86,841	2004						2
Augusta-Richmond County	Library	Augusta-Richmond County Public Library									X			38500	$4,279,130	2004	$6,896,562	2,004		$1,051	75	2
Augusta-Richmond County	Middle/High School	Davidson High School (old location)	X											35747	$494,000	2004						2
Augusta-Richmond County	Other School	R.C.B.O.E. Maintenance	X											17010	$378,000	2004					117	2
Augusta-Richmond County	Psychoeducational	Sand Hills	X											23882	$893,883	2004					81	2
Augusta-Richmond County	Elementary School	Freedom Park Elementary	X											79604	$186,043,000	2004					710	2
Augusta-Richmond County	Private School	Westminster Schools, Maintenance Shop											X	2400	$158,016	2003	$18,504		$1,000	$868	3	2
Augusta-Richmond County	Other	Garrett Gymnasium						X						11100	$1,250,000	2004	$50,000	2,004			250	2
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Special Care Center)	X											365822	$43,898,640	2004	$21,349,372					2

Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Talmadge Buidling)	X											428912	$59,065,472	1997	$35,479,601	1,997				2
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Talmedge & Syden Buildings)	X											765459	$107,164,260	2004						2
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Children's Medical Center)	X											219308	$38,378,900	2004						2
Augusta-Richmond County	Elementary School	Silas X. Floyd (Headstart Program)	X											35810	$507,000	2004					252	2
Augusta-Richmond County	Other	R.C.B.O.E. Transporation Facility	X											17846	$1,873,830	2004					298	2
Augusta-Richmond County	City Jail	CSRA Humane Society						X						15250	$345,930	2004						2
Augusta-Richmond County	County Correctional Institution	Richmond County Correctional Institute	X						X					12000	$3,423,634	2004						2
Augusta-Richmond County	County Jail	Richmond County Jail	X						X					150000	$22,576,000	2004						2
Augusta-Richmond County	County Jail	Charles B. Webster Detention Center	X						X					134166	$143,000	2004					550	2
Augusta-Richmond County	Library	Appleby Branch Library									X	X		4600	$783,462	2004	$981,133	2,004		$125	10	2
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Ambulatory Care Center)	X											365822	$43,898,640	2004	$21,349,372	1,997				2
Augusta-Richmond County	Private School	Risen Savior Academy						X						4800	$17,680	2004						2
Augusta-Richmond County	Private School	Westminster Schools, Prep School Gym											X	16265	$1,070,887	2004	$125,403		$1,000	$868	130	2
Augusta-Richmond County	Private School	Westminster Schools ofAugusta, Administration						X						5606	$369,099	2004	$43,222		$1,000	$868	40	2
Augusta-Richmond County	Private School	Westminster School of Augusta						X						6124	$403,204	2004	$47,216		$1,000	$868	170	2
Augusta-Richmond County	Fire Station	AFD- Engine Co #14	X											2800	$114,000	2002	$330,000				3	2
Augusta-Richmond County	Hospital, Admissions Entrance	Charter Augusta Behavioral Health System	X											12500	$1,715,322	2004						2
Augusta-Richmond County	High School, Public	Cross Creek High	X											205100	$19,466,248	2004					1,314	2
Augusta-Richmond County	Elementary School	Jenkins-White Elementary	X											77803	$5,661,355	2004					453	2
Augusta-Richmond County	Elementary School	Sue Reynolds Elementary (new)	X											79604	$4,854,057	2004					635	2
Augusta-Richmond County	MSWL	Deans Bridge Road Municipal Landfill						X						2895	$79,000	2004				$50,000	26	2
Augusta-Richmond County	Sheriffs Office	Sheriff's Office Training Center						X						3600	$79,000	2004					25	2
Augusta-	Private School	C.H. Terrell Academy	X											32670	$187,000	2002		2,004				2

Richmond County																							
Augusta-Richmond County	Hospital, Admissions Entrance	St. Joseph's Hospital of Augusta	X											400000	$24,753,000	2004						700	2
Augusta-Richmond County	Hospital, Emergency Entrance	Augusta VA Medical Center (Downtown Division)	X											628225	$105,000,000	1997	$70,000,000	1,997					2
Augusta-Richmond County	Fire Station	AFD- Engine Co #12	X											2800	$1,065,000	2004	$1,250,000	2,004				4	2
Augusta-Richmond County	Fire Station	Bush Field Fire Department	X											4420	$5,814,245	2004						3	2
Augusta-Richmond County	Private School	First Baptist Church of Gracewood Academy						X						5200	$860,450	2004							2
Augusta-Richmond County	Emergency Services	9-1-1 Center/Emergency Operation Center	X											8740	$1,250,000	1997							2
Augusta-Richmond County	Airport	Bush Field Airport		X	X									68058	$5,814,245	2004						300	2
Augusta-Richmond County	Airport	Daniel Field		X	X									13000	$6,000	2004						25	2
Augusta-Richmond County	Hospital, Admissions Entrance	Augusta VA Medical Center (Uptown Division)	X											687930	$96,000,000	1997	$30,000,000	1,997					2
Augusta-Richmond County	Hospital, Admissions Entrance	Walton Rehabilitation Hospital	X						X					70000	$2,255,000	2004						250	2
Augusta-Richmond County	Hospital, Emergency Entrance	University Hospital	X						X					802811	$145,586,307	2004							2
Augusta-Richmond County	Hospital, Admissions Entrance	Doctor's Hospital	X											280000	$36,000,000	1997	$20,100,000	1,997					2
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (East Wing)	X											55260	$7,609,854	1997	$4,571,107	1,997					2
Augusta-Richmond County	Fire Station	AFD- Engine Co #7 (Abandoned)										X		2100	$130,000	2002							2
Augusta-Richmond County	Fire Station	AFD- Engine Co #9	X											5600	$124,000	2002	$330,000	2,002				3	2
Augusta-Richmond County	Fire Station	AFD- Engine Co #10	X											3000	$81,000	2004	$330,000	2,004				4	2
Augusta-Richmond County	Fire Station	AFD- Engine Co #11	X											35719	$223,759	2004	$330,000	2,004				3	2
Augusta-Richmond County	Fire Station	AFD- Engine Co #12 (Abandoned)											X	13225	$132,000	2004							2
Augusta-Richmond County	Other School	William Robinson Center	X											18447	$1,488,927	2004						3	2
Augusta-Richmond County	Other	McDuffie Woods Community Center						X						11160	$1,500,000	2002	$80,000					400	2
Augusta-Richmond County	State Prison	Georgia Regional Youth Development Center						X						0		2004							2
Augusta-Richmond	State Prison	Georgia Regional Youth Detention						X						0		2004							2

County		Center																					
Augusta-Richmond County	Emergency Services	Record Retention Facility	X											9000	$550,000	1997	$250,000	1,997					2
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Sydenstricker Bldg)	X											336547	$38,053,369	1997	$40,989,247	1,997					2
Augusta-Richmond County	Hospital, Admissions Entrance	Georgia Regional Med-Surg Unit/Augusta	X											192	$8,082,000	2004							2
Augusta-Richmond County	Fire Station	Fort Gordon Fire Department	X											0	$186,043,000	2004							2
Augusta-Richmond County	Fire Station	AFD- Engine Co #19	X											148200	$1,277,000	2004	$750,000	2,004			3		2
Augusta-Richmond County	Other	McBean Community Park						X						6300	$700,000	2004	$75,000				110		2
Augusta-Richmond County	Private Four-Year College	Paine College						X						52896	$6,240,916	2004							2
Augusta-Richmond County	Other	R.C.B.O.E. Headquarters	X											96285	$440,000	2004					425		2
Augusta-Richmond County	Sheriffs Office	Sheriffs Office - Daniel Village Substation	X											699754	$6,309,288	2004					50		2
Augusta-Richmond County	Sheriffs Office	Sheriffs Office - Southgate Plaza Substation	X											2690	$1,360,287	2004					50		2
Augusta-Richmond County	Marshals Office	Richmond County Marshal's Office						X						197762	$23,063,403	2004							2
Augusta-Richmond County	Courthouse	Richmond County Courthouse						X						1100000	$23,063,403	2004							2
Augusta-Richmond County	City Hall	Augusta/Richmond Co Municipal Building						X						1100000	$23,063,403	2004							2
Augusta-Richmond County	Hospital, Admissions Entrance	Georgia Regional Hospital at Augusta Campus	X											0	$8,082,000	2004							2
Augusta-Richmond County	Private School	Southgate Christian School (closed)						X						49400	$1,573,129	2004							2
Augusta-Richmond County	Private School	Augusta Seventh Day Adventist (closed)						X						6900	$479,000	2004							2
Augusta-Richmond County	Private School	Ebenezer Seventh Day Adventist Junior Academy						X						2800	$292,495	2002	$247,380				10		2
Augusta-Richmond County	Private Four-Year College	Paine College						X						0	$1,330,000	2004							2
Augusta-Richmond County	Sheriffs Office	Richmond County Sheriff's Office	X						X					160736	$22,576,000	2004					750		2
Augusta-Richmond County	Sheriffs Office	Sheriffs Office - Eisenhower Drive Substation	X											750	$78,750	2004					2		2
Augusta-Richmond County	Private School	Hillcrest Baptist School						X						176418	$1,577,394	2004					275		2
Augusta-Richmond County	Private School	Aquinas High School						X						17250	$2,231,000	2004					375		2

Augusta-Richmond County	Private School	Curtis Baptist Elementary School	X											111949	$849,357	2004							2
Augusta-Richmond County	Private School	Curtis Baptist High School						X						35719	$271,000	2004						150	2
Augusta-Richmond County	Private School	Immaculate Conception School						X						66647	$495,000	2004						65	2
Augusta-Richmond County	Private School	Augusta Christian Acadeny						X						52708	$240,000	2004							2
Augusta-Richmond County	High School, Public	Richmond County Alter. & Opportunity Magnet School	X											30873	$2,932,935	2004							2
Augusta-Richmond County	Private School	Westminster Schools of Augusta												34524	$2,273,060	2004	$266,180	2,004	$1,000	$868		321	2
Augusta-Richmond County	Private School	St Mary's on the Hill (St. Joseph Academy)						X						40502	$4,231,755	2005	$800,000					536	2
Augusta-Richmond County	Private School	Episcopal Day School						X			X			79816	$6,500,000	2003	$1,200,000	2,003				537	2
Augusta-Richmond County	Private School	Wee Wisdom School						X						59400	$54,000	2004							2
Augusta-Richmond County	Private School	Alleluia Community School						X						26434	$2,643,400	2005	$1,000,000	2,005				250	2
Augusta-Richmond County	High School, Public	Academy of Richmond County High School	X											243108	$15,808,601	2004						1,343	2
Augusta-Richmond County	High School, Public	George P. Butler Comprehensive High School	X											179820	$1,474,000	2004						1,244	2
Augusta-Richmond County	High School, Public	Glenn Hills High	X											157347	$10,407,572	2004						1,308	2
Augusta-Richmond County	Elementary School	A.R. Johnson Health Professions (Magnet) School	X											66199	$1,029,000	2004						469	2
Augusta-Richmond County	High School, Public	Lucy C. Laney Comprehensive High School	X											146681	$1,267,000	2004						684	2
Augusta-Richmond County	High School, Public	T.W. Josey Comprehensive High School	X											191336	$4,391,079	2004						1,037	2
Augusta-Richmond County	Elementary School	Wilkinson Gardens Elementary School	X											76484	$540,000	2004						573	2
Augusta-Richmond County	Middle School	Tutt Middle School	X											94466	$912,000	2004						669	2
Augusta-Richmond County	C&D	RICHMOND CO-DEANS BRIDGE RD PH 2C (SL)	X											2895	$1,215,435	2004							2
Augusta-Richmond County	Public Vocational Technical School	Augusta Technical College						X			X			22301	$9,761,000	2004	$17,700,000	2,004				2,500	2
Augusta-Richmond County	Public University	Medical College of Georgia						X						845500		2004							2
Augusta-Richmond County	High School, Public	Westside High	X											137018	$6,104,612	2004						905	2
Augusta-	Elementary School	Wheeless Road	X											47112	$781,000	2004						513	2

Richmond County		Elementary School																				
Augusta-Richmond County	Other School	Davidson Magnet School	X											117970	$5,406,000	2004					759	2
Augusta-Richmond County	Elementary School	Terrace Manor Elementary School	X											55526	$1,174,000	2004					409	2
Augusta-Richmond County	Elementary School	Hains Elementary School	X											38042	$963,000	2004					458	2
Augusta-Richmond County	Middle School	Murphey Middle School	X											94838	$5,275,000	2004					781	2
Augusta-Richmond County	Middle School	Tubman Middle School	X											116074	$1,800,443	2004					691	2
Augusta-Richmond County	Middle School	Sego Middle School	X											98109	$4,977,000	2004					1,014	2
Augusta-Richmond County	Elementary School	Jenkins Elementary School (Former)	X											41000	$573,000	2004					170	2
Augusta-Richmond County	Recycling Center	Johnson Magnet											X	1166	$14,000	2004						2
Augusta-Richmond County	Elementary School	Gracewood Elementary School						X						47408	$1,338,018	2004					474	2
Augusta-Richmond County	Elementary School	Monte Sano Elementary School	X											80804	$586,000	2004					585	2
Augusta-Richmond County	Elementary School	Southside Elementary School	X											48590	$939,000	2004					435	2
Augusta-Richmond County	Elementary School	Craig Elementary School	X											77536	$7,777,468	2004					540	2
Augusta-Richmond County	Elementary School	Hornsby Elementary School (Former)	X											40916	$659,000	2004					343	2
Augusta-Richmond County	Middle School	East Augusta Middle School	X											79754	$1,802,000	2004					508	2
Augusta-Richmond County	Elementary School	Houghton Elementary School (Former)						X						85813	$523,100	2004						2
Augusta-Richmond County	Elementary School	Milledge Elementary School	X											43941	$1,048,000	2004					350	2
Augusta-Richmond County	Elementary School	Old Sue Reynolds Elementary School	X											38599	$754,000	2004						2
Augusta-Richmond County	Elementary School	Windsor Spring Road Elementary School	X											66799	$830,743	2004					765	2
Augusta-Richmond County	Elementary School	Barton Chapel Elementary School	X											62726	$2,169,739	2004					658	2
Augusta-Richmond County	Elementary School	Copeland Elementary School	X											50174	$1,518,000	2004					507	2
Augusta-Richmond County	Elementary School	Glenn Hills Elementary School	X											65123	$2,552,999	2004					523	2
Augusta-Richmond	Elementary School	Merry Elementary School	X											60193	$2,318,449	2004					441	2

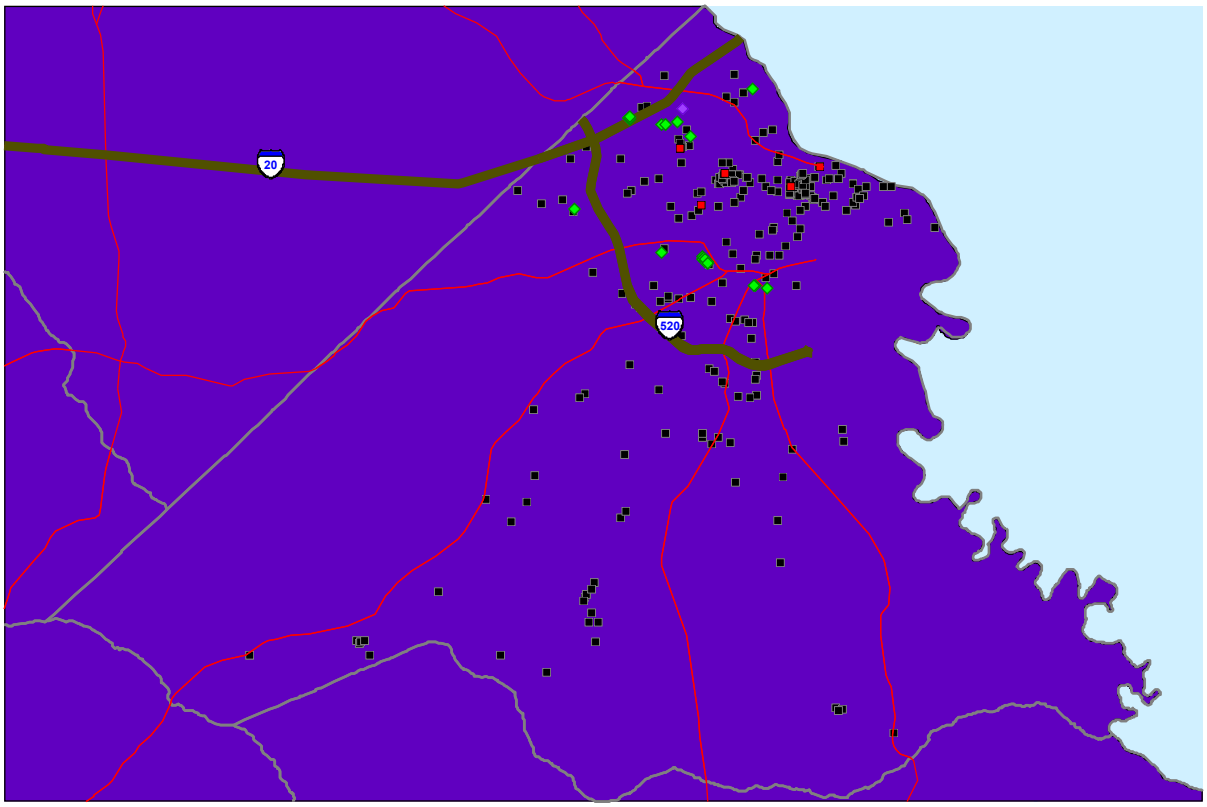
County																							
Augusta-Richmond County	Elementary School	Warren Road Elementary School	X											69594	$1,508,259	2004					512	2
Augusta-Richmond County	Elementary School	Lake Forest Hills Elementary School	X											72971	$4,672,637	2004					566	2
Augusta-Richmond County	Middle School	Spirit Creek Middle School	X											99141	$11,069,120	2004					1,008	2
Augusta-Richmond County	Elementary School	Garrett Elementary School	X											45342	$1,836,000	2004					291	2
Augusta-Richmond County	Elementary School	National Hills Elementary School	X											29595	$1,032,000	2004					247	2
Augusta-Richmond County	Elementary School	Rollins Elementary School	X											54093	$2,672,000	2004					482	2
Augusta-Richmond County	Elementary School	Walker Traditional Elementary School	X											73803	$1,624,492	2004					719	2
Augusta-Richmond County	Elementary School	Jamestown Elementary School	X											59022	$6,913,000	2004					884	2
Augusta-Richmond County	Elementary School	Collins Elementary School	X											59022	$4,941,000	2004					538	2
Augusta-Richmond County	Elementary School	Goshen Elementary School	X											68792	$3,411,000	2004					601	2
Augusta-Richmond County	Middle School	Glenn Hills Middle School	X											138219	$1,278,956	2004					1,287	2
Augusta-Richmond County	Elementary School	Tobacco Road Elementary School	X											66669	$3,503,000	2004					818	2
Augusta-Richmond County	Elementary School	McBean Elementary School	X											68867	$4,640,000	2004					583	2
Totals for Augusta-Richmond County, Hazard Score = 2														19,692,499	$1,951,908,136		$329,985,275		$5,000	$56,135	65,360	
Blythe town	Elementary School	Blythe Elementary School	X											45765	$1,238,000	2004					419	2
Blythe town	City Hall	Blythe City Hall	X									X		3900	$210,000	2000	$13,900	2,000			4	2
Blythe town	Water System	City of Blythe Treatment Plant #2 (Old Well)											X	144	$35,000	1997	$25,000	1,997				2
Blythe town	Water System	City of Blythe Water System	X									X		3900	$210,000	2000	$51,200	2,000			3	2
Blythe town	Police Station	Blythe Police Department	X											3900	$210,000	2000	$13,900	2,000			4	2
Blythe town	Water System	City of Blythe Treatment Plant #1 (New Well)												120	$35,000	1997	$25,000	1,997				2
Blythe town	Water System	City of Blythe Water Tower			X									0		2004						2
Totals for Blythe town, Hazard Score = 2														57,729	$1,938,000		$129,000		$0	$0	430	
Hephzibah city	Middle School	Hephzibah Middle School	X											99398	$4,885,601	2004					1,156	2
Hephzibah city	Elementary School	Hephzibah Elementary School	X											77701	$1,123,000	2004					543	2
Hephzibah city	High School, Public	Hephzibah Comprehensive High	X											145429	$5,940,000	2004					1,288	2
Hephzibah city	City Hall	Hephzibah City Hall			X			X						2670	$210,750	2000	$48,150	2,000	$258,900		4	2

Hephzibah city	Police Station	Hepzhibah Police Department	X					X						2670	$210,750	2000	$48,150	2,000	$258,900		4	2
Hephzibah city	Other	Hephzibah/Carroll Community Center						X						5320	$120,000	2002	$20,000				100	2
Hephzibah city	Elementary School	Graham Elementary School	X											0	$323,658	2004						2
Hephzibah city	Water System	Hephzibah-Oakridge-Water Tower	X		X		X							336	$35,800	2000	$52,100	2,000	$87,900			2
Hephzibah city	Fire Station	Hephzibah Fire Department	X					X						3949	$228,300	2000	$26,400	2,000	$254,700		2	2
Hephzibah city	Water System	City of Hephzibah Water System	X		X		X							576	$58,800	2000	$89,300	2,000	$148,100			2
Hephzibah city	Wastewater Treatment Plant	Hephzibah WPCP	X		X		X							90	$6,200	2000	$6,200	2,000				2
Totals for Hephzibah city, Hazard Score = 2														338,139	$13,142,859		$290,300		$1,008,500	$0	3,097	
Grand Totals														**20,088,367**	**$1,966,988,995**		**$330,404,575**		**$1,013,500**	**$56,135**	**68,887**	

- Pre-Disaster Mitigation
- Fiscal Year: 2009
- Report created: Jul 22, 2011
- For more information call GEMA Pre-Disaster Mitigation at 1-800-TRY-GEMA

Export options: Raw Data Format (xls) | Report Format (xls)

GMIS WIND MAP – BY JURISDCTION



Score	Original Value	Description
5	> 120 mph	3 second gust greater than 120 mph
4	110 to 119 mph	
3	100 to 109 mph	
2	90 to 99 mph (or ZONE IV)	This score is also given to an area with Zone IV of the "Design Wind Speed Map for Community Shelters," representing an area exposed to 250 mph winds. This area is the Northwestern corner of the state.

2 = PURPLE
3 = LT PURPLE
4 = MAJENTA
5 = RED

Historical Hurricane Tracks - Graphic 1

National Oceanic and Atmospheric Administration

Search

Location

Augusta College, school, Augusta- | Go | or | Set Location

☑ Show search area of 65 Nautical Miles

Refine Search

Category: Add | Timeframe: Add | Pressure: Add

Apply | ☑ Auto-apply

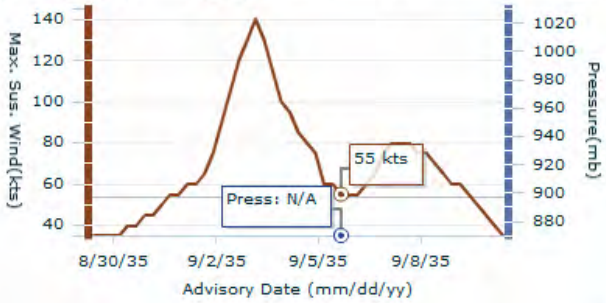
Search Results (50) | NOT NAMED 1935 | My Storms (2)

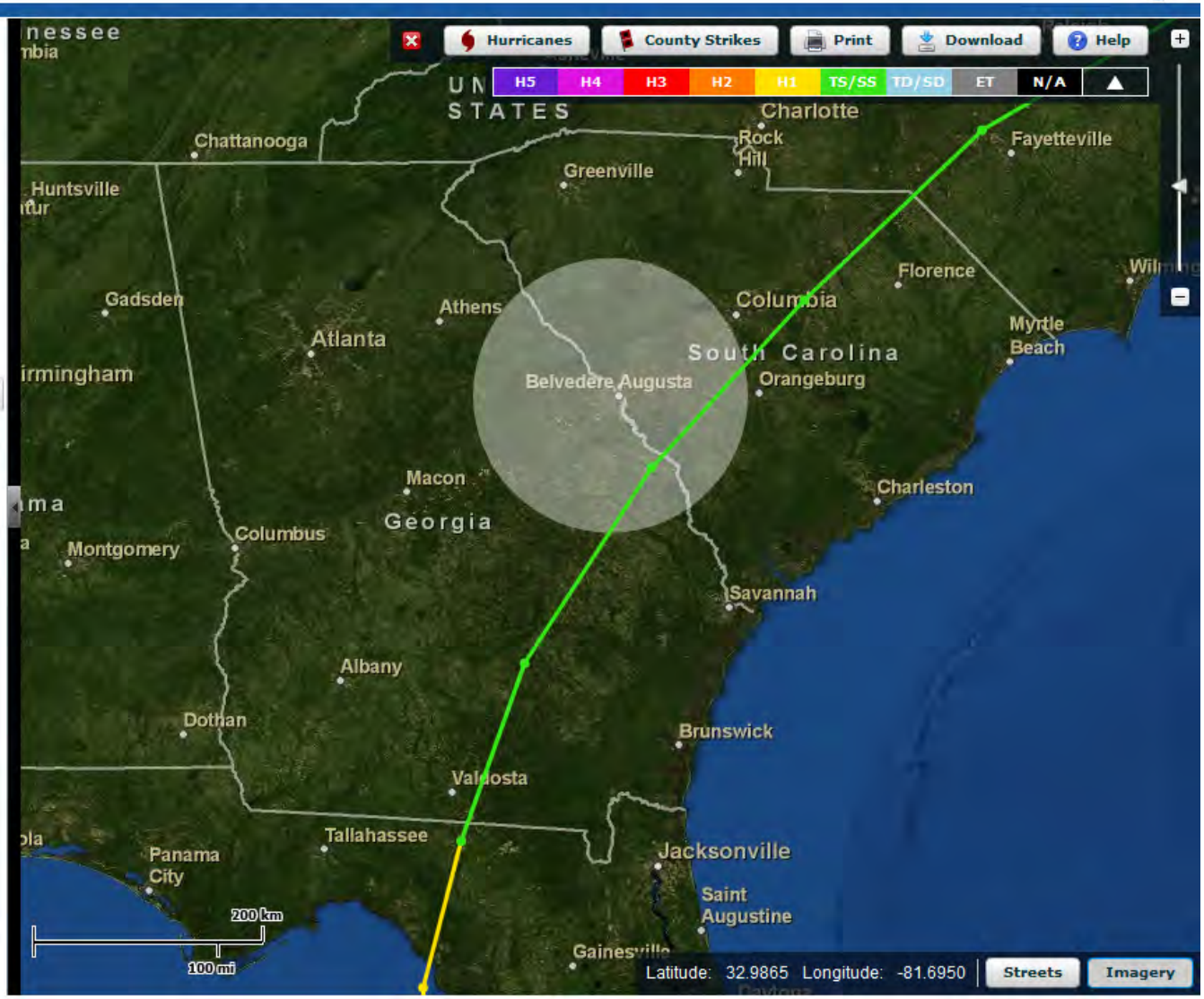
Share | Clear | Show: Selected Storm only

NOT NAMED 1935 (49 Advisories) — Remove from My Storms

Zoom to storm | Storm Details

Date Time (GMT)	X,Y	Pres(mb)	MSW(kts)	Cat
Sep. 5, 1935 12z	-81.7,33	N/A	55	TS
Sep. 5, 1935 18z	-80.5,34.1	N/A	55	TS
Sep. 6, 1935 0z	-79.1,35.2	N/A	55	TS
Sep. 6, 1935 6z	-77.2,36.1	N/A	60	TS





United States Department of Commerce | National Oceanic and Atmospheric Administration | National Ocean Service

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Overview and Limitations of HAZUS Methodology

To ascertain risks induced by flood, seismic, and wind hazards in Augusta-Richmond County, the consulting team used **HAZUS-MH MR4** models. **HAZUS** is a FEMA-developed, GIS-based tool that provides nationally applicable, standardized methodologies for estimating potential flood, earthquake and high velocity wind losses on a regional basis.

The **HAZUS** methodology consists of two basic analytical processes:

1. **Hazard analysis**, where the potential hazard is being estimated, based on the geographic location of the study region and its proximity to the sources of flooding, earthquakes or potential hurricane paths; and
2. **Damage analysis**, where structural and economic damage is calculated based on the results of the hazard analysis through the use of damage susceptibility (vulnerability) functions.

An important requirement for estimating losses from any natural hazard is the identification and valuation of the building stock, infrastructure, and population exposed to that hazard (i.e., an inventory). The HAZUS model uses FEMA-provided, comprehensive national inventory in estimating losses. The inventory consists of a proxy for the general building stock in the continental United States. Additionally, the model contains national data for essential facilities (e.g., police stations), high potential loss facilities (e.g., dams), selected transportation (e.g., highway bridges) and lifeline systems (e.g., potable water treatment plants), demographics, agriculture products (e.g., corn), and vehicles. This inventory is used to estimate damage (%), and the direct economic losses for some elements (i.e., the general building stock) or the associated impact to functionality for essential facilities.

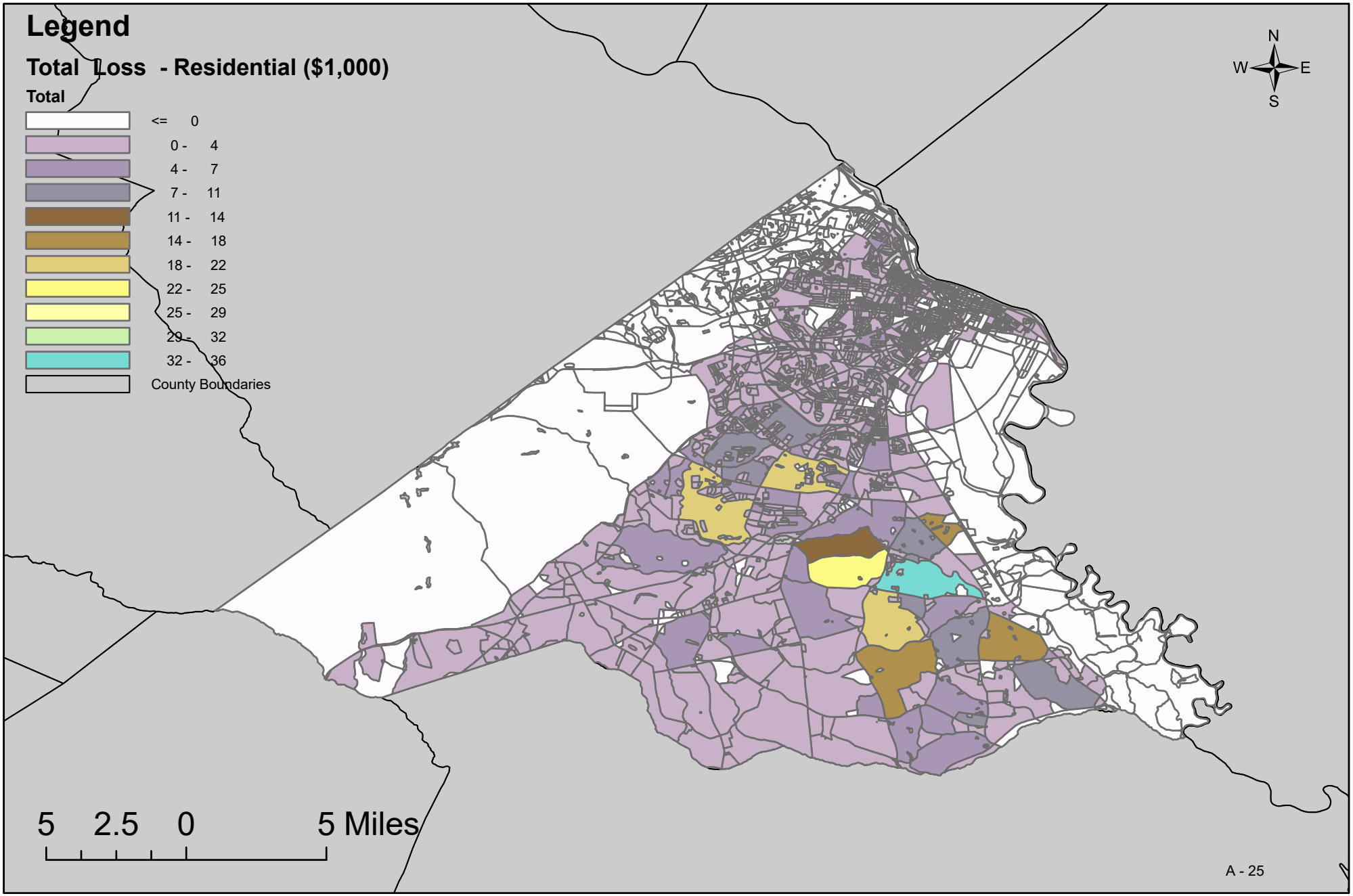
The FEMA database uses information from over 60 national sources, including US Census. As of November 2011, the 2010 census data had not yet been implemented.

In addition, some of the facility data may be outdated or missing. For Augusta-Richmond County, it has been recognized that some of the critical facility information in HAZUS database is inadequate. For this HM Plan update, all local critical facility data was identified, cataloged and entered into the GEMA database, as stipulated by GEMA and FEMA regulations. The updated data was not used for HAZUS analysis, for it requires additional detailed structural survey of the facilities' vulnerability to all three hazards. Even with the limitations of the existing data, the HAZUS loss estimates in Augusta-Richmond County are realistic, due to advanced analytical abilities of the software.

Graphic 2: Study Region: Augusta-Richmond County

Current Scenario: Historic - Name: Unnamed hurricane 1935

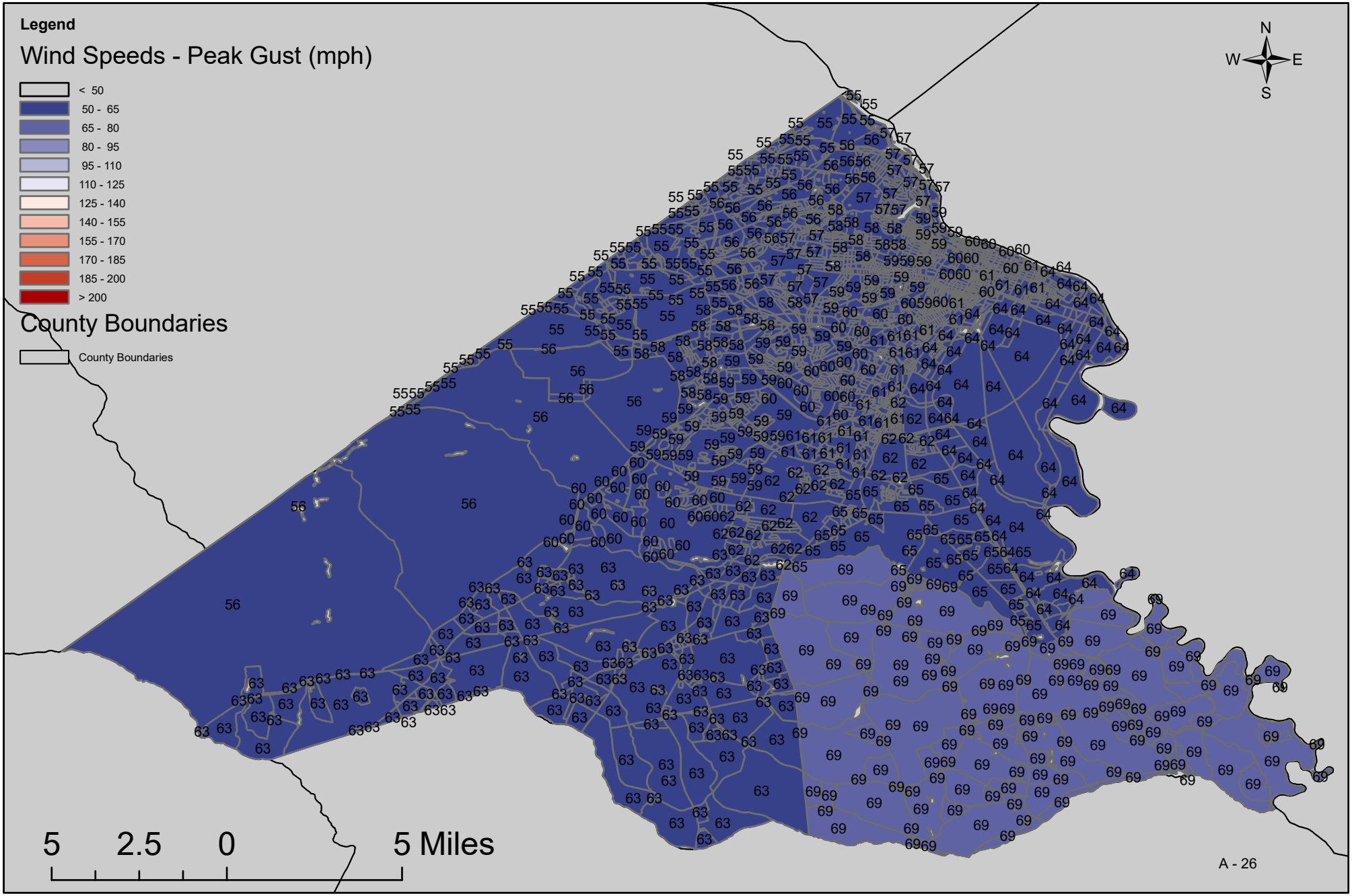
(c) 1997-2003 FEMA.



Graphic 3: Study Region: Augusta-Richmond County

Current Scenario: Historic - Name: Unnamed Hurricane 1935

(c) 1997-2003 FEMA.



HAZUS-MH: Hurricane Event Report

Region Name: Augusta-Richmond County

Hurricane Scenario: UN-NAMED-1935-2

Print Date: Friday, July 22, 2011

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

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

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General Description of the Region

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

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

- Georgia

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

The geographical size of the region is 328.59 square miles and contains 40 census tracts. There are over 73 thousand households in the region and has a total population of 199,775 people (2000 Census Bureau data). The distribution of population by State and County is provided in Appendix B.

There are an estimated 77 thousand buildings in the region with a total building replacement value (excluding contents) of 12,743 million dollars (2002 dollars). Approximately 92% of the buildings (and 70% of the building value) are associated with residential housing.

Building Inventory

General Building Stock

HAZUS estimates that there are 77,917 buildings in the region which have an aggregate total replacement value of 12,743 million (2002 dollars). Table 1 presents the relative distribution of the value with respect to the general occupancies. Appendix B provides a general distribution of the building value by State and County.

Table A: Building Exposure by Occupancy Type

Occupancy	Exposure ($1000)	Percent of Tot
Residential	8,967,798	70.4%
Commercial	2,707,355	21.2%
Industrial	495,189	3.9%
Agricultural	26,011	0.2%
Religious	312,465	2.5%
Government	96,570	0.8%
Education	137,831	1.1%
Total	**12,743,219**	**100.0%**

Essential Facility Inventory

For essential facilities, there are 8 hospitals in the region with a total bed capacity of 2,353 beds. There are 75 schools, 2 fire stations, 4 police stations and no emergency operation facilities.

Hurricane Scenario

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

Scenario Name:	UN-NAMED-1935-2
Type:	Historic
Max Peak Gust in Study Region:	69 mph

Building Damage

General Building Stock Damage

HAZUS estimates that about 0 buildings will be at least moderately damaged. This is over 0% of the total number of buildings in the region. There are an estimated 0 buildings that will be completely destroyed. The definition of the 'damage states' is provided in Volume 1: Chapter 6 of the HAZUS Hurricane technical manual. Table 2 below summarizes the expected damage by general occupancy for the buildings in the region. Table 3 summarizes the expected damage by general building type.

Table B: Expected Building Damage by Occupancy

	None		Minor		Moderate		Severe		Destruction	
Occupancy	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**
Agriculture	196	99.76	0	0.24	0	0.00	0	0.00	0	0.00
Commercial	4,189	99.69	13	0.31	0	0.00	0	0.00	0	0.00
Education	145	99.71	0	0.29	0	0.00	0	0.00	0	0.00
Government	129	99.69	0	0.31	0	0.00	0	0.00	0	0.00
Industrial	958	99.68	3	0.32	0	0.00	0	0.00	0	0.00
Religion	514	99.76	1	0.24	0	0.00	0	0.00	0	0.00
Residential	71,733	99.95	36	0.05	0	0.00	0	0.00	0	0.00
Total	**77,863**		**54**		**0**		**0**		**0**	

Table C: Expected Building Damage by Building Type

Building Type	None		Minor		Moderate		Severe		Destruction	
	Count	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**
Concrete	370	99.59	2	0.41	0	0.00	0	0.00	0	0.00
Masonry	6,152	99.72	17	0.28	0	0.00	0	0.00	0	0.00
MH	7,476	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Steel	2,216	99.65	8	0.35	0	0.00	0	0.00	0	0.00
Wood	56,908	99.98	10	0.02	0	0.00	0	0.00	0	0.00

Essential Facility Damage

Before the hurricane, the region had 2,353 hospital beds available for use. On the day of the hurricane, the model estimates that 2353 hospital beds (only 100.00%) are available for use. After one week, 100.00% of the beds will be in service. By 30 days, 100.00% will be operational.

Table D: Expected Damage to Essential Facilities

		# Facilities		
Classification	**Total**	**Probability of at Least Moderate Damage > 50%**	**Probability of Complete Damage > 50%**	**Expected Loss of Use < 1 day**
Fire Stations	2	0	0	2
Hospitals	8	0	0	8
Police Stations	4	0	0	4
Schools	75	0	0	75

Induced Hurricane Damage

Debris Generation

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

The model estimates that a total of 9,531 tons of debris will be generated. Of the total amount, Brick/Wood comprises 0% of the total, Reinforced Concrete/Steel comprises of 0% of the total, with the remainder being Tree Debris. If the building debris tonnage is converted to an estimated number of truckloads, it will require 0 truckloads (@25 tons/truck) to remove the debris generated by the hurricane.

Social Impact

Shelter Requirement

HAZUS estimates the number of households that are expected to be displaced from their homes due to the hurricane and the number of displaced people that will require accommodations in temporary public shelters. The model estimates 0 households to be displaced due to the hurricane. Of these, 0 people (out of a total population of 199,775) will seek temporary shelter in public shelters.

Economic Loss

The total economic loss estimated for the hurricane is 1.4 million dollars, which represents 0.01 % of the total replacement value of the region's buildings.

Building-Related Losses

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

The total property damage losses were 1 million dollars. 0% of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies which made up over 97% of the total loss. Table 4 below provides a summary of the losses associated with the building damage.

Table E: Building-Related Economic Loss Estimates

(Thousands of dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
Property Damage						
	Building	1,392.55	19.90	22.35	5.68	1,440.49
	Content	0.00	0.00	0.00	0.00	0.00
	Inventory	0.00	0.00	0.00	0.00	0.00
	Subtotal	**1,392.55**	**19.90**	**22.35**	**5.68**	**1,440.49**
Business Interruption Loss						
	Income	0.00	0.00	0.00	0.00	0.00
	Relocation	0.26	0.14	0.00	0.04	0.44
	Rental	0.00	0.00	0.00	0.00	0.00
	Wage	0.00	0.00	0.00	0.00	0.00
	Subtotal	**0.26**	**0.14**	**0.00**	**0.04**	**0.44**
Total						
	Total	**1,392.80**	**20.04**	**22.35**	**5.72**	**1,440.92**

Appendix A: County Listing for the Region

Georgia

- Richmond

Appendix B: Regional Population and Building Value Data

		Table F: Building Value (thousands of dollars)		
	Population	Residential	Non-Residential	Total
Georgia				
Richmond	199,775	8,967,798	3,775,421	12,743,219
Total	**199,775**	**8,967,798**	**3,775,421**	**12,743,219**
Study Region Total	**199,775**	**8,967,798**	**3,775,421**	**12,743,219**

GEMA Worksheet #3a Inventory of Assets

Jurisdiction: Richmond County

Hazard: Flooding (FEMA A and AE SFHA extent)

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

(Source: U.S. Census 2000, FEMA DFIRM, HAZUS-MR4 data)

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$,000's in Community or State	$,000's in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	71,769	21,317	29.7%	8,967,798	3,072,101	34.3%	199,775	65,143	32.6%
Commercial	4,202	1,009	24.0%	2,707,355	601,814	22.2%			N/A
Industrial	961	305	31.7%	495,189	225,815	45.6%			N/A
Agricultural	196	51	26.0%	26,011	6,339	24.4%			N/A
Religious/ Non-profit	515	120	23.3%	312,465	69,975	22.4%			N/A
Government	129	29	22.5%	96,570	24,002	24.9%			N/A
Education	145	40	27.6%	137,831	35,438	25.7%			N/A
Utilities			N/A			N/A			N/A
Total	77,917	22,871	29.4%	12,743,219	4,035,484	31.7%	199,775	65,143	32.6%

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

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

GEMA Worksheet #3a Inventory of Assets

Jurisdiction: Richmond County

Hazard: Flooding (FEMA AE SFHA extent)

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

(Source: U.S. Census 2000, FEMA DFIRM, HAZUS-MR4 data)

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$,000's in Community or State	$,000's in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	71,769	16,452	22.9%	8,967,798	2,240,381	25.0%	199,775	46,870	23.5%
Commercial	4,202	810	19.3%	2,707,355	471,379	17.4%			N/A
Industrial	961	234	24.3%	495,189	194,528	39.3%			N/A
Agricultural	196	37	18.9%	26,011	4,560	17.5%			N/A
Religious/ Non-profit	515	95	18.4%	312,465	52,123	16.7%			N/A
Government	129	9	7.0%	96,570	5,614	5.8%			N/A
Education	145	32	22.1%	137,831	31,178	22.6%			N/A
Utilities			N/A			N/A			N/A
Total	77,917	17,669	22.7%	12,743,219	2,999,763	23.5%	199,775	46,870	23.5%

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

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

GMIS Reporting for Flood Hazard by Jurisdiction
Grouped by Hazard Score

NOTE: Only completed facilities will be reported

Government Jurisdiction	Type	Name or Structure Description	Essential Facility	Transportation System	Lifeline System	High Potential Loss	Haz Mat Facility	Important Facility	Vulnerable Population	Economic Assets	Special Considerations	Historic Considerations	Other	Size of Bldg. (sq. ft.)	Replace Value ($)	Replace Value Year	Contents Value ($)	Contents Value Year	Functional Value ($)	Displace Cost ($ per day)	Occupancy	Hazard Score
Augusta-Richmond County	Private School	C.H. Terrell Academy	X											32670	$187,000	2002		2,004				4
Totals for Augusta-Richmond County, Hazard Score = 4														32,670	$187,000		$0		$0	$0	0	
Augusta-Richmond County	Private School	Westminster Schools ofAugusta, Administration						X						5606	$369,099	2004	$43,222		$1,000	$868	40	3
Augusta-Richmond County	Other	Fleming Athletic Office							X					4600	$120,000	1999	$75,000				45	3
Augusta-Richmond County	Other	The Boathouse						X						7800	$1,250,000	2004	$90,000	2,004			250	3
Totals for Augusta-Richmond County, Hazard Score = 3														18,006	$1,739,099		$208,222		$1,000	$868	335	
Augusta-Richmond County	Other	May Park Community Center						X						17000	$2,500,000	2004	$800,000	2,004			500	2
Augusta-Richmond County	Fire Station	AFD- Engine Co #19 (Abandoned)											X	1600	$73,000	2004						2
Augusta-Richmond County	Other	AFD- (Old Engine Co #1) Child Advocacy Group						X						2100	$1,281,238	2004						2
Augusta-Richmond County	Library	Augusta-Richmond County Public Library									X			38500	$4,279,130	2004	$6,896,562	2,004		$1,051	75	2
Augusta-Richmond County	Middle/High School	Davidson High School (old location)	X											35747	$494,000	2004						2
Augusta-Richmond County	County Jail	Richmond County Jail	X						X					150000	$22,576,000	2004						2
Augusta-Richmond County	Emergency Services	9-1-1 Center/Emergency Operation Center	X											8740	$1,250,000	1997						2
Augusta-Richmond County	Emergency Services	Record Retention Facility	X											9000	$550,000	1997	$250,000	1,997				2
Augusta-Richmond County	Elementary School	Craig Elementary School	X											77536	$7,777,468	2004					540	2
Augusta-Richmond County	Elementary School	Hornsby Elementary School (Former)	X											40916	$659,000	2004					343	2
Augusta-Richmond County	Middle School	East Augusta Middle School	X											79754	$1,802,000	2004					508	2
Augusta-Richmond County	Private School	Curtis Baptist Elementary School	X											111949	$849,357	2004						2
Augusta-Richmond County	Private School	Curtis Baptist High School						X						35719	$271,000	2004					150	2
Augusta-	Sheriffs Office	Richmond County	X						X					160736	$22,576,000	2004					750	2

Richmond County		Sheriff's Office																				
Augusta-Richmond County	Elementary School	Jenkins Elementary School (Former)	X											41000	$573,000	2004					170	2
Augusta-Richmond County	Other	Eastview Park						X						4275	$600,000	2004	$50,000	2,004			120	2
Totals for Augusta-Richmond County, Hazard Score = 2														814,572	$68,111,193		$7,996,562		$0	$1,051	3,156	
Augusta-Richmond County	Recycling Center	Johnson Magnet											X	1166	$14,000	2004						0
Augusta-Richmond County	Elementary School	Gracewood Elementary School						X						47408	$1,338,018	2004					474	0
Augusta-Richmond County	Elementary School	Monte Sano Elementary School	X											80804	$586,000	2004					585	0
Augusta-Richmond County	Elementary School	Southside Elementary School	X											48590	$939,000	2004					435	0
Augusta-Richmond County	Sheriffs Office	Sheriffs Office - Eisenhower Drive Substation	X											750	$78,750	2004					2	0
Augusta-Richmond County	Private School	Hillcrest Baptist School						X						176418	$1,577,394	2004					275	0
Augusta-Richmond County	Private School	Aquinas High School						X						17250	$2,231,000	2004					375	0
Augusta-Richmond County	Private School	Immaculate Conception School						X						66647	$495,000	2004					65	0
Augusta-Richmond County	Private School	Augusta Christian Acadeny						X						52708	$240,000	2004						0
Augusta-Richmond County	High School, Public	Richmond County Alter. & Opportunity Magnet School	X											30873	$2,932,935	2004						0
Augusta-Richmond County	Private School	Westminster Schools of Augusta												34524	$2,273,060	2004	$266,180	2,004	$1,000	$868	321	0
Augusta-Richmond County	Private School	St Mary's on the Hill (St. Joseph Academy)						X						40502	$4,231,755	2005	$800,000				536	0
Augusta-Richmond County	Private School	Episcopal Day School						X			X			79816	$6,500,000	2003	$1,200,000	2,003			537	0
Augusta-Richmond County	Private School	Wee Wisdom School						X						59400	$54,000	2004						0
Augusta-Richmond County	Private School	Alleluia Community School						X						26434	$2,643,400	2005	$1,000,000	2,005			250	0
Augusta-Richmond County	High School, Public	Academy of Richmond County High School	X											243108	$15,808,601	2004					1,343	0
Augusta-Richmond County	High School, Public	George P. Butler Comprehensive High School	X											179820	$1,474,000	2004					1,244	0
Augusta-Richmond County	High School, Public	Glenn Hills High	X											157347	$10,407,572	2004					1,308	0
Augusta-Richmond County	Elementary School	A.R. Johnson Health Professions (Magnet) School	X											66199	$1,029,000	2004					469	0

Augusta-Richmond County	High School, Public	Lucy C. Laney Comprehensive High School	X											146681	$1,267,000	2004					684	0
Augusta-Richmond County	High School, Public	T.W. Josey Comprehensive High School	X											191336	$4,391,079	2004					1,037	0
Augusta-Richmond County	Elementary School	Wilkinson Gardens Elementary School	X											76484	$540,000	2004					573	0
Augusta-Richmond County	Middle School	Tutt Middle School	X											94466	$912,000	2004					669	0
Augusta-Richmond County	C&D	RICHMOND CO-DEANS BRIDGE RD PH 2C (SL)	X											2895	$1,215,435	2004						0
Augusta-Richmond County	Public Vocational Technical School	Augusta Technical College						X			X			22301	$9,761,000	2004	$17,700,000	2,004			2,500	0
Augusta-Richmond County	Public University	Medical College of Georgia						X						845500		2004						0
Augusta-Richmond County	High School, Public	Westside High	X											137018	$6,104,612	2004					905	0
Augusta-Richmond County	Elementary School	Wheeless Road Elementary School	X											47112	$781,000	2004					513	0
Augusta-Richmond County	Other School	Davidson Magnet School	X											117970	$5,406,000	2004					759	0
Augusta-Richmond County	Elementary School	Terrace Manor Elementary School	X											55526	$1,174,000	2004					409	0
Augusta-Richmond County	Elementary School	Hains Elementary School	X											38042	$963,000	2004					458	0
Augusta-Richmond County	Middle School	Murphey Middle School	X											94838	$5,275,000	2004					781	0
Augusta-Richmond County	Middle School	Tubman Middle School	X											116074	$1,800,443	2004					691	0
Augusta-Richmond County	Middle School	Sego Middle School	X											98109	$4,977,000	2004					1,014	0
Augusta-Richmond County	Elementary School	Houghton Elementary School (Former)						X						85813	$523,100	2004						0
Augusta-Richmond County	Elementary School	Milledge Elementary School	X											43941	$1,048,000	2004					350	0
Augusta-Richmond County	Elementary School	Old Sue Reynolds Elementary School	X											38599	$754,000	2004						0
Augusta-Richmond County	Elementary School	Windsor Spring Road Elementary School	X											66799	$830,743	2004					765	0
Augusta-Richmond County	Elementary School	Barton Chapel Elementary School	X											62726	$2,169,739	2004					658	0
Augusta-Richmond County	Elementary School	Copeland Elementary School	X											50174	$1,518,000	2004					507	0
Augusta-Richmond County	Elementary School	Glenn Hills Elementary School	X											65123	$2,552,999	2004					523	0
Augusta-	Elementary School	Merry Elementary	X											60193	$2,318,449	2004					441	0

Richmond County		School																				
Augusta-Richmond County	Elementary School	Warren Road Elementary School	X											69594	$1,508,259	2004					512	0
Augusta-Richmond County	Elementary School	Lake Forest Hills Elementary School	X											72971	$4,672,637	2004					566	0
Augusta-Richmond County	Middle School	Spirit Creek Middle School	X											99141	$11,069,120	2004					1,008	0
Augusta-Richmond County	Elementary School	Garrett Elementary School	X											45342	$1,836,000	2004					291	0
Augusta-Richmond County	Elementary School	National Hills Elementary School	X											29595	$1,032,000	2004					247	0
Augusta-Richmond County	Elementary School	Rollins Elementary School	X											54093	$2,672,000	2004					482	0
Augusta-Richmond County	Elementary School	Walker Traditional Elementary School	X											73803	$1,624,492	2004					719	0
Augusta-Richmond County	Elementary School	Jamestown Elementary School	X											59022	$6,913,000	2004					884	0
Augusta-Richmond County	Elementary School	Collins Elementary School	X											59022	$4,941,000	2004					538	0
Augusta-Richmond County	Elementary School	Goshen Elementary School	X											68792	$3,411,000	2004					601	0
Augusta-Richmond County	Middle School	Glenn Hills Middle School	X											138219	$1,278,956	2004					1,287	0
Augusta-Richmond County	Elementary School	Tobacco Road Elementary School	X											66669	$3,503,000	2004					818	0
Augusta-Richmond County	Elementary School	McBean Elementary School	X											68867	$4,640,000	2004					583	0
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Sydenstricker Bldg)	X											336547	$38,053,369	1997	$40,989,247	1,997				0
Augusta-Richmond County	Hospital, Admissions Entrance	Georgia Regional Med-Surg Unit/Augusta	X											192	$8,082,000	2004						0
Augusta-Richmond County	Fire Station	Fort Gordon Fire Department	X											0	$186,043,000	2004						0
Augusta-Richmond County	Fire Station	AFD- Engine Co #19	X											148200	$1,277,000	2004	$750,000	2,004			3	0
Augusta-Richmond County	Other	McBean Community Park						X						6300	$700,000	2004	$75,000				110	0
Augusta-Richmond County	Private Four-Year College	Paine College						X						52896	$6,240,916	2004						0
Augusta-Richmond County	Other	R.C.B.O.E. Headquarters	X											96285	$440,000	2004					425	0
Augusta-Richmond County	Sheriffs Office	Sheriffs Office - Daniel Village Substation	X											699754	$6,309,288	2004					50	0
Augusta-Richmond	Sheriffs Office	Sheriffs Office - Southgate Plaza	X											2690	$1,360,287	2004					50	0

County		Substation																					
Augusta-Richmond County	Marshals Office	Richmond County Marshal's Office						X						197762	$23,063,403	2004							0
Augusta-Richmond County	Courthouse	Richmond County Courthouse						X						1100000	$23,063,403	2004							0
Augusta-Richmond County	City Hall	Augusta/Richmond Co Municipal Building						X						1100000	$23,063,403	2004							0
Augusta-Richmond County	Hospital, Admissions Entrance	Georgia Regional Hospital at Augusta Campus	X											0	$8,082,000	2004							0
Augusta-Richmond County	Private School	Southgate Christian School (closed)						X						49400	$1,573,129	2004							0
Augusta-Richmond County	Private School	Augusta Seventh Day Adventist (closed)						X						6900	$479,000	2004							0
Augusta-Richmond County	Private School	Ebenezer Seventh Day Adventist Junior Academy						X						2800	$292,495	2002	$247,380					10	0
Augusta-Richmond County	Private Four-Year College	Paine College						X						0	$1,330,000	2004							0
Augusta-Richmond County	Airport	Bush Field Airport		X	X									68058	$5,814,245	2004						300	0
Augusta-Richmond County	Airport	Daniel Field		X	X									13000	$6,000	2004						25	0
Augusta-Richmond County	Hospital, Admissions Entrance	Augusta VA Medical Center (Uptown Division)	X											687930	$96,000,000	1997	$30,000,000	1,997					0
Augusta-Richmond County	Hospital, Admissions Entrance	Walton Rehabilitation Hospital	X						X					70000	$2,255,000	2004						250	0
Augusta-Richmond County	Hospital, Emergency Entrance	University Hospital	X						X					802811	$145,586,307	2004							0
Augusta-Richmond County	Hospital, Admissions Entrance	Doctor's Hospital	X											280000	$36,000,000	1997	$20,100,000	1,997					0
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (East Wing)	X											55260	$7,609,854	1997	$4,571,107	1,997					0
Augusta-Richmond County	Fire Station	AFD- Engine Co #7 (Abandoned)										X		2100	$130,000	2002							0
Augusta-Richmond County	Fire Station	AFD- Engine Co #9	X											5600	$124,000	2002	$330,000	2,002				3	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #10	X											3000	$81,000	2004	$330,000	2,004				4	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #11	X											35719	$223,759	2004	$330,000	2,004				3	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #12 (Abandoned)											X	13225	$132,000	2004							0
Augusta-Richmond County	Other School	William Robinson Center	X											18447	$1,488,927	2004						3	0
Augusta-Richmond County	Other	McDuffie Woods Community Center						X						11160	$1,500,000	2002	$80,000					400	0

Augusta-Richmond County	State Prison	Georgia Regional Youth Development Center						X						0		2004						0
Augusta-Richmond County	State Prison	Georgia Regional Youth Detention Center						X						0		2004						0
Augusta-Richmond County	County Jail	Charles B. Webster Detention Center	X						X					134166	$143,000	2004					550	0
Augusta-Richmond County	Library	Appleby Branch Library									X	X		4600	$783,462	2004	$981,133	2,004		$125	10	0
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Ambulatory Care Center)	X											365822	$43,898,640	2004	$21,349,372	1,997				0
Augusta-Richmond County	Private School	Risen Savior Academy						X						4800	$17,680	2004						0
Augusta-Richmond County	Private School	Westminster Schools, Prep School Gym											X	16265	$1,070,887	2004	$125,403		$1,000	$868	130	0
Augusta-Richmond County	Hospital, Admissions Entrance	St. Joseph's Hospital of Augusta	X											400000	$24,753,000	2004					700	0
Augusta-Richmond County	Hospital, Emergency Entrance	Augusta VA Medical Center (Downtown Division)	X											628225	$105,000,000	1997	$70,000,000	1,997				0
Augusta-Richmond County	Fire Station	AFD- Engine Co #12	X											2800	$1,065,000	2004	$1,250,000	2,004			4	0
Augusta-Richmond County	Fire Station	Bush Field Fire Department	X											4420	$5,814,245	2004					3	0
Augusta-Richmond County	Private School	First Baptist Church of Gracewood Academy						X						5200	$860,450	2004						0
Augusta-Richmond County	Private School	Westminster School of Augusta						X						6124	$403,204	2004	$47,216		$1,000	$868	170	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #14	X											2800	$114,000	2002	$330,000				3	0
Augusta-Richmond County	Hospital, Admissions Entrance	Charter Augusta Behavioral Health System	X											12500	$1,715,322	2004						0
Augusta-Richmond County	High School, Public	Cross Creek High	X											205100	$19,466,248	2004					1,314	0
Augusta-Richmond County	Elementary School	Jenkins-White Elementary	X											77803	$5,661,355	2004					453	0
Augusta-Richmond County	Elementary School	Sue Reynolds Elementary (new)	X											79604	$4,854,057	2004					635	0
Augusta-Richmond County	MSWL	Deans Bridge Road Municipal Landfill						X						2895	$79,000	2004				$50,000	26	0
Augusta-Richmond County	Sheriffs Office	Sheriff's Office Training Center						X						3600	$79,000	2004					25	0
Augusta-Richmond County	Other School	R.C.B.O.E. Maintenance	X											17010	$378,000	2004					117	0
Augusta-Richmond County	Psychoeducational	Sand Hills	X											23882	$893,883	2004					81	0
Augusta-	Elementary School	Freedom Park	X											79604	$186,043,000	2004					710	0

Richmond County		Elementary																					
Augusta-Richmond County	Private School	Westminster Schools, Maintenance Shop											X	2400	$158,016	2003	$18,504		$1,000	$868	3	0
Augusta-Richmond County	Other	Garrett Gymnasium						X						11100	$1,250,000	2004	$50,000	2,004			250	0
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Special Care Center)	X											365822	$43,898,640	2004	$21,349,372					0
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Talmadge Buidling)	X											428912	$59,065,472	1997	$35,479,601	1,997				0
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Talmedge & Syden Buildings)	X											765459	$107,164,260	2004						0
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Children's Medical Center)	X											219308	$38,378,900	2004						0
Augusta-Richmond County	Elementary School	Silas X. Floyd (Headstart Program)	X											35810	$507,000	2004					252	0
Augusta-Richmond County	Other	R.C.B.O.E. Transporation Facility	X											17846	$1,873,830	2004					298	0
Augusta-Richmond County	City Jail	CSRA Humane Society						X						15250	$345,930	2004						0
Augusta-Richmond County	County Correctional Institution	Richmond County Correctional Institute	X						X					12000	$3,423,634	2004						0
Augusta-Richmond County	Other	Julian Smith Bar B Que Pit						X						5400	$175,000	2002	$40,000				200	0
Augusta-Richmond County	Other	Julian Smith Casino						X						10500	$250,000	2002	$40,000				400	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #18	X											4589	$57,000	2004	$830,000	2,004			4	0
Augusta-Richmond County	Other	Bernie Ward Community Center						X						17000	$2,900,000	2003	$100,000				500	0
Augusta-Richmond County	Other	Gracewood Park						X						3840	$150,000	2004	$60,000				125	0
Augusta-Richmond County	Other	Blythe Area Community Center						X						5850	$600,000	2002	$30,000				125	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #1	X											52708	$1,438,000	2004	$750,000	2,004				0
Augusta-Richmond County	Fire Station	AFD- Engine Co #2	X											5000	$65,000	2004	$300,000	2,004			4	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #3	X											21780	$394,000	2004					22	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #4	X											10890	$168,000	2004	$600,000	2,004			4	0
Augusta-Richmond County	Other	Hickman Park						X						1350	$75,000	2002	$25,000				40	0
Augusta-Richmond	Other	Jamestown Center						X						3840	$250,000	2004	$65,000	2,004			125	0

County																							
Augusta-Richmond County	Fire Station	AFD- Engine Co #13	X											14810	$94,000	2004	$330,000				4	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #15	X											4572	$100,000	2004	$300,000				3	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #16	X											3742	$251,000	2004	$330,000	2,004				0
Augusta-Richmond County	Fire Station	AFD- Engine Co #17	X											2800	$121,528	2004	$330,000	2,004			5	0
Augusta-Richmond County	Other	Doughty Park						X						2016	$100,000	2004	$15,000	2,004			75	0
Augusta-Richmond County	Other	Dyess Park						X						3125	$130,000	2004	$30,000	2,004			125	0
Augusta-Richmond County	Other	Merry Street Ceramic Shop						X						1400	$100,000	2002	$30,000				35	0
Augusta-Richmond County	Other	Minnick Park						X						2400	$65,000	2002	$7,500				45	0
Augusta-Richmond County	Other	Sand Hills Community Center						X						7300	$600,000	2004	$60,000				200	0
Augusta-Richmond County	Other	Sue Reynolds Park						X						2375	$85,000	2004	$20,000				60	0
Augusta-Richmond County	Other	Warren Road Community Center						X						14000	$2,500,000	2004	$100,000	2,004			500	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #5	X											23958	$442,000	2004	$330,000	2,004			4	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #6	X											37897	$65,720	2002	$1,105,000	2,002			9	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #7	X											4800	$1,206,000	2004	$800,000	2,004			4	0
Augusta-Richmond County	Other	H.H. Brigham Swim Center						X						13600	$950,000	2002	$175,000				300	0
Augusta-Richmond County	Other	H.H. Brigham Community Center						X						14000	$950,000	2002	$90,000				500	0
Augusta-Richmond County	Other	H.H. Brigham Senior Center						X						7700	$600,000	2002	$70,000				125	0
Augusta-Richmond County	Other	Carrie Mays						X						15960	$850,000	2004	$100,000	2,004			425	0
Augusta-Richmond County	Library	Friedman Branch Library											X	10300	$775,325	2004	$1,179,410	2,004		$282	27	0
Augusta-Richmond County	Library	Jeff Maxwell Branch Library											X	7158	$587,883	2004	$1,685,698	2,004		$196	28	0
Augusta-Richmond County	Library	Wallace Branch Library											X	5147	$372,978	2004	$656,895	2,004		$141	10	0
Augusta-Richmond County	Other	Administrative Office at Elliott Park						X						9100	$750,000	2004	$100,000				30	0

Augusta-Richmond County	Other	Augusta Aquatic Center						X						29200	$5,000,000	2004	$300,000				700	0
Augusta-Richmond County	Other	Augusta Municipal Golf Course						X						14150	$850,000	2004	$145,000				105	0
Augusta-Richmond County	Other	WT Johnson Community Center						X						27000	$1,400,000	2004	$100,000	2,004			500	0
Augusta-Richmond County	Other	Old Government House						X						7000	$350,000	2004	$160,000	2,004			100	0
Augusta-Richmond County	Hospital, Admissions Entrance	Gracewood State School & Hospital	X											4500	$10,040,079	2004						0
Augusta-Richmond County	Fire Station	AFD- Engine Co #8	X											174240	$1,295,000	2004	$1,200,000					0
Augusta-Richmond County	Police Station	AFD- Engine Co #8 (Abandoned)	X											2100	$86,841	2004						0
Augusta-Richmond County	Middle School	Langford Middle School	X											82352	$1,366,119	2004					802	0
Augusta-Richmond County	Elementary School	Lamar Elementary School	X											57833	$2,136,510	2004					401	0
Augusta-Richmond County	Elementary School	Willis Foreman Elem	X											59022	$11,069,120	2004					894	0
Augusta-Richmond County	Elementary School	Bayvale Elem School	X											42297	$600,000	2004					375	0
Augusta-Richmond County	Elementary School	Meadowbrook Elementary School	X											60954	$3,984,000	2004					754	0
Augusta-Richmond County	Middle School	Morgan Road Middle School	X											99141	$6,913,000	2004					879	0
Augusta-Richmond County	Elementary School	Bungalow Road Elementary School						X						43272	$1,130,000	2004					347	0
Augusta-Richmond County	Public Four-Year College	Guard House										X		952	$210,000	2007	$100,000	2,007			7	0
Augusta-Richmond County	Public Four-Year College	Human Resources								X				2271	$685,000	2007	$200,000	2,007			170	0
Augusta-Richmond County	Public Four-Year College	Alumni House										X		4423	$3,000,000	2007	$250,000	2,007			53	0
Augusta-Richmond County	Public Four-Year College	Boykin Wright Hall										X		7800	$2,900,000	2007	$500,000	2,007			180	0
Augusta-Richmond County	Private School	Westminster Schools, Band/Weight Room Bldg						X						1740	$114,561	1992	$13,415				50	0
Augusta-Richmond County	Private School	Westminster Schools, Media Center						X						5290	$384,293	1988	$40,758				150	0
Augusta-Richmond County	Public Four-Year College	Allgood Hall								X				123190	$29,200,000	2007	$4,000,000	2,007			1,832	0
Augusta-Richmond County	Public Four-Year College	Archelogy Lab										X		978	$225,000	2007	$25,000	2,007			11	0

Augusta-Richmond County	Public Four-Year College	Bellevue Hall										X		5113	$1,900,000	2007	$300,000	2,007			38	0
Augusta-Richmond County	Public Four-Year College	Benet Hall										X		9389	$3,400,000	2007	$300,000	2,007			35	0
Augusta-Richmond County	Public Four-Year College	Fine Arts						X						20651	$11,000,000	2007	$1,000,000	2,007				0
Augusta-Richmond County	Public Four-Year College	Galloway Hall								X				16271	$6,000,000	2007	$500,000	2,007				0
Augusta-Richmond County	Public Four-Year College	Fanning Hall								X				10179	$5,500,000	2007	$1,000,000	2,007			75	0
Augusta-Richmond County	Public Four-Year College	Science Hall					X							121487	$36,900,000	2007	$3,000,000	2,007			1,500	0
Augusta-Richmond County	Public Four-Year College	Payne Hall										X		16540	$6,000,000	2007	$500,000	2,007			155	0
Augusta-Richmond County	Public Four-Year College	Performing Arts								X				28803	$21,000,000	2007	$1,000,000	2,007			1,000	0
Augusta-Richmond County	Public Four-Year College	Rains Hall										X		9564	$5,200,000	2007	$300,000	2,007			50	0
Augusta-Richmond County	Public Four-Year College	Washington Hall								X				44708	$15,200,000	2007	$3,000,000	2,007			233	0
Augusta-Richmond County	Public Four-Year College	Christenberry Field House	X											129870	$22,000,000	2007	$3,000,000	2,007			4,904	0
Augusta-Richmond County	Public Four-Year College	JSAC Student Activities						X						51435	$16,000,000	2007	$712,300	2,007			1,000	0
Augusta-Richmond County	Public Four-Year College	Public Safety (Police Department)	X											2641	$650,000	2007	$200,000	2,007			25	0
Augusta-Richmond County	Public Four-Year College	Reese Library										X		79337	$24,000,000	2007	$10,000,000	2,007			830	0
Augusta-Richmond County	Public Four-Year College	Carpentry Whse.						X						17187	$3,200,000	2007	$500,000	2,007			35	0
Augusta-Richmond County	Public Four-Year College	HazMat Building					X							128	$300,000	2007	$0	2,007				0
Augusta-Richmond County	Public University	Physical Plant Ofc Bldg RA												3417	$99,956	2005						0
Augusta-Richmond County	Public University	Facilities Management Storage Bldg RD												11974	$92,500	2005						0
Augusta-Richmond County	Public University	Lee Warehouse Bldg RE												114235	$1,238,055	2005						0
Augusta-Richmond County	Public University	MCG Animal Care Facility Bldg OB												20017	$324,100	2005						0
Augusta-Richmond County	Public Four-Year College	Central Utilities Plant								X				13791	$12,000,000	2007	$3,000,000	2,007			131	0
Augusta-Richmond County	Public Four-Year College	University Hall								X				112370	$25,200,000	2007	$6,000,000	2,007			1,123	0
Augusta-	Public University	Child Care Center												6058	$342,000	2005						0

Richmond County		Bldg OC																				
Augusta-Richmond County	Public University	President's Main House Bldg OF												13848	$251,080	2005						0
Augusta-Richmond County	Public University	President's House Garage Apt Bldg OG												2576	$47,100	2005						0
Augusta-Richmond County	Public University	President's House Cottage Bldg OH												910	$19,033	2005						0
Augusta-Richmond County	Public University	Grounds Maintenance Bldg RB												4832	$26,900	2005						0
Augusta-Richmond County	Public University	Grounds Maint Storage Bldg RC												1232	$3,900	2005						0
Augusta-Richmond County	Public University	Community Medicine Offices Bldg HH												2511	$69,518	2005						0
Augusta-Richmond County	Public University	Mark Bldg HF												10213	$453,010	2005						0
Augusta-Richmond County	Public University	Physical Plant Shops Bldg HP												27655	$429,000	2005						0
Augusta-Richmond County	Public University	Respiratory Therapy Annex Bldg HN												1100	$864,000	2005						0
Augusta-Richmond County	Public University	Annex Building HS												168616	$2,574,316	2005						0
Augusta-Richmond County	Public University	Annex II Bldg HT												42352	$307,640	2005						0
Augusta-Richmond County	Public University	Employee Assistance Bldg FE												1145	$7,613	2005						0
Augusta-Richmond County	Public University	Dermatology Offices Bldg FH												4140	$36,192	2005						0
Augusta-Richmond County	Public University	Alumni Center Bldg FI												68000	$1,725,657	2005						0
Augusta-Richmond County	Public University	Residence VI Bldg FM												33840	$342,144	2005						0
Augusta-Richmond County	Public University	Faculty Office Bldg HB												34463	$966,749	2005						0
Augusta-Richmond County	Private University	Community Medicine Offices Bldg HH												2511	$69,518	2005						0
Augusta-Richmond County	Public University	Residence V Laundry Bldg DG												803	$4,200	2005						0
Augusta-Richmond County	Public University	Telemedicine Center Bldg EA												2648	$18,408	2005						0
Augusta-Richmond County	Public University	Jennings Wing Bldg EB												16717	$50,402	2005						0
Augusta-Richmond County	Private University	Shepard MT/OT Bldg EF												21101	$53,448	2005						0
Augusta-Richmond	Public University	School of Nursing Bldg EG												18780	$118,750	2005						0

County																							
Augusta-Richmond County	Public University	Sickle Cell Adult Clinic Bldg FF												6438	$36,192	2005							0
Augusta-Richmond County	Public University	Liquid Transfer Bldg CM												400	$656,000	2005							0
Augusta-Richmond County	Public University	Material Safety Storage Facilty Bldg CS												2000	$60,000	2005							0
Augusta-Richmond County	Private University	Residence V Bldg D Bldg DF												12848	$153,000	2005							0
Augusta-Richmond County	Public University	Public Safety Sub Station Bldg DH												273	$6,200	2005							0
Augusta-Richmond County	Public University	Residence V Bldg B Bldg DD												16269	$190,000	2005							0
Augusta-Richmond County	Public University	Residence V Bldg C Bldg DE												16269	$190,000	2005							0
Augusta-Richmond County	Public University	Sanders Research & Education Bldg CB												303667	$25,777,198	2005							0
Augusta-Richmond County	Public University	Hamilton Wing Bldg CL												46695	$2,792,652	2005							0
Augusta-Richmond County	Public University	Cancer Research Center Bldg CN												26586	$12,262,605	2005							0
Augusta-Richmond County	Public University	RA Dent Blvd Deck Bldg CT												136069	$1,870,000	2005							0
Augusta-Richmond County	Public University	Environmental Health & Safety Bldg CI												4726	$26,600	2005							0
Augusta-Richmond County	Public University	Physical Therapy Bldg CH												13112	$217,000	2005							0
Augusta-Richmond County	Public University	Student Center Bldg DA												76145	$874,000	2005							0
Augusta-Richmond County	Public University	Student Study Center Bldg CK												23331	$874,000	2005							0
Augusta-Richmond County	Public University	Residence IV Bldg DB												22316	$259,000	2005							0
Augusta-Richmond County	Public University	Residence V Building A Bldg DC												16269	$190,000	2005							0
Augusta-Richmond County	Public University	Auditoria Center Bldg BC												18519	$196,000	2005							0
Augusta-Richmond County	Public University	Research Center Lab Building CA												109583	$49,305,675	2005							0
Augusta-Richmond County	Private University	School of Dentristy Bldg AD												198312	$4,875,000	2005							0
Augusta-Richmond County	Public University	Murphey Building BF												47007	$163,000	2005							0
Augusta-Richmond County	Public University	Dugas Building BG												43231	$279,000	2005							0

Augusta-Richmond County	Public University	Central Energy Plant Bldg BH												38151	$656,000	2005						0
Augusta-Richmond County	Public University	Pavillion III Bldg CJ												65938	$1,904,000	2005						0
Augusta-Richmond County	Public University	Goss Lane Parking Deck Bldg CP												153984	$1,505,000	2005						0
Augusta-Richmond County	Public University	Environmental Svcs Storage Bldg AG												1266	$26,600	2005						0
Augusta-Richmond County	Public University	Telemedicine Bldg AR												2709	$18,325	2005						0
Augusta-Richmond County	Public University	Telemedicine HIM Bldg AI												7439	$18,325	2005						0
Augusta-Richmond County	Public University	Student Health Bldg AJ												4646	$142,921	2005						0
Augusta-Richmond County	Public University	Classroom Services Bldg AK												4220	$84,345	2005						0
Augusta-Richmond County	Public University	Health Info. Management Bldg AL												3792	$75,612	2005						0
Augusta-Richmond County	Public University	Administration Bldg AA												40618	$485,000	2005						0
Augusta-Richmond County	Public University	Pavillion II Bldg AF												26000	$337,000	2005						0
Augusta-Richmond County	Public University	Pavilion I Bldg AE												37183	$487,000	2005						0
Augusta-Richmond County	Public University	Crosswalk Talmadge to Pavillion III Bldg AP												4030	$261,000	2005						0
Augusta-Richmond County	Public University	Greenblatt Libary Bldg AB												77583	$1,598,000	2005						0
Augusta-Richmond County	Public University	Protein Chemistry Laboratory Bldg AC												4080	$75,000	2005						0
Totals for Augusta-Richmond County, Hazard Score = 0														18,827,251	$1,881,870,844		$321,780,491		$4,000	$54,216	61,869	
Blythe town	Elementary School	Blythe Elementary School	X											45765	$1,238,000	2004					419	0
Blythe town	City Hall	Blythe City Hall	X									X		3900	$210,000	2000	$13,900	2,000			4	0
Blythe town	Water System	City of Blythe Treatment Plant #2 (Old Well)											X	144	$35,000	1997	$25,000	1,997				0
Blythe town	Water System	City of Blythe Water System	X									X		3900	$210,000	2000	$51,200	2,000			3	0
Blythe town	Police Station	Blythe Police Department	X											3900	$210,000	2000	$13,900	2,000			4	0
Blythe town	Water System	City of Blythe Treatment Plant #1 (New Well)												120	$35,000	1997	$25,000	1,997				0
Blythe town	Water System	City of Blythe Water Tower			X									0		2004						0
Totals for Blythe town, Hazard Score = 0														57,729	$1,938,000		$129,000		$0	$0	430	
Hephzibah city	Middle School	Hephzibah Middle School	X											99398	$4,885,601	2004					1,156	0
Hephzibah	Elementary School	Hephzibah	X											77701	$1,123,000	2004					543	0

city		Elementary School																				
Hephzibah city	High School, Public	Hephzibah Comprehensive High	X											145429	$5,940,000	2004					1,288	0
Hephzibah city	City Hall	Hephzibah City Hall			X			X						2670	$210,750	2000	$48,150	2,000	$258,900		4	0
Hephzibah city	Police Station	Hepzhibah Police Department	X					X						2670	$210,750	2000	$48,150	2,000	$258,900		4	0
Hephzibah city	Other	Hephzibah/Carroll Community Center						X						5320	$120,000	2002	$20,000				100	0
Hephzibah city	Elementary School	Graham Elementary School	X											0	$323,658	2004						0
Hephzibah city	Water System	Hephzibah-Oakridge-Water Tower	X		X		X							336	$35,800	2000	$52,100	2,000	$87,900			0
Hephzibah city	Fire Station	Hephzibah Fire Department	X					X						3949	$228,300	2000	$26,400	2,000	$254,700		2	0
Hephzibah city	Water System	City of Hephzibah Water System	X		X		X							576	$58,800	2000	$89,300	2,000	$148,100			0
Hephzibah city	Wastewater Treatment Plant	Hephzibah WPCP	X		X		X							90	$6,200	2000	$6,200	2,000				0
Totals for Hephzibah city, Hazard Score = 0														338,139	$13,142,859		$290,300		$1,008,500	$0	3,097	
Grand Totals														**20,088,367**	**$1,966,988,995**		**$330,404,575**		**$1,013,500**	**$56,135**	**68,887**	

- Pre-Disaster Mitigation
- Fiscal Year: 2009
- Report created: Jul 22, 2011
- For more information call GEMA Pre-Disaster Mitigation at 1-800-TRY-GEMA

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Reporting for Slosh Hazard by Jurisdiction
Grouped by Hazard Score

NOTE: Only completed facilities will be reported

Government Jurisdiction	Type	Name or Structure Description	Essential Facility	Transportation System	Lifeline System	High Potential Loss	Haz Mat Facility	Important Facility	Vulnerable Population	Economic Assets	Special Considerations	Historic Considerations	Other	Size of Bldg. (sq. ft.)	Replace Value ($)	Replace Value Year	Contents Value ($)	Contents Value Year	Functional Value ($)	Displace Cost ($ per day)	Occupancy	Hazard Score
Augusta-Richmond County	Middle School	Langford Middle School	X											82352	$1,366,119	2004					802	N/A
Augusta-Richmond County	Elementary School	Lamar Elementary School	X											57833	$2,136,510	2004					401	N/A
Augusta-Richmond County	Elementary School	Willis Foreman Elem	X											59022	$11,069,120	2004					894	N/A
Augusta-Richmond County	Elementary School	Bayvale Elem School	X											42297	$600,000	2004					375	N/A
Augusta-Richmond County	Elementary School	Meadowbrook Elementary School	X											60954	$3,984,000	2004					754	N/A
Augusta-Richmond County	Middle School	Morgan Road Middle School	X											99141	$6,913,000	2004					879	N/A
Augusta-Richmond County	Elementary School	Bungalow Road Elementary School						X						43272	$1,130,000	2004					347	N/A
Augusta-Richmond County	Public Four-Year College	Guard House										X		952	$210,000	2007	$100,000	2,007			7	N/A
Augusta-Richmond County	Public Four-Year College	Human Resources								X				2271	$685,000	2007	$200,000	2,007			170	N/A
Augusta-Richmond County	Public Four-Year College	Alumni House										X		4423	$3,000,000	2007	$250,000	2,007			53	N/A
Augusta-Richmond County	Public Four-Year College	Boykin Wright Hall										X		7800	$2,900,000	2007	$500,000	2,007			180	N/A
Augusta-Richmond County	Private School	Westminster Schools, Band/Weight Room Bldg						X						1740	$114,561	1992	$13,415				50	N/A
Augusta-Richmond County	Private School	Westminster Schools, Media Center						X						5290	$384,293	1988	$40,758				150	N/A
Augusta-Richmond County	Public Four-Year College	Allgood Hall								X				123190	$29,200,000	2007	$4,000,000	2,007			1,832	N/A
Augusta-Richmond County	Public Four-Year College	Archelogy Lab										X		978	$225,000	2007	$25,000	2,007			11	N/A
Augusta-Richmond County	Public Four-Year College	Bellevue Hall										X		5113	$1,900,000	2007	$300,000	2,007			38	N/A
Augusta-Richmond County	Public Four-Year College	Benet Hall										X		9389	$3,400,000	2007	$300,000	2,007			35	N/A
Augusta-Richmond County	Public Four-Year College	Fine Arts						X						20651	$11,000,000	2007	$1,000,000	2,007				N/A

Augusta-Richmond County	Public Four-Year College	Galloway Hall								X				16271	$6,000,000	2007	$500,000	2,007				N/A
Augusta-Richmond County	Public Four-Year College	Fanning Hall								X				10179	$5,500,000	2007	$1,000,000	2,007			75	N/A
Augusta-Richmond County	Public Four-Year College	Science Hall					X							121487	$36,900,000	2007	$3,000,000	2,007			1,500	N/A
Augusta-Richmond County	Public Four-Year College	Payne Hall										X		16540	$6,000,000	2007	$500,000	2,007			155	N/A
Augusta-Richmond County	Public Four-Year College	Performing Arts								X				28803	$21,000,000	2007	$1,000,000	2,007			1,000	N/A
Augusta-Richmond County	Public Four-Year College	Rains Hall										X		9564	$5,200,000	2007	$300,000	2,007			50	N/A
Augusta-Richmond County	Public Four-Year College	Washington Hall								X				44708	$15,200,000	2007	$3,000,000	2,007			233	N/A
Augusta-Richmond County	Public Four-Year College	Christenberry Field House	X											129870	$22,000,000	2007	$3,000,000	2,007			4,904	N/A
Augusta-Richmond County	Public Four-Year College	JSAC Student Activities						X						51435	$16,000,000	2007	$712,300	2,007			1,000	N/A
Augusta-Richmond County	Public Four-Year College	Public Safety (Police Department)	X											2641	$650,000	2007	$200,000	2,007			25	N/A
Augusta-Richmond County	Public Four-Year College	Reese Library										X		79337	$24,000,000	2007	$10,000,000	2,007			830	N/A
Augusta-Richmond County	Public Four-Year College	Carpentry Whse.						X						17187	$3,200,000	2007	$500,000	2,007			35	N/A
Augusta-Richmond County	Public Four-Year College	HazMat Building					X							128	$300,000	2007	$0	2,007				N/A
Augusta-Richmond County	Public University	Physical Plant Ofc Bldg RA												3417	$99,956	2005						N/A
Augusta-Richmond County	Public University	Facilities Management Storage Bldg RD												11974	$92,500	2005						N/A
Augusta-Richmond County	Public University	Lee Warehouse Bldg RE												114235	$1,238,055	2005						N/A
Augusta-Richmond County	Public University	MCG Animal Care Facility Bldg OB												20017	$324,100	2005						N/A
Augusta-Richmond County	Public Four-Year College	Central Utilities Plant								X				13791	$12,000,000	2007	$3,000,000	2,007			131	N/A
Augusta-Richmond County	Public Four-Year College	University Hall								X				112370	$25,200,000	2007	$6,000,000	2,007			1,123	N/A
Augusta-Richmond County	Public University	Child Care Center Bldg OC												6058	$342,000	2005						N/A
Augusta-Richmond County	Public University	President's Main House Bldg OF												13848	$251,080	2005						N/A
Augusta-Richmond County	Public University	President's House Garage Apt Bldg OG												2576	$47,100	2005						N/A
Augusta-	Public University	President's House												910	$19,033	2005						N/A

Richmond County		Cottage Bldg OH																					
Augusta-Richmond County	Public University	Grounds Maintenance Bldg RB												4832	$26,900	2005							N/A
Augusta-Richmond County	Public University	Grounds Maint Storage Bldg RC												1232	$3,900	2005							N/A
Augusta-Richmond County	Public University	Community Medicine Offices Bldg HH												2511	$69,518	2005							N/A
Augusta-Richmond County	Public University	Mark Bldg HF												10213	$453,010	2005							N/A
Augusta-Richmond County	Public University	Physical Plant Shops Bldg HP												27655	$429,000	2005							N/A
Augusta-Richmond County	Public University	Respiratory Therapy Annex Bldg HN												1100	$864,000	2005							N/A
Augusta-Richmond County	Public University	Annex Building HS												168616	$2,574,316	2005							N/A
Augusta-Richmond County	Public University	Annex II Bldg HT												42352	$307,640	2005							N/A
Augusta-Richmond County	Public University	Employee Assistance Bldg FE												1145	$7,613	2005							N/A
Augusta-Richmond County	Public University	Dermatology Offices Bldg FH												4140	$36,192	2005							N/A
Augusta-Richmond County	Public University	Alumni Center Bldg FI												68000	$1,725,657	2005							N/A
Augusta-Richmond County	Public University	Residence VI Bldg FM												33840	$342,144	2005							N/A
Augusta-Richmond County	Public University	Faculty Office Bldg HB												34463	$966,749	2005							N/A
Augusta-Richmond County	Private University	Community Medicine Offices Bldg HH												2511	$69,518	2005							N/A
Augusta-Richmond County	Public University	Residence V Laundry Bldg DG												803	$4,200	2005							N/A
Augusta-Richmond County	Public University	Telemedicine Center Bldg EA												2648	$18,408	2005							N/A
Augusta-Richmond County	Public University	Jennings Wing Bldg EB												16717	$50,402	2005							N/A
Augusta-Richmond County	Private University	Shepard MT/OT Bldg EF												21101	$53,448	2005							N/A
Augusta-Richmond County	Public University	School of Nursing Bldg EG												18780	$118,750	2005							N/A
Augusta-Richmond County	Public University	Sickle Cell Adult Clinic Bldg FF												6438	$36,192	2005							N/A
Augusta-Richmond County	Public University	Liquid Transfer Bldg CM												400	$656,000	2005							N/A
Augusta-Richmond	Public University	Material Safety Storage Facilty Bldg												2000	$60,000	2005							N/A

County		CS																					
Augusta-Richmond County	Private University	Residence V Bldg D Bldg DF												12848	$153,000	2005							N/A
Augusta-Richmond County	Public University	Public Safety Sub Station Bldg DH												273	$6,200	2005							N/A
Augusta-Richmond County	Public University	Residence V Bldg B Bldg DD												16269	$190,000	2005							N/A
Augusta-Richmond County	Public University	Residence V Bldg C Bldg DE												16269	$190,000	2005							N/A
Augusta-Richmond County	Public University	Sanders Research & Education Bldg CB												303667	$25,777,198	2005							N/A
Augusta-Richmond County	Public University	Hamilton Wing Bldg CL												46695	$2,792,652	2005							N/A
Augusta-Richmond County	Public University	Cancer Research Center Bldg CN												26586	$12,262,605	2005							N/A
Augusta-Richmond County	Public University	RA Dent Blvd Deck Bldg CT												136069	$1,870,000	2005							N/A
Augusta-Richmond County	Public University	Environmental Health & Safety Bldg CI												4726	$26,600	2005							N/A
Augusta-Richmond County	Public University	Physical Therapy Bldg CH												13112	$217,000	2005							N/A
Augusta-Richmond County	Public University	Student Center Bldg DA												76145	$874,000	2005							N/A
Augusta-Richmond County	Public University	Student Study Center Bldg CK												23331	$874,000	2005							N/A
Augusta-Richmond County	Public University	Residence IV Bldg DB												22316	$259,000	2005							N/A
Augusta-Richmond County	Public University	Residence V Building A Bldg DC												16269	$190,000	2005							N/A
Augusta-Richmond County	Public University	Auditoria Center Bldg BC												18519	$196,000	2005							N/A
Augusta-Richmond County	Public University	Research Center Lab Building CA												109583	$49,305,675	2005							N/A
Augusta-Richmond County	Private University	School of Dentristy Bldg AD												198312	$4,875,000	2005							N/A
Augusta-Richmond County	Public University	Murphey Building BF												47007	$163,000	2005							N/A
Augusta-Richmond County	Public University	Dugas Building BG												43231	$279,000	2005							N/A
Augusta-Richmond County	Public University	Central Energy Plant Bldg BH												38151	$656,000	2005							N/A
Augusta-Richmond County	Public University	Pavillion III Bldg CJ												65938	$1,904,000	2005							N/A
Augusta-Richmond County	Public University	Goss Lane Parking Deck Bldg CP												153984	$1,505,000	2005							N/A

Augusta-Richmond County	Public University	Environmental Svcs Storage Bldg AG												1266	$26,600	2005						N/A
Augusta-Richmond County	Public University	Telemedicine Bldg AR												2709	$18,325	2005						N/A
Augusta-Richmond County	Public University	Telemedicine HIM Bldg AI												7439	$18,325	2005						N/A
Augusta-Richmond County	Public University	Student Health Bldg AJ												4646	$142,921	2005						N/A
Augusta-Richmond County	Public University	Classroom Services Bldg AK												4220	$84,345	2005						N/A
Augusta-Richmond County	Public University	Health Info. Management Bldg AL												3792	$75,612	2005						N/A
Augusta-Richmond County	Public University	Administration Bldg AA												40618	$485,000	2005						N/A
Augusta-Richmond County	Public University	Pavillion II Bldg AF												26000	$337,000	2005						N/A
Augusta-Richmond County	Public University	Pavilion I Bldg AE												37183	$487,000	2005						N/A
Augusta-Richmond County	Public University	Crosswalk Talmadge to Pavillion III Bldg AP												4030	$261,000	2005						N/A
Augusta-Richmond County	Public University	Greenblatt Libary Bldg AB												77583	$1,598,000	2005						N/A
Augusta-Richmond County	Public University	Protein Chemistry Laboratory Bldg AC												4080	$75,000	2005						N/A
Augusta-Richmond County	Other	May Park Community Center						X						17000	$2,500,000	2004	$800,000	2,004			500	N/A
Augusta-Richmond County	Other	Merry Street Ceramic Shop						X						1400	$100,000	2002	$30,000				35	N/A
Augusta-Richmond County	Other	Minnick Park						X						2400	$65,000	2002	$7,500				45	N/A
Augusta-Richmond County	Other	Sand Hills Community Center						X						7300	$600,000	2004	$60,000				200	N/A
Augusta-Richmond County	Other	Sue Reynolds Park						X						2375	$85,000	2004	$20,000				60	N/A
Augusta-Richmond County	Other	Warren Road Community Center						X						14000	$2,500,000	2004	$100,000	2,004			500	N/A
Augusta-Richmond County	Fire Station	AFD- Engine Co #5	X											23958	$442,000	2004	$330,000	2,004			4	N/A
Augusta-Richmond County	Fire Station	AFD- Engine Co #6	X											37897	$65,720	2002	$1,105,000	2,002			9	N/A
Augusta-Richmond County	Fire Station	AFD- Engine Co #7	X											4800	$1,206,000	2004	$800,000	2,004			4	N/A
Augusta-Richmond County	Other	AFD- (Old Engine Co #1) Child Advocacy Group						X						2100	$1,281,238	2004						N/A
Augusta-	Other	Julian Smith Bar B						X						5400	$175,000	2002	$40,000				200	N/A

Richmond County		Que Pit																					
Augusta-Richmond County	Other	Julian Smith Casino						X						10500	$250,000	2002	$40,000					400	N/A
Augusta-Richmond County	Fire Station	AFD- Engine Co #18	X											4589	$57,000	2004	$830,000	2,004				4	N/A
Augusta-Richmond County	Fire Station	AFD- Engine Co #19 (Abandoned)											X	1600	$73,000	2004							N/A
Augusta-Richmond County	Fire Station	AFD- Engine Co #1	X											52708	$1,438,000	2004	$750,000	2,004					N/A
Augusta-Richmond County	Fire Station	AFD- Engine Co #2	X											5000	$65,000	2004	$300,000	2,004				4	N/A
Augusta-Richmond County	Fire Station	AFD- Engine Co #3	X											21780	$394,000	2004						22	N/A
Augusta-Richmond County	Fire Station	AFD- Engine Co #4	X											10890	$168,000	2004	$600,000	2,004				4	N/A
Augusta-Richmond County	Other	Hickman Park						X						1350	$75,000	2002	$25,000					40	N/A
Augusta-Richmond County	Other	Jamestown Center						X						3840	$250,000	2004	$65,000	2,004				125	N/A
Augusta-Richmond County	Fire Station	AFD- Engine Co #13	X											14810	$94,000	2004	$330,000					4	N/A
Augusta-Richmond County	Fire Station	AFD- Engine Co #15	X											4572	$100,000	2004	$300,000					3	N/A
Augusta-Richmond County	Fire Station	AFD- Engine Co #16	X											3742	$251,000	2004	$330,000	2,004					N/A
Augusta-Richmond County	Fire Station	AFD- Engine Co #17	X											2800	$121,528	2004	$330,000	2,004				5	N/A
Augusta-Richmond County	Other	Doughty Park						X						2016	$100,000	2004	$15,000	2,004				75	N/A
Augusta-Richmond County	Other	Dyess Park						X						3125	$130,000	2004	$30,000	2,004				125	N/A
Augusta-Richmond County	Other	Eastview Park						X						4275	$600,000	2004	$50,000	2,004				120	N/A
Augusta-Richmond County	Other	Fleming Athletic Office							X					4600	$120,000	1999	$75,000					45	N/A
Augusta-Richmond County	Other	Bernie Ward Community Center						X						17000	$2,900,000	2003	$100,000					500	N/A
Augusta-Richmond County	Other	Gracewood Park						X						3840	$150,000	2004	$60,000					125	N/A
Augusta-Richmond County	Other	Blythe Area Community Center						X						5850	$600,000	2002	$30,000					125	N/A
Augusta-Richmond County	Other	The Boathouse						X						7800	$1,250,000	2004	$90,000	2,004				250	N/A
Augusta-Richmond	Other	H.H. Brigham Swim Center						X						13600	$950,000	2002	$175,000					300	N/A

County																							
Augusta-Richmond County	Other	H.H. Brigham Community Center						X						14000	$950,000	2002	$90,000				500	N/A
Augusta-Richmond County	Other	H.H. Brigham Senior Center						X						7700	$600,000	2002	$70,000				125	N/A
Augusta-Richmond County	Other	Carrie Mays						X						15960	$850,000	2004	$100,000	2,004			425	N/A
Augusta-Richmond County	Library	Friedman Branch Library											X	10300	$775,325	2004	$1,179,410	2,004		$282	27	N/A
Augusta-Richmond County	Library	Jeff Maxwell Branch Library											X	7158	$587,883	2004	$1,685,698	2,004		$196	28	N/A
Augusta-Richmond County	Library	Wallace Branch Library											X	5147	$372,978	2004	$656,895	2,004		$141	10	N/A
Augusta-Richmond County	Other	Administrative Office at Elliott Park						X						9100	$750,000	2004	$100,000				30	N/A
Augusta-Richmond County	Other	Augusta Aquatic Center						X						29200	$5,000,000	2004	$300,000				700	N/A
Augusta-Richmond County	Other	Augusta Municipal Golf Course						X						14150	$850,000	2004	$145,000				105	N/A
Augusta-Richmond County	Other	WT Johnson Community Center						X						27000	$1,400,000	2004	$100,000	2,004			500	N/A
Augusta-Richmond County	Other	Old Government House						X						7000	$350,000	2004	$160,000	2,004			100	N/A
Augusta-Richmond County	Hospital, Admissions Entrance	Gracewood State School & Hospital	X											4500	$10,040,079	2004						N/A
Augusta-Richmond County	Fire Station	AFD- Engine Co #8	X											174240	$1,295,000	2004	$1,200,000					N/A
Augusta-Richmond County	Police Station	AFD- Engine Co #8 (Abandoned)	X											2100	$86,841	2004						N/A
Augusta-Richmond County	Library	Augusta-Richmond County Public Library									X			38500	$4,279,130	2004	$6,896,562	2,004		$1,051	75	N/A
Augusta-Richmond County	Middle/High School	Davidson High School (old location)	X											35747	$494,000	2004						N/A
Augusta-Richmond County	Other School	R.C.B.O.E. Maintenance	X											17010	$378,000	2004					117	N/A
Augusta-Richmond County	Psychoeducational	Sand Hills	X											23882	$893,883	2004					81	N/A
Augusta-Richmond County	Elementary School	Freedom Park Elementary	X											79604	$186,043,000	2004					710	N/A
Augusta-Richmond County	Private School	Westminster Schools, Maintenance Shop											X	2400	$158,016	2003	$18,504		$1,000	$868	3	N/A
Augusta-Richmond County	Other	Garrett Gymnasium						X						11100	$1,250,000	2004	$50,000	2,004			250	N/A
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Special Care Center)	X											365822	$43,898,640	2004	$21,349,372					N/A

Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Talmadge Buidling)	X											428912	$59,065,472	1997	$35,479,601	1,997				N/A
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Talmedge & Syden Buildings)	X											765459	$107,164,260	2004						N/A
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Children's Medical Center)	X											219308	$38,378,900	2004						N/A
Augusta-Richmond County	Elementary School	Silas X. Floyd (Headstart Program)	X											35810	$507,000	2004					252	N/A
Augusta-Richmond County	Other	R.C.B.O.E. Transporation Facility	X											17846	$1,873,830	2004					298	N/A
Augusta-Richmond County	City Jail	CSRA Humane Society						X						15250	$345,930	2004						N/A
Augusta-Richmond County	County Correctional Institution	Richmond County Correctional Institute	X						X					12000	$3,423,634	2004						N/A
Augusta-Richmond County	County Jail	Richmond County Jail	X						X					150000	$22,576,000	2004						N/A
Augusta-Richmond County	County Jail	Charles B. Webster Detention Center	X						X					134166	$143,000	2004					550	N/A
Augusta-Richmond County	Library	Appleby Branch Library									X	X		4600	$783,462	2004	$981,133	2,004		$125	10	N/A
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Ambulatory Care Center)	X											365822	$43,898,640	2004	$21,349,372	1,997				N/A
Augusta-Richmond County	Private School	Risen Savior Academy						X						4800	$17,680	2004						N/A
Augusta-Richmond County	Private School	Westminster Schools, Prep School Gym											X	16265	$1,070,887	2004	$125,403		$1,000	$868	130	N/A
Augusta-Richmond County	Private School	Westminster Schools ofAugusta, Administration						X						5606	$369,099	2004	$43,222		$1,000	$868	40	N/A
Augusta-Richmond County	Private School	Westminster School of Augusta						X						6124	$403,204	2004	$47,216		$1,000	$868	170	N/A
Augusta-Richmond County	Fire Station	AFD- Engine Co #14	X											2800	$114,000	2002	$330,000				3	N/A
Augusta-Richmond County	Hospital, Admissions Entrance	Charter Augusta Behavioral Health System	X											12500	$1,715,322	2004						N/A
Augusta-Richmond County	High School, Public	Cross Creek High	X											205100	$19,466,248	2004					1,314	N/A
Augusta-Richmond County	Elementary School	Jenkins-White Elementary	X											77803	$5,661,355	2004					453	N/A
Augusta-Richmond County	Elementary School	Sue Reynolds Elementary (new)	X											79604	$4,854,057	2004					635	N/A
Augusta-Richmond County	MSWL	Deans Bridge Road Municipal Landfill						X						2895	$79,000	2004				$50,000	26	N/A
Augusta-Richmond County	Sheriffs Office	Sheriff's Office Training Center						X						3600	$79,000	2004					25	N/A
Augusta-	Private School	C.H. Terrell Academy	X											32670	$187,000	2002		2,004				N/A

Richmond County																							
Augusta-Richmond County	Hospital, Admissions Entrance	St. Joseph's Hospital of Augusta	X											400000	$24,753,000	2004						700	N/A
Augusta-Richmond County	Hospital, Emergency Entrance	Augusta VA Medical Center (Downtown Division)	X											628225	$105,000,000	1997	$70,000,000	1,997					N/A
Augusta-Richmond County	Fire Station	AFD- Engine Co #12	X											2800	$1,065,000	2004	$1,250,000	2,004				4	N/A
Augusta-Richmond County	Fire Station	Bush Field Fire Department	X											4420	$5,814,245	2004						3	N/A
Augusta-Richmond County	Private School	First Baptist Church of Gracewood Academy						X						5200	$860,450	2004							N/A
Augusta-Richmond County	Emergency Services	9-1-1 Center/Emergency Operation Center	X											8740	$1,250,000	1997							N/A
Augusta-Richmond County	Airport	Bush Field Airport		X	X									68058	$5,814,245	2004						300	N/A
Augusta-Richmond County	Airport	Daniel Field		X	X									13000	$6,000	2004						25	N/A
Augusta-Richmond County	Hospital, Admissions Entrance	Augusta VA Medical Center (Uptown Division)	X											687930	$96,000,000	1997	$30,000,000	1,997					N/A
Augusta-Richmond County	Hospital, Admissions Entrance	Walton Rehabilitation Hospital	X						X					70000	$2,255,000	2004						250	N/A
Augusta-Richmond County	Hospital, Emergency Entrance	University Hospital	X						X					802811	$145,586,307	2004							N/A
Augusta-Richmond County	Hospital, Admissions Entrance	Doctor's Hospital	X											280000	$36,000,000	1997	$20,100,000	1,997					N/A
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (East Wing)	X											55260	$7,609,854	1997	$4,571,107	1,997					N/A
Augusta-Richmond County	Fire Station	AFD- Engine Co #7 (Abandoned)										X		2100	$130,000	2002							N/A
Augusta-Richmond County	Fire Station	AFD- Engine Co #9	X											5600	$124,000	2002	$330,000	2,002				3	N/A
Augusta-Richmond County	Fire Station	AFD- Engine Co #10	X											3000	$81,000	2004	$330,000	2,004				4	N/A
Augusta-Richmond County	Fire Station	AFD- Engine Co #11	X											35719	$223,759	2004	$330,000	2,004				3	N/A
Augusta-Richmond County	Fire Station	AFD- Engine Co #12 (Abandoned)											X	13225	$132,000	2004							N/A
Augusta-Richmond County	Other School	William Robinson Center	X											18447	$1,488,927	2004						3	N/A
Augusta-Richmond County	Other	McDuffie Woods Community Center						X						11160	$1,500,000	2002	$80,000					400	N/A
Augusta-Richmond County	State Prison	Georgia Regional Youth Development Center						X						0		2004							N/A
Augusta-Richmond	State Prison	Georgia Regional Youth Detention						X						0		2004							N/A

County		Center																					
Augusta-Richmond County	Emergency Services	Record Retention Facility	X											9000	$550,000	1997	$250,000	1,997					N/A
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Sydenstricker Bldg)	X											336547	$38,053,369	1997	$40,989,247	1,997					N/A
Augusta-Richmond County	Hospital, Admissions Entrance	Georgia Regional Med-Surg Unit/Augusta	X											192	$8,082,000	2004							N/A
Augusta-Richmond County	Fire Station	Fort Gordon Fire Department	X											0	$186,043,000	2004							N/A
Augusta-Richmond County	Fire Station	AFD- Engine Co #19	X											148200	$1,277,000	2004	$750,000	2,004				3	N/A
Augusta-Richmond County	Other	McBean Community Park						X						6300	$700,000	2004	$75,000					110	N/A
Augusta-Richmond County	Private Four-Year College	Paine College						X						52896	$6,240,916	2004							N/A
Augusta-Richmond County	Other	R.C.B.O.E. Headquarters	X											96285	$440,000	2004						425	N/A
Augusta-Richmond County	Sheriffs Office	Sheriffs Office - Daniel Village Substation	X											699754	$6,309,288	2004						50	N/A
Augusta-Richmond County	Sheriffs Office	Sheriffs Office - Southgate Plaza Substation	X											2690	$1,360,287	2004						50	N/A
Augusta-Richmond County	Marshals Office	Richmond County Marshal's Office						X						197762	$23,063,403	2004							N/A
Augusta-Richmond County	Courthouse	Richmond County Courthouse						X						1100000	$23,063,403	2004							N/A
Augusta-Richmond County	City Hall	Augusta/Richmond Co Municipal Building						X						1100000	$23,063,403	2004							N/A
Augusta-Richmond County	Hospital, Admissions Entrance	Georgia Regional Hospital at Augusta Campus	X											0	$8,082,000	2004							N/A
Augusta-Richmond County	Private School	Southgate Christian School (closed)						X						49400	$1,573,129	2004							N/A
Augusta-Richmond County	Private School	Augusta Seventh Day Adventist (closed)						X						6900	$479,000	2004							N/A
Augusta-Richmond County	Private School	Ebenezer Seventh Day Adventist Junior Academy						X						2800	$292,495	2002	$247,380					10	N/A
Augusta-Richmond County	Private Four-Year College	Paine College						X						0	$1,330,000	2004							N/A
Augusta-Richmond County	Sheriffs Office	Richmond County Sheriff's Office	X						X					160736	$22,576,000	2004						750	N/A
Augusta-Richmond County	Sheriffs Office	Sheriffs Office - Eisenhower Drive Substation	X											750	$78,750	2004						2	N/A
Augusta-Richmond County	Private School	Hillcrest Baptist School						X						176418	$1,577,394	2004						275	N/A
Augusta-Richmond County	Private School	Aquinas High School						X						17250	$2,231,000	2004						375	N/A

Augusta-Richmond County	Private School	Curtis Baptist Elementary School	X											111949	$849,357	2004						N/A
Augusta-Richmond County	Private School	Curtis Baptist High School						X						35719	$271,000	2004					150	N/A
Augusta-Richmond County	Private School	Immaculate Conception School						X						66647	$495,000	2004					65	N/A
Augusta-Richmond County	Private School	Augusta Christian Acadeny						X						52708	$240,000	2004						N/A
Augusta-Richmond County	High School, Public	Richmond County Alter. & Opportunity Magnet School	X											30873	$2,932,935	2004						N/A
Augusta-Richmond County	Private School	Westminster Schools of Augusta												34524	$2,273,060	2004	$266,180	2,004	$1,000	$868	321	N/A
Augusta-Richmond County	Private School	St Mary's on the Hill (St. Joseph Academy)						X						40502	$4,231,755	2005	$800,000				536	N/A
Augusta-Richmond County	Private School	Episcopal Day School						X			X			79816	$6,500,000	2003	$1,200,000	2,003			537	N/A
Augusta-Richmond County	Private School	Wee Wisdom School						X						59400	$54,000	2004						N/A
Augusta-Richmond County	Private School	Alleluia Community School						X						26434	$2,643,400	2005	$1,000,000	2,005			250	N/A
Augusta-Richmond County	High School, Public	Academy of Richmond County High School	X											243108	$15,808,601	2004					1,343	N/A
Augusta-Richmond County	High School, Public	George P. Butler Comprehensive High School	X											179820	$1,474,000	2004					1,244	N/A
Augusta-Richmond County	High School, Public	Glenn Hills High	X											157347	$10,407,572	2004					1,308	N/A
Augusta-Richmond County	Elementary School	A.R. Johnson Health Professions (Magnet) School	X											66199	$1,029,000	2004					469	N/A
Augusta-Richmond County	High School, Public	Lucy C. Laney Comprehensive High School	X											146681	$1,267,000	2004					684	N/A
Augusta-Richmond County	High School, Public	T.W. Josey Comprehensive High School	X											191336	$4,391,079	2004					1,037	N/A
Augusta-Richmond County	Elementary School	Wilkinson Gardens Elementary School	X											76484	$540,000	2004					573	N/A
Augusta-Richmond County	Middle School	Tutt Middle School	X											94466	$912,000	2004					669	N/A
Augusta-Richmond County	C&D	RICHMOND CO-DEANS BRIDGE RD PH 2C (SL)	X											2895	$1,215,435	2004						N/A
Augusta-Richmond County	Public Vocational Technical School	Augusta Technical College						X			X			22301	$9,761,000	2004	$17,700,000	2,004			2,500	N/A
Augusta-Richmond County	Public University	Medical College of Georgia						X						845500		2004						N/A
Augusta-Richmond County	High School, Public	Westside High	X											137018	$6,104,612	2004					905	N/A
Augusta-	Elementary School	Wheeless Road	X											47112	$781,000	2004					513	N/A

Richmond County		Elementary School																				
Augusta-Richmond County	Other School	Davidson Magnet School	X											117970	$5,406,000	2004					759	N/A
Augusta-Richmond County	Elementary School	Terrace Manor Elementary School	X											55526	$1,174,000	2004					409	N/A
Augusta-Richmond County	Elementary School	Hains Elementary School	X											38042	$963,000	2004					458	N/A
Augusta-Richmond County	Middle School	Murphey Middle School	X											94838	$5,275,000	2004					781	N/A
Augusta-Richmond County	Middle School	Tubman Middle School	X											116074	$1,800,443	2004					691	N/A
Augusta-Richmond County	Middle School	Sego Middle School	X											98109	$4,977,000	2004					1,014	N/A
Augusta-Richmond County	Elementary School	Jenkins Elementary School (Former)	X											41000	$573,000	2004					170	N/A
Augusta-Richmond County	Recycling Center	Johnson Magnet											X	1166	$14,000	2004						N/A
Augusta-Richmond County	Elementary School	Gracewood Elementary School						X						47408	$1,338,018	2004					474	N/A
Augusta-Richmond County	Elementary School	Monte Sano Elementary School	X											80804	$586,000	2004					585	N/A
Augusta-Richmond County	Elementary School	Southside Elementary School	X											48590	$939,000	2004					435	N/A
Augusta-Richmond County	Elementary School	Craig Elementary School	X											77536	$7,777,468	2004					540	N/A
Augusta-Richmond County	Elementary School	Hornsby Elementary School (Former)	X											40916	$659,000	2004					343	N/A
Augusta-Richmond County	Middle School	East Augusta Middle School	X											79754	$1,802,000	2004					508	N/A
Augusta-Richmond County	Elementary School	Houghton Elementary School (Former)						X						85813	$523,100	2004						N/A
Augusta-Richmond County	Elementary School	Milledge Elementary School	X											43941	$1,048,000	2004					350	N/A
Augusta-Richmond County	Elementary School	Old Sue Reynolds Elementary School	X											38599	$754,000	2004						N/A
Augusta-Richmond County	Elementary School	Windsor Spring Road Elementary School	X											66799	$830,743	2004					765	N/A
Augusta-Richmond County	Elementary School	Barton Chapel Elementary School	X											62726	$2,169,739	2004					658	N/A
Augusta-Richmond County	Elementary School	Copeland Elementary School	X											50174	$1,518,000	2004					507	N/A
Augusta-Richmond County	Elementary School	Glenn Hills Elementary School	X											65123	$2,552,999	2004					523	N/A
Augusta-Richmond	Elementary School	Merry Elementary School	X											60193	$2,318,449	2004					441	N/A

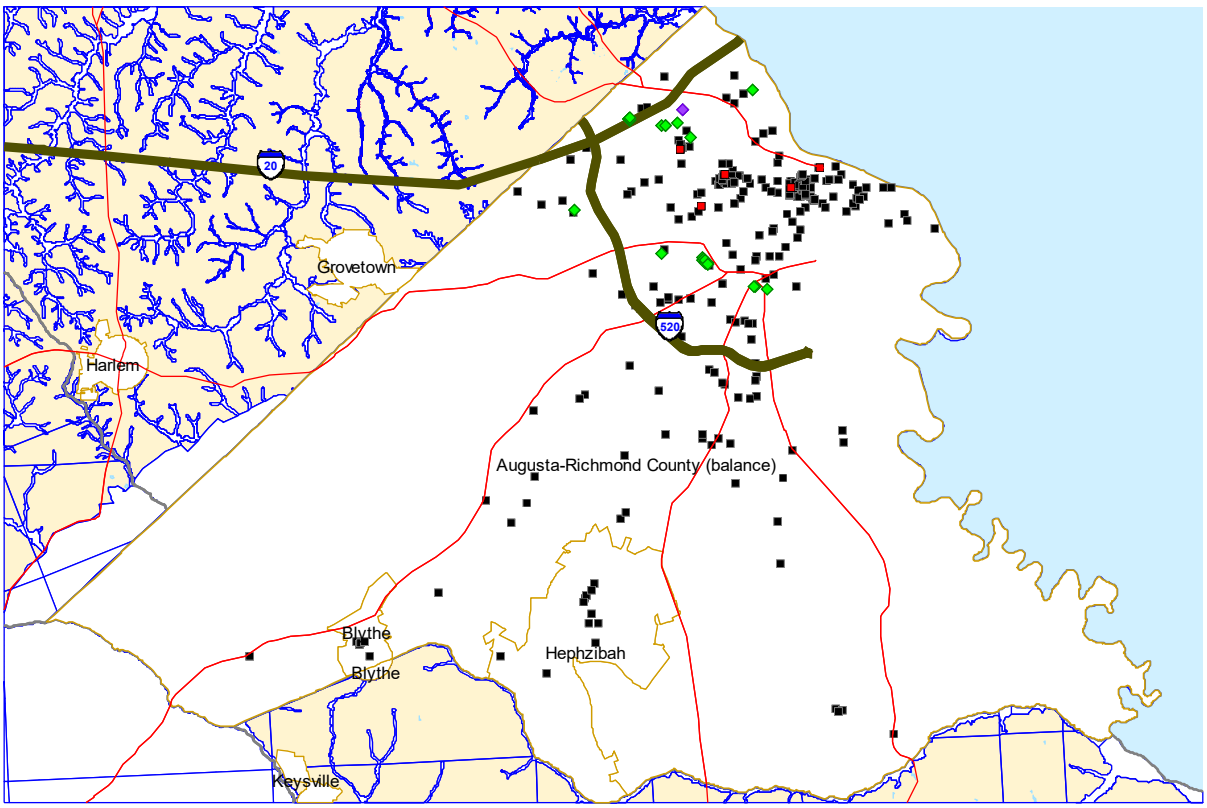
County																						
Augusta-Richmond County	Elementary School	Warren Road Elementary School	X											69594	$1,508,259	2004					512	N/A
Augusta-Richmond County	Elementary School	Lake Forest Hills Elementary School	X											72971	$4,672,637	2004					566	N/A
Augusta-Richmond County	Middle School	Spirit Creek Middle School	X											99141	$11,069,120	2004					1,008	N/A
Augusta-Richmond County	Elementary School	Garrett Elementary School	X											45342	$1,836,000	2004					291	N/A
Augusta-Richmond County	Elementary School	National Hills Elementary School	X											29595	$1,032,000	2004					247	N/A
Augusta-Richmond County	Elementary School	Rollins Elementary School	X											54093	$2,672,000	2004					482	N/A
Augusta-Richmond County	Elementary School	Walker Traditional Elementary School	X											73803	$1,624,492	2004					719	N/A
Augusta-Richmond County	Elementary School	Jamestown Elementary School	X											59022	$6,913,000	2004					884	N/A
Augusta-Richmond County	Elementary School	Collins Elementary School	X											59022	$4,941,000	2004					538	N/A
Augusta-Richmond County	Elementary School	Goshen Elementary School	X											68792	$3,411,000	2004					601	N/A
Augusta-Richmond County	Middle School	Glenn Hills Middle School	X											138219	$1,278,956	2004					1,287	N/A
Augusta-Richmond County	Elementary School	Tobacco Road Elementary School	X											66669	$3,503,000	2004					818	N/A
Augusta-Richmond County	Elementary School	McBean Elementary School	X											68867	$4,640,000	2004					583	N/A
Totals for Augusta-Richmond County, Hazard Score = N/A														19,692,499	$1,951,908,136		$329,985,275		$5,000	$56,135	65,360	
Blythe town	Elementary School	Blythe Elementary School	X											45765	$1,238,000	2004					419	N/A
Blythe town	City Hall	Blythe City Hall	X									X		3900	$210,000	2000	$13,900	2,000			4	N/A
Blythe town	Water System	City of Blythe Treatment Plant #2 (Old Well)											X	144	$35,000	1997	$25,000	1,997				N/A
Blythe town	Water System	City of Blythe Water System	X									X		3900	$210,000	2000	$51,200	2,000			3	N/A
Blythe town	Police Station	Blythe Police Department	X											3900	$210,000	2000	$13,900	2,000			4	N/A
Blythe town	Water System	City of Blythe Treatment Plant #1 (New Well)												120	$35,000	1997	$25,000	1,997				N/A
Blythe town	Water System	City of Blythe Water Tower			X									0		2004						N/A
Totals for Blythe town, Hazard Score = N/A														57,729	$1,938,000		$129,000		$0	$0	430	
Hephzibah city	Middle School	Hephzibah Middle School	X											99398	$4,885,601	2004					1,156	N/A
Hephzibah city	Elementary School	Hephzibah Elementary School	X											77701	$1,123,000	2004					543	N/A
Hephzibah city	High School, Public	Hephzibah Comprehensive High	X											145429	$5,940,000	2004					1,288	N/A
Hephzibah city	City Hall	Hephzibah City Hall			X			X						2670	$210,750	2000	$48,150	2,000	$258,900		4	N/A

Hephzibah city	Police Station	Hepzhibah Police Department	X					X						2670	$210,750	2000	$48,150	2,000	$258,900		4	N/A
Hephzibah city	Other	Hephzibah/Carroll Community Center						X						5320	$120,000	2002	$20,000				100	N/A
Hephzibah city	Elementary School	Graham Elementary School	X											0	$323,658	2004						N/A
Hephzibah city	Water System	Hephzibah-Oakridge-Water Tower	X		X		X							336	$35,800	2000	$52,100	2,000	$87,900			N/A
Hephzibah city	Fire Station	Hephzibah Fire Department	X					X						3949	$228,300	2000	$26,400	2,000	$254,700		2	N/A
Hephzibah city	Water System	City of Hephzibah Water System	X		X		X							576	$58,800	2000	$89,300	2,000	$148,100			N/A
Hephzibah city	Wastewater Treatment Plant	Hephzibah WPCP	X		X		X							90	$6,200	2000	$6,200	2,000				N/A
Totals for Hephzibah city, Hazard Score = N/A														338,139	$13,142,859		$290,300		$1,008,500	$0	3,097	
Grand Totals														**20,088,367**	**$1,966,988,995**		**$330,404,575**		**$1,013,500**	**$56,135**	**68,887**	

- Pre-Disaster Mitigation
- Fiscal Year: 2009
- Report created: Jul 22, 2011
- For more information call GEMA Pre-Disaster Mitigation at 1-800-TRY-GEMA

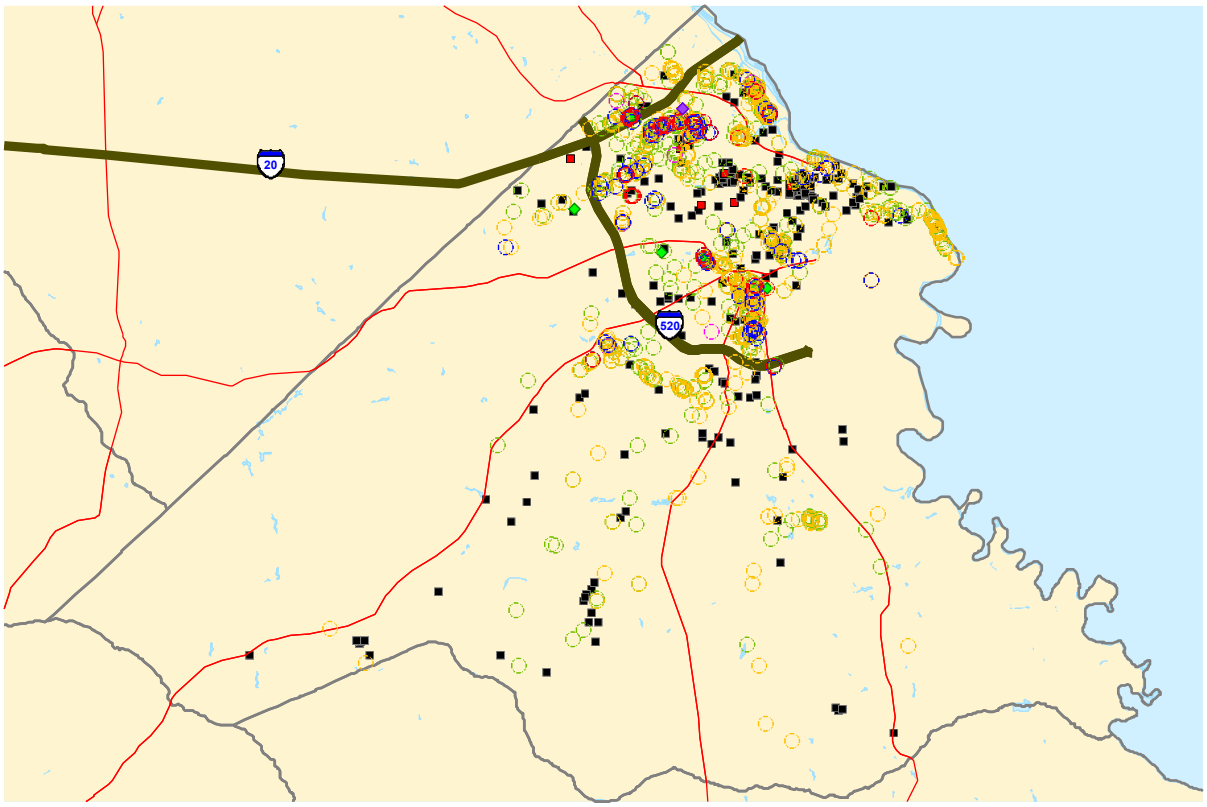
Export options: Raw Data Format (xls) | Report Format (xls)

GMIS FLOOD MAP – BY JURISDICTION

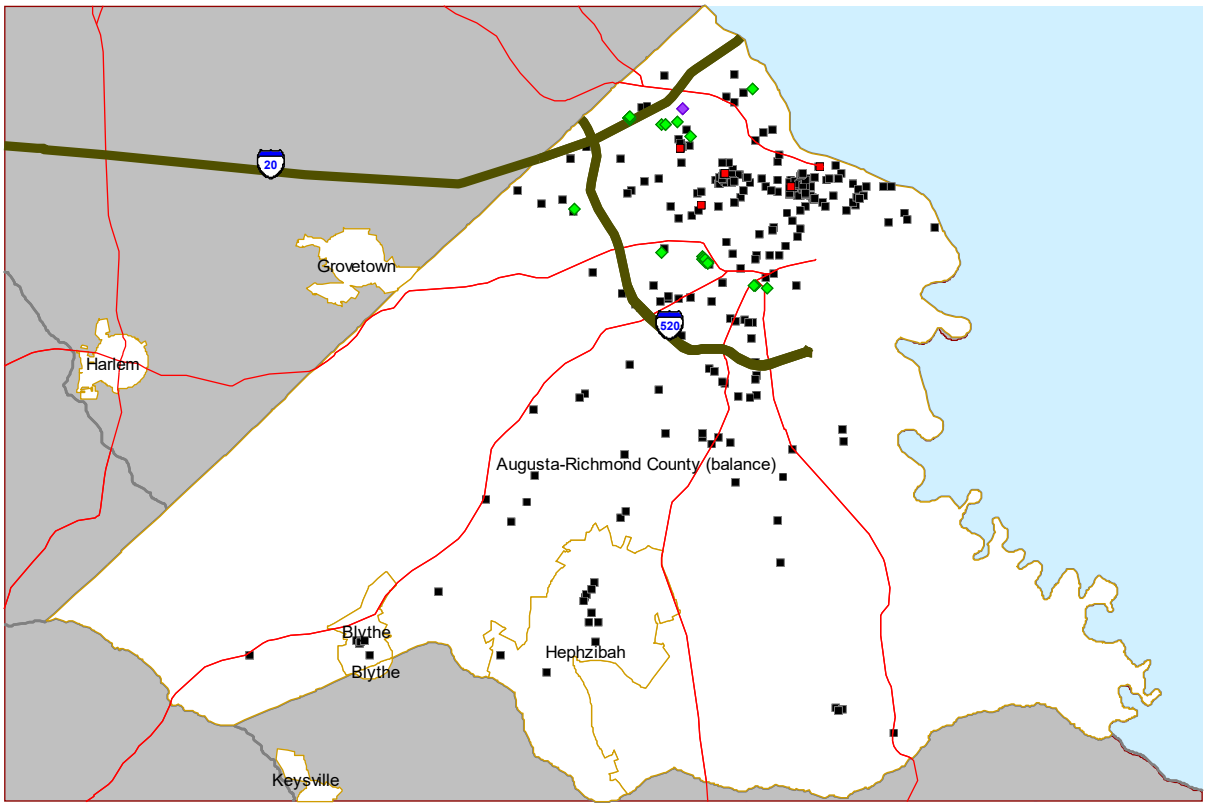


Score	Original Value	Description
4	Floodway	Floodway (within zone AE)
	V	1% with Velocity no Base Flood Elevation (BFE)
	VE	1% with Velocity BFE
3	A	1% Annual Chance no BFE
	A99	1% Federal flood protection system
	AE	1% has BFE
	AH	1% Ponding has BFE
	AO	1% Sheet Flow has depths
	AR	1% Federal flood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

GMIS MAP OF FLOOD POLICIES IN RICHMOND COUNTY



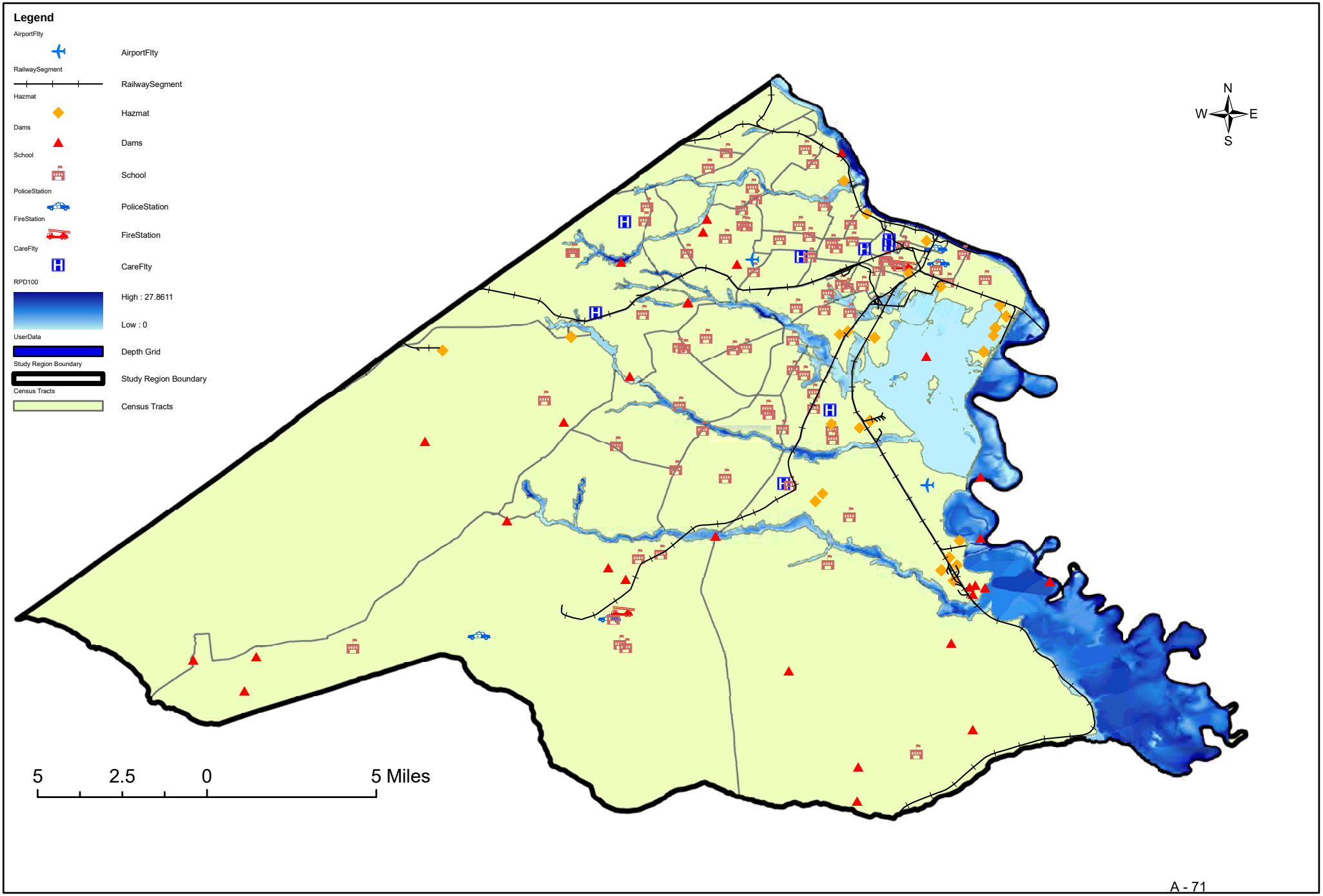
GMIS SLOSH MAP – BY JURISDCTION



Score	Original Value	Description
5	1	Inundated By a Category 1 Hurricane
4	2	Inundated By a Category 2 Hurricane
3	3	Inundated By a Category 3 Hurricane
2	4	Inundated By a Category 4 Hurricane
	5	Inundated By a Category 5 Hurricane

Graphic 5: Study Region, Richmond County Description: HM Plan Update - June 2011
Scenario: 100-year Critical Facilities Map

(c) 1997-2003 FEMA.



Quick Assessment Report

July 18, 2011

Study Region :	Augusta-Richmond County
Scenario :	100-year Critical Facilities
Return Period:	100
Analysis Option:	0

Regional Statistics

Area (Square Miles)	324
Number of Census Blocks	3,367
Number of Buildings	
Residential	71,769
Total	77,917
Number of People in the Region (x 1000)	200
Building Exposure ($ Millions)	
Residential	8,968
Total	12,743

Scenario Results

Shelter Requirements	
Displaced Population (# Households)	2,224
Short Term Shelter (# People)	5,339
Economic Loss	
Residential Property (Capital Stock) Losses ($ Millions)	117
Total Property (Capital Stock) Losses ($ Millions)	244
Business Interruptions (Income) Losses ($ Millions)	1

Disclaimer:

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

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

HAZUS-MH: Flood Event Report

Region Name: Augusta-Richmond County

Flood Scenario: 100-year Critical Facilities

Print Date: Monday, July 18, 2011

Disclaimer:

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

The estimates of social and economic impacts contained in this report were produced using HAZUS loss estimation methodology software which is based on current scientific and engineering knowledge. There are uncertainties inherent in any loss estimation technique. Therefore, there may be significant differences between the modeled results contained in this report and the actual social

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General Description of the Region

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

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

- Georgia

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

The geographical size of the region is 324 square miles and contains 3,367 census blocks. The region contains over 74 thousand households and has a total population of 199,775 people (2000 Census Bureau data). The distribution of population by State and County for the study region is provided in Appendix B.

There are an estimated 77,917 buildings in the region with a total building replacement value (excluding contents) of 12,743 million dollars (2006 dollars). Approximately 92.11% of the buildings (and 70.37% of the building value) are associated with residential housing.

General Building Stock

HAZUS estimates that there are 77,917 buildings in the region which have an aggregate total replacement value of 12,743 million (2006 dollars). Table 1 and Table 2 present the relative distribution of the value with respect to the general occupancies by Study Region and Scenario respectively. Appendix B provides a general distribution of the building value by State and County.

Table 2.15
Building Exposure by Occupancy Type for the Study Region

Occupancy	Exposure ($1000)	Percent of Total
Residential	8,967,798	70.4%
Commercial	2,707,355	21.2%
Industrial	495,189	3.9%
Agricultural	26,011	0.2%
Religion	312,465	2.5%
Government	96,570	0.8%
Education	137,831	1.1%
Total	**12,743,219**	**100.00%**

Table 2.16
Building Exposure by Occupancy Type for the Scenario

Occupancy	Exposure ($1000)	Percent of Total
Residential	2,055,894	72.5%
Commercial	486,467	17.1%
Industrial	198,834	7.0%
Agricultural	4,732	0.2%
Religion	58,827	2.1%
Government	5,614	0.2%
Education	27,272	1.0%
Total	**2,837,640**	**100.00%**

Essential Facility Inventory

For essential facilities, there are 8 hospitals in the region with a total bed capacity of 2,353 beds. There are 75 schools, 2 fire stations, 4 police stations and no emergency operation centers.

Flood Scenario Parameters

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

Study Region Name:	Augusta-Richmond County
Scenario Name:	100-year Critical Facilities
Return Period Analyzed:	100
Analysis Options Analyzed:	No What-Ifs

General Building Stock Damage

HAZUS estimates that about 857 buildings will be at least moderately damaged. This is over 32% of the total number of buildings in the scenario. There are an estimated 104 buildings that will be completely destroyed. The definition of the 'damage states' is provided in Volume 1: Chapter 5 of the HAZUS Flood technical manual. Table 2.17 below summarizes the expected damage by general occupancy for the buildings in the region. Table 2.18 summarizes the expected damage by general building type.

Table 2.17: Expected Building Damage by Occupancy

	1-10		11-20		21-30		31-40		41-50		Substantially	
Occupancy	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**
Agriculture	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Commercial	0	0.00	2	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Education	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Government	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Industrial	0	0.00	3	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Religion	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Residential	0	0.00	39	4.58	320	37.56	125	14.67	264	30.99	104	12.21
Total	**0**		**44**		**320**		**125**		**264**		**104**	

Table 2.18: Expected Building Damage by Building Type

Building Type	1-10		11-20		21-30		31-40		41-50		Substantially	
	Count	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**
Concrete	0	0.00	2	100.00	0	0.00	0	0.00	0	0.00	0	0.00
ManufHousing	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	64	100.00
Masonry	0	0.00	2	11.11	5	27.78	2	11.11	9	50.00	0	0.00
Steel	0	0.00	4	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Wood	0	0.00	34	4.43	315	41.07	123	16.04	255	33.25	40	5.22

Table 2.19: Essential Facility Damage

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

Table 2.19: Expected Damage to Essential Facilities

		# Facilities		
Classification	Total	At Least Moderate	At Least Substantial	Loss of Use
Fire Stations	2	0	0	0
Hospitals	8	0	0	0
Police Stations	4	0	0	0
Schools	75	3	0	2

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

(1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.

(2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results.

Induced Flood Damage

Debris Generation

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

Analysis has not been performed for this Scenario.

Social Impact

Shelter Requirements

HAZUS estimates the number of households that are expected to be displaced from their homes due to the flood and the associated potential evacuation. HAZUS also estimates those displaced people that will require accommodations in temporary public shelters. The model estimates 2,224 households will be displaced due to the flood. Displacement includes households evacuated from within or very near to the inundated area. Of these, 5,339 people (out of a total population of 199,775) will seek temporary shelter in public shelters.

Economic Loss

The total economic loss estimated for the flood is 245.00 million dollars, which represents 8.63 % of the total replacement value of the scenario buildings.

Building-Related Losses

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

The total building-related losses were 243.53 million dollars. 1% of the estimated losses were related to the business interruption of the region. The residential occupancies made up 47.94% of the total loss. Table 6 below provides a summary of the losses associated with the building damage.

Table 2.20: Building-Related Economic Loss Estimates

(Millions of dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
Building Loss						
	Building	68.48	17.56	10.77	1.70	98.51
	Content	48.68	46.45	31.20	8.89	135.23
	Inventory	0.00	2.05	7.68	0.07	9.80
	Subtotal	**117.16**	**66.07**	**49.65**	**10.66**	**243.53**
Business Interruption						
	Income	0.02	0.26	0.01	0.03	0.31
	Relocation	0.18	0.07	0.01	0.00	0.27
	Rental Income	0.06	0.05	0.00	0.00	0.11
	Wage	0.05	0.32	0.02	0.40	0.78
	Subtotal	**0.31**	**0.69**	**0.04**	**0.43**	**1.47**
ALL	**Total**	**117.47**	**66.76**	**49.69**	**11.09**	**245.00**

Appendix A: County Listing for the Region

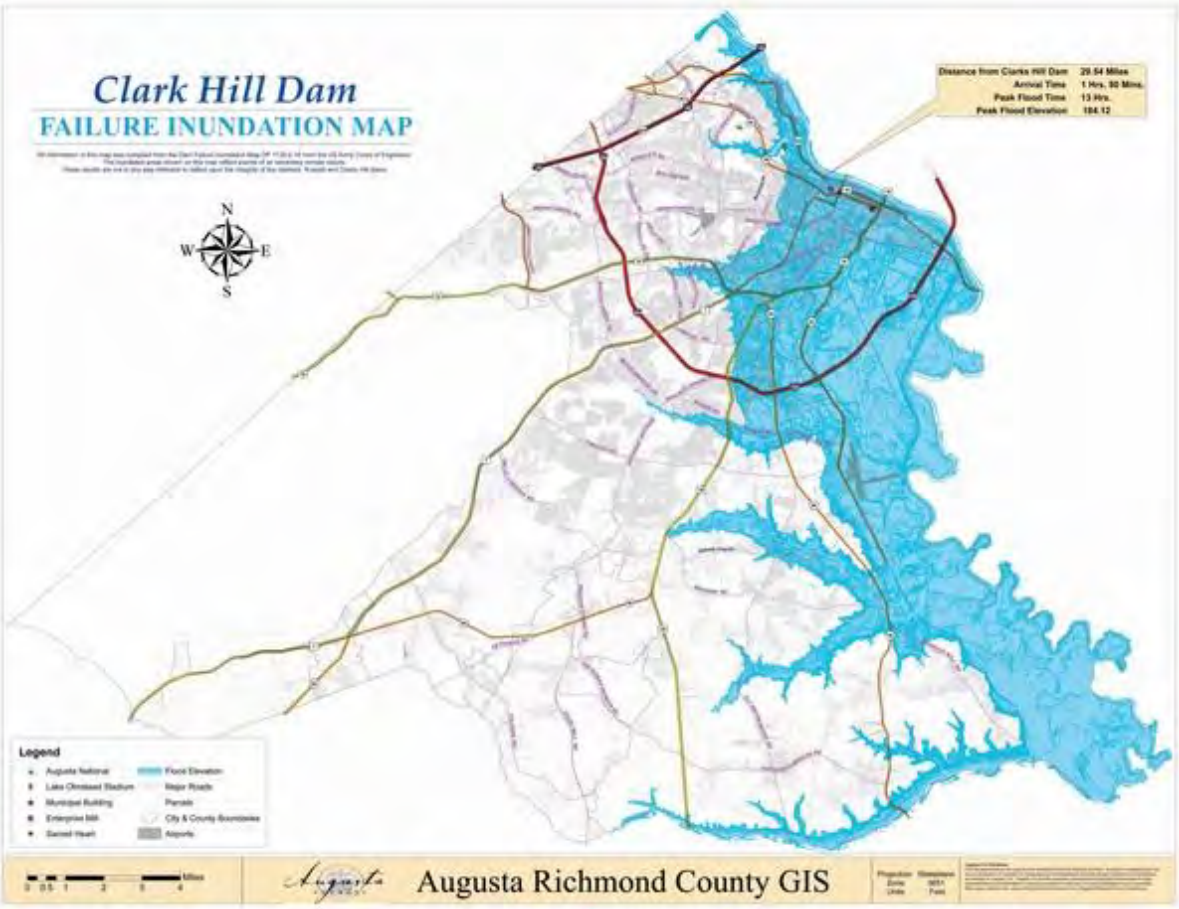
Georgia

- Richmond

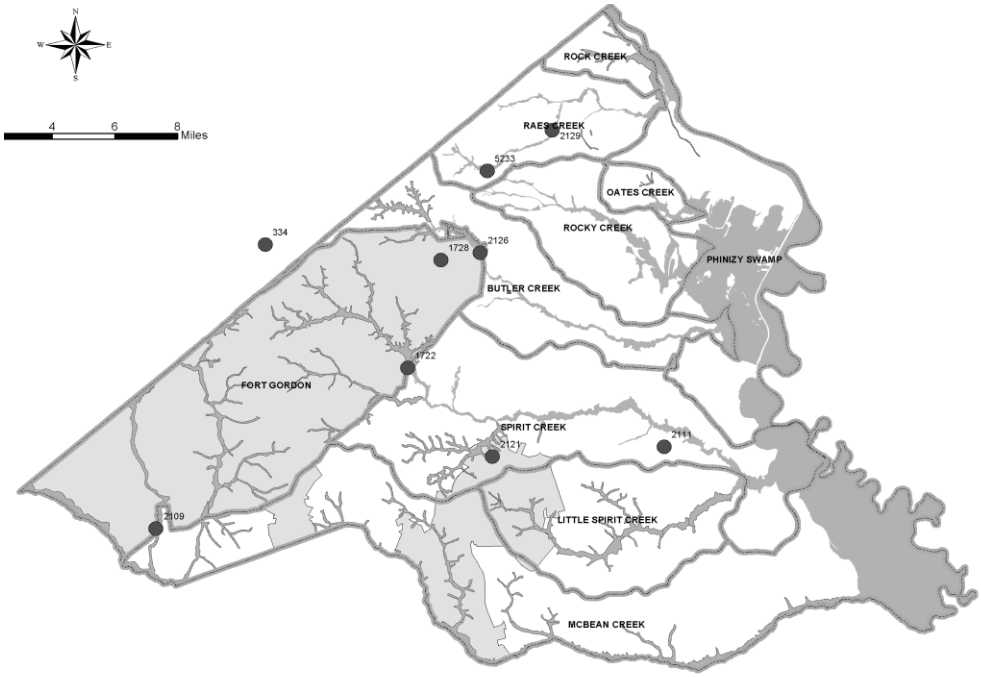
Table 2.21: Regional Population and Building Value Data

		2.21: Building Value (thousands of dollars)		
	Population	Residential	Non-Residential	Total
Georgia				
Richmond	199,775	8,967,798	3,775,421	12,743,219
Total	**199,775**	**8,967,798**	**3,775,421**	**12,743,219**
Total Study Region	**199,775**	**8,967,798**	**3,775,421**	**12,743,219**

Map Series 1 – A : Clark Hill Dam Inundation Map



Map Series 1 – B:



A.3 Natural Hazard C: Drought/Extreme Heat

GEMA Worksheet #3a **Inventory of Assets**

Jurisdiction: Richmond County

Hazard: Drought/Extreme Heat

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

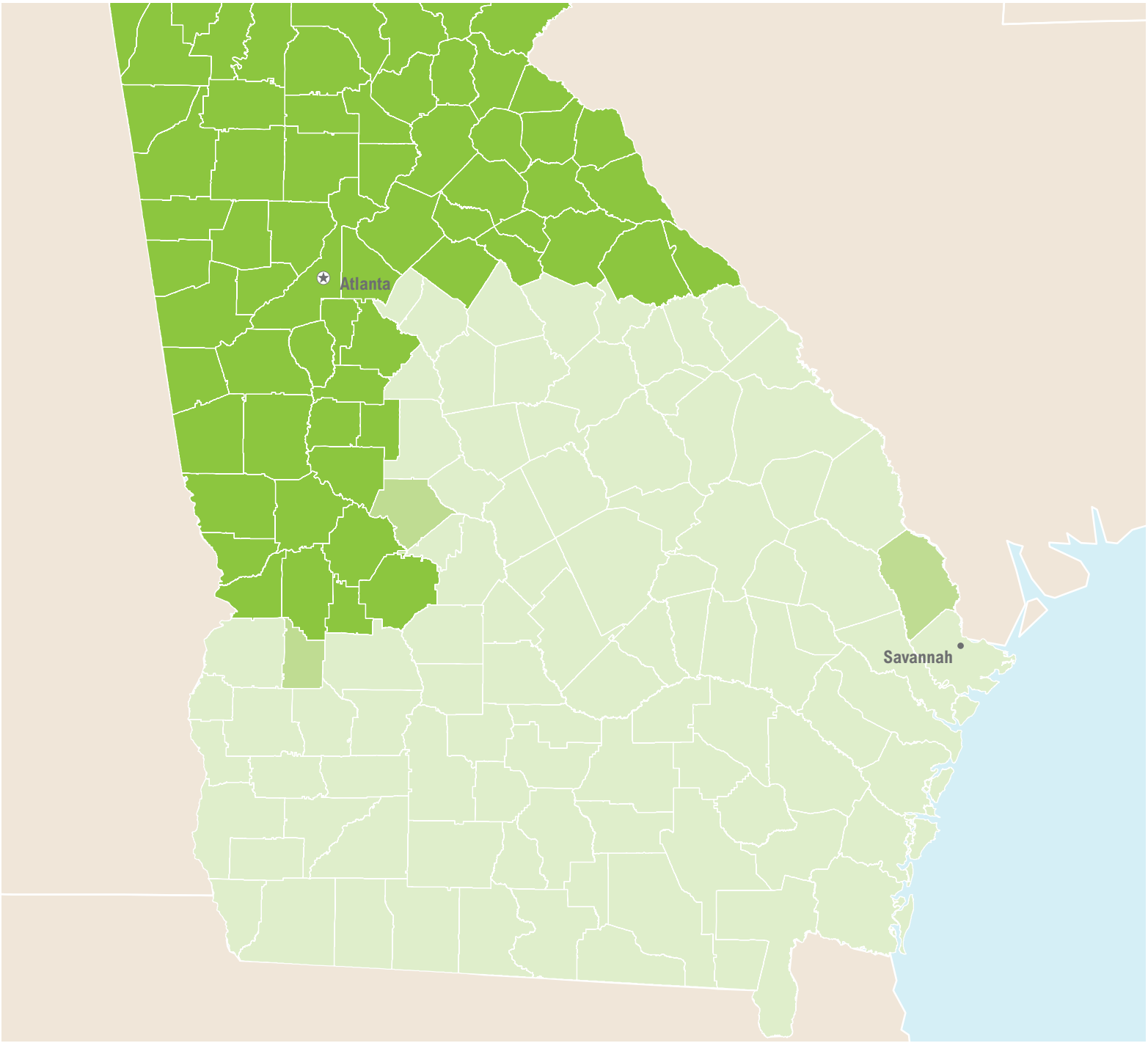
(Source: U.S. Census 2000, HAZUS-MR4 data)

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$,000's in Community or State	$,000's in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	71,769	71,769	100%	8,967,798	8,967,798	100%	199,775	199,775	100%
Commercial	4,202	4,202	100%	2,707,355	2,707,355	100%			N/A
Industrial	961	961	100%	495,189	495,189	100%			N/A
Agricultural	196	196	100%	26,011	26,011	100%			N/A
Religious/ Non-profit	515	515	100%	312,465	312,465	100%			N/A
Government	129	129	100%	96,570	96,570	100%			N/A
Education	145	145	100%	137,831	137,831	100%			N/A
Utilities			N/A			N/A			N/A
Total	77,917	77,917	100%	12,743,219	12,743,219	100%	199,775	199,775	100%

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

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

Drought Hazard Identification | Georgia



High

Medium

Low

Geospatial analysis and mapping provided by the Hazards and Vulnerability Research Institute at the University of South Carolina

Oxfam America

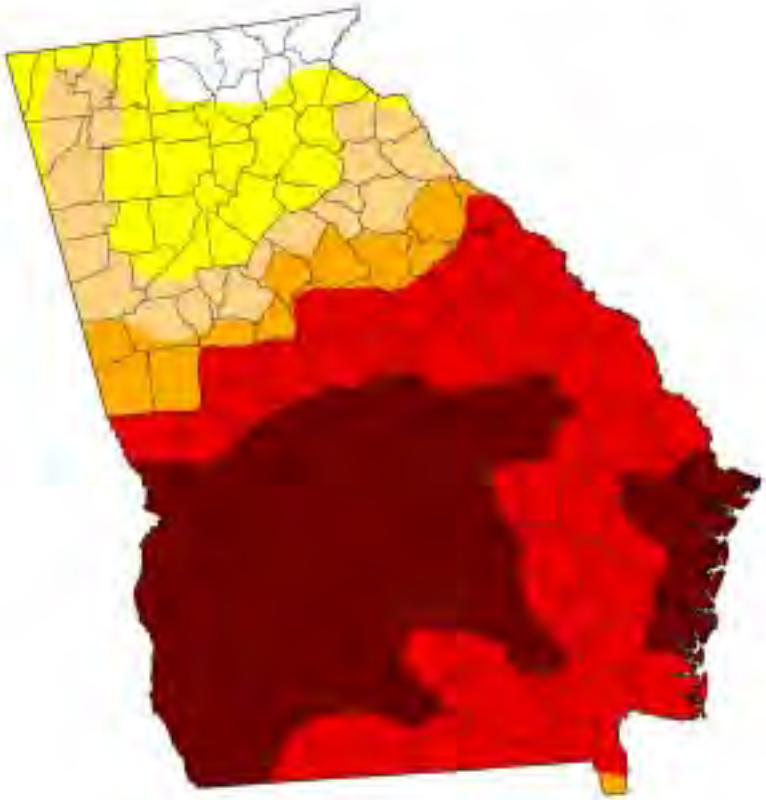
U.S. Drought Monitor

July 12, 2011
Valid 7 a.m. EST

Georgia

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	3.27	96.73	85.37	75.00	68.79	35.52
Last Week (07/05/2011 map)	2.58	97.42	85.51	74.91	68.91	40.45
3 Months Ago (04/12/2011 map)	22.47	77.53	73.04	18.79	6.94	0.00
Start of Calendar Year (12/28/2010 map)	2.42	97.58	85.37	40.34	6.49	0.00
Start of Water Year (09/28/2010 map)	4.80	95.20	39.24	5.11	0.00	0.00
One Year Ago (07/06/2010 map)	97.31	2.69	0.00	0.00	0.00	0.00



Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

http://drought.unl.edu/dm

Released Thursday, July 14, 2011
David Miskus, NOAA/NWS/NCEP/Climate Prediction Center

A.4 Natural Hazard D: Severe Winter Storm

GEMA Worksheet #3a **Inventory of Assets**

Jurisdiction: Richmond County

Hazard: Severe Winter Storm

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

(Source: U.S. Census 2000, HAZUS-MR4 data)

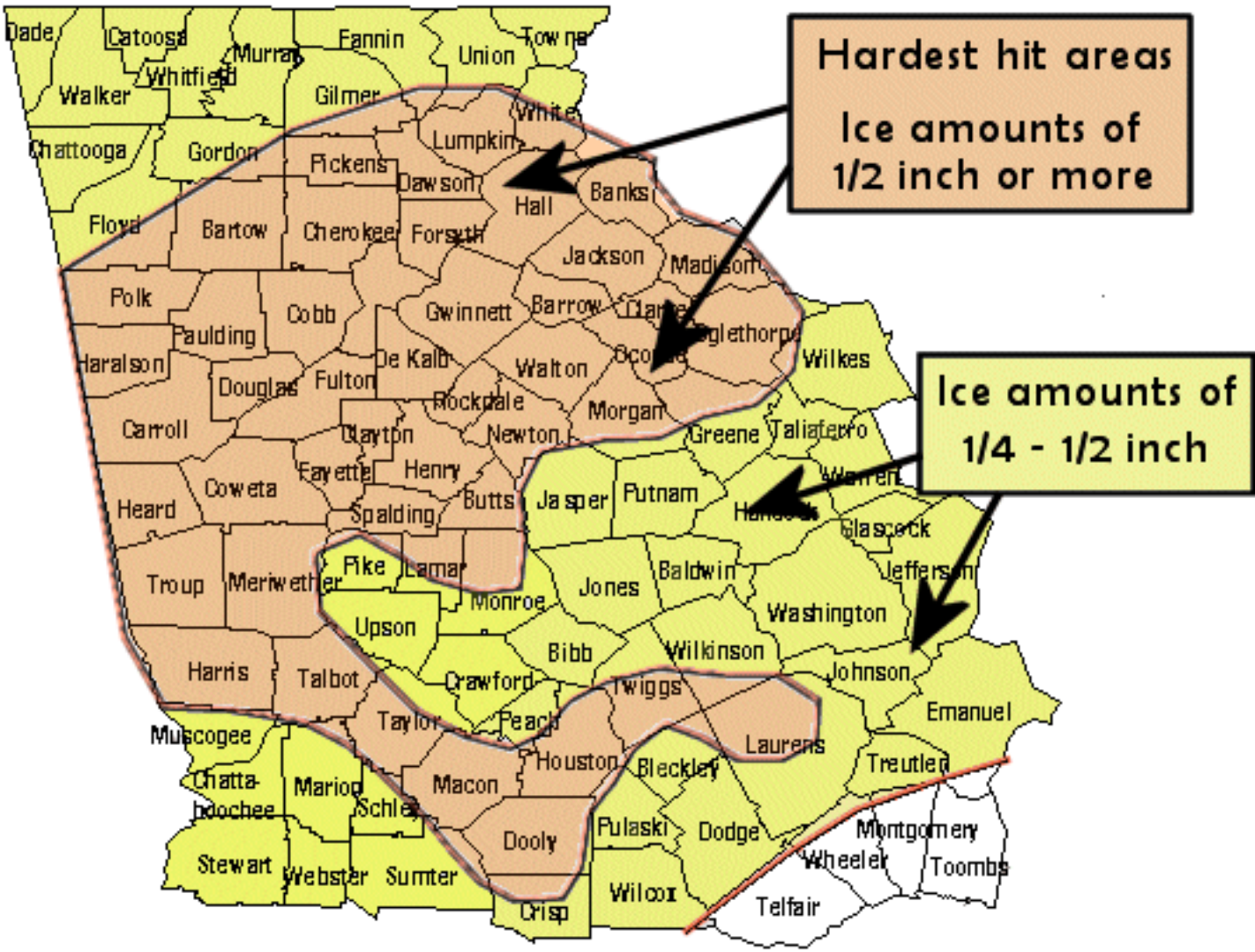
	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$,000's in Community or State	$,000's in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	71,769	71,769	100%	8,967,798	8,967,798	100%	199,775	199,775	100%
Commercial	4,202	4,202	100%	2,707,355	2,707,355	100%			N/A
Industrial	961	961	100%	495,189	495,189	100%			N/A
Agricultural	196	196	100%	26,011	26,011	100%			N/A
Religious/ Non-profit	515	515	100%	312,465	312,465	100%			N/A
Government	129	129	100%	96,570	96,570	100%			N/A
Education	145	145	100%	137,831	137,831	100%			N/A
Utilities			N/A	388,200	388,200	N/A			N/A
Total	77,917	77,917	100%	13,131,419	13,131,419	100%	199,775	199,775	100%

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

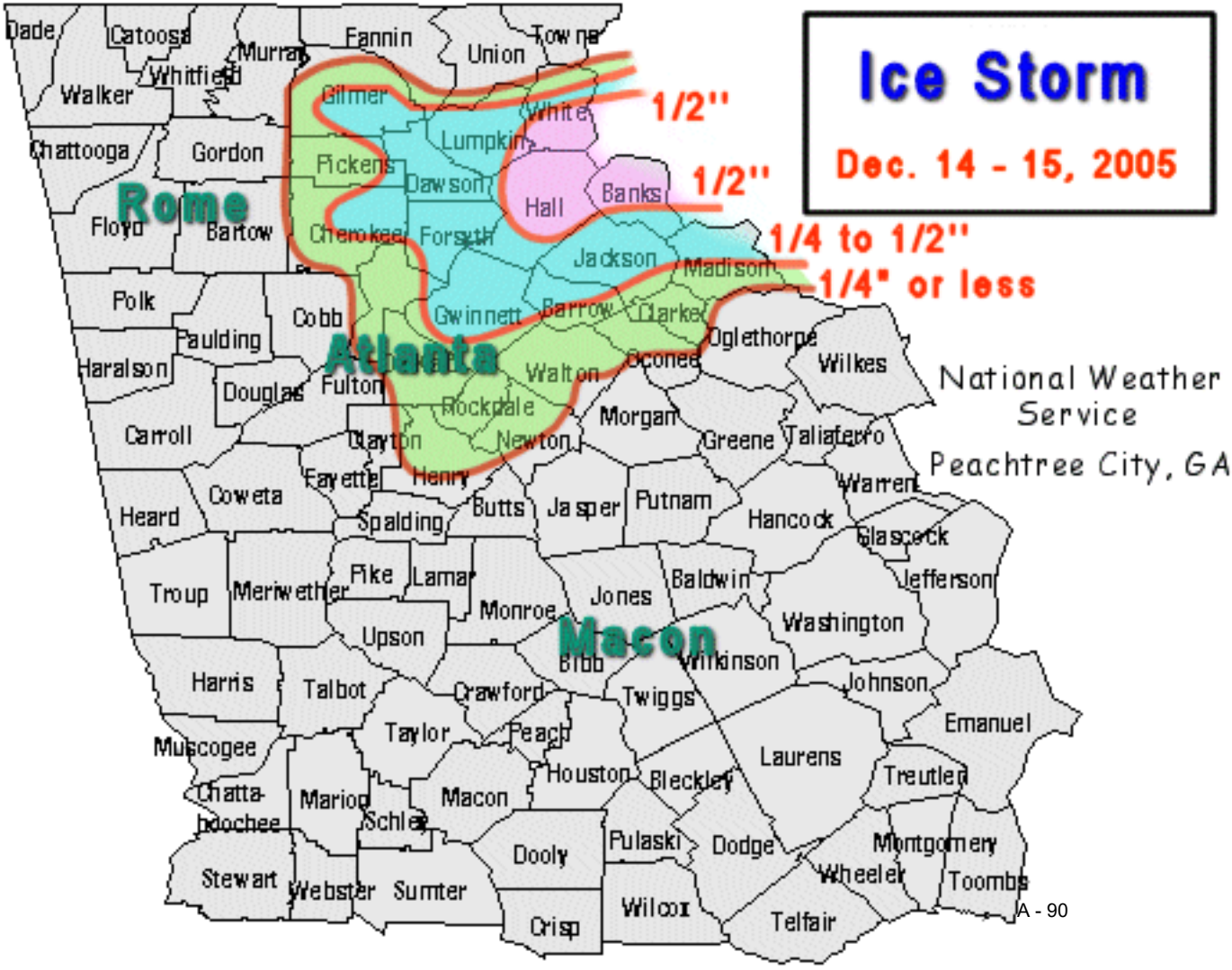
	Y	N
1. Do you know where the greatest damages may occur in your area?		X
2. Do you know whether your critical facilities will be operational after a hazard event?	X	
3. Is there enough data to determine which assets are subject to the greatest potential damages?		X
4. Is there enough data to determine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

Georgia's Winter Storm

January 28 - 30, 2005



National Weather Service
Peachtree City, GA


Ice Storm
Dec. 14 - 15, 2005
1/2"
1/2"
1/4 to 1/2"
1/4" or less
National Weather Service
Peachtree City, GA
Rome
Atlanta
Macon
Dade
Catoosa
Murray
Fannin
Union
Towns
Whitfield
Walker
Gilmer
White
Lumpkin
Chattooga
Gordon
Pickens
Dawson
Hall
Banks
Floyd
Bartow
Cherokee
Forsyth
Jackson
Madison
Polk
Cobb
Gwinnett
Barrow
Clarke
Oglethorpe
Paulding
Haralson
Douglas
Fulton
Walton
Oconee
Wilkes
Rockdale
Morgan
Carroll
Clayton
Newton
Greene
Taliaferro
Fayette
Henry
Warren
Coweta
Heard
Spalding
Butts
Jasper
Putnam
Hancock
Glascock
Pike
Lamar
Baldwin
Jefferson
Troup
Meriwether
Monroe
Jones
Washington
Upson
Bibb
Wilkinson
Harris
Talbot
Crawford
Twiggs
Johnson
Emanuel
Taylor
Peach
Muscogee
Laurens
Houston
Bleckley
Treutlen
Chattahoochee
Marion
Macon
Schley
Dooly
Pulaski
Dodge
Montgomery
Wheeler
Toombs
Stewart
Webster
Sumter
Wilcox
Crisp
Telfair

GEMA Worksheet #3a Inventory of Assets

Jurisdiction: Richmond County

Hazard: Wildfire

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

(Source: U.S. Census 2000, HAZUS-MR4 data)

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$,000's in Community or State	$,000's in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	71,769	71,769	100%	8,967,798	8,967,798	100%	199,775	199,775	100%
Commercial	4,202	4,202	100%	2,707,355	2,707,355	100%			N/A
Industrial	961	961	100%	495,189	495,189	100%			N/A
Agricultural	196	196	100%	26,011	26,011	100%			N/A
Religious/ Non-profit	515	515	100%	312,465	312,465	100%			N/A
Government	129	129	100%	96,570	96,570	100%			N/A
Education	145	145	100%	137,831	137,831	100%			N/A
Utilities			N/A	388,200	388,200	N/A			N/A
Total	77,917	77,917	100%	13,131,419	13,131,419	100%	199,775	199,775	100%

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

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

GMIS Reporting for Wildfire Hazard by Jurisdiction
Grouped by Hazard Score

NOTE: Only completed facilities will be reported

Government Jurisdiction	Type	Name or Structure Description	Essential Facility	Transportation System	Lifeline System	High Potential Loss	Haz Mat Facility	Important Facility	Vulnerable Population	Economic Assets	Special Considerations	Historic Considerations	Other	Size of Bldg. (sq. ft.)	Replace Value ($)	Replace Value Year	Contents Value ($)	Contents Value Year	Functional Value ($)	Displace Cost ($ per day)	Occupancy	Hazard Score
Augusta-Richmond County	Private School	Westminster Schools, Band/Weight Room Bldg						X						1740	$114,561	1992	$13,415				50	3
Augusta-Richmond County	Private School	Westminster Schools, Media Center						X						5290	$384,293	1988	$40,758				150	3
Augusta-Richmond County	Fire Station	AFD- Engine Co #5	X											23958	$442,000	2004	$330,000	2,004			4	3
Augusta-Richmond County	Other	Fleming Athletic Office							X					4600	$120,000	1999	$75,000				45	3
Augusta-Richmond County	Other	Bernie Ward Community Center						X						17000	$2,900,000	2003	$100,000				500	3
Augusta-Richmond County	Other	Carrie Mays						X						15960	$850,000	2004	$100,000	2,004			425	3
Augusta-Richmond County	Library	Jeff Maxwell Branch Library											X	7158	$587,883	2004	$1,685,698	2,004		$196	28	3
Augusta-Richmond County	Private School	Westminster Schools, Maintenance Shop											X	2400	$158,016	2003	$18,504		$1,000	$868	3	3
Augusta-Richmond County	Private School	Westminster Schools, Prep School Gym											X	16265	$1,070,887	2004	$125,403		$1,000	$868	130	3
Augusta-Richmond County	High School, Public	Richmond County Alter. & Opportunity Magnet School	X											30873	$2,932,935	2004						3
Augusta-Richmond County	Elementary School	Merry Elementary School	X											60193	$2,318,449	2004					441	3
Augusta-Richmond County	Elementary School	National Hills Elementary School	X											29595	$1,032,000	2004					247	3
Totals for Augusta-Richmond County, Hazard Score = 3														215,032	$12,911,024		$2,488,778		$2,000	$1,932	2,023	
Augusta-Richmond County	Elementary School	Tobacco Road Elementary School	X											66669	$3,503,000	2004					818	2
Augusta-Richmond County	Middle School	Spirit Creek Middle School	X											99141	$11,069,120	2004					1,008	2
Augusta-Richmond County	Fire Station	Bush Field Fire Department	X											4420	$5,814,245	2004					3	2
Augusta-Richmond County	Private School	First Baptist Church of Gracewood Academy						X						5200	$860,450	2004						2
Augusta-Richmond County	Elementary School	Jenkins Elementary School (Former)	X											41000	$573,000	2004					170	2
Augusta-Richmond	Elementary School	Gracewood Elementary School						X						47408	$1,338,018	2004					474	2

County																						
Augusta-Richmond County	Fire Station	AFD- Engine Co #19	X											148200	$1,277,000	2004	$750,000	2,004			3	2
Augusta-Richmond County	Hospital, Admissions Entrance	Gracewood State School & Hospital	X											4500	$10,040,079	2004						2
Augusta-Richmond County	MSWL	Deans Bridge Road Municipal Landfill						X						2895	$79,000	2004				$50,000	26	2
Augusta-Richmond County	High School, Public	Cross Creek High	X											205100	$19,466,248	2004					1,314	2
Augusta-Richmond County	Airport	Bush Field Airport		X	X									68058	$5,814,245	2004					300	2
Augusta-Richmond County	Fire Station	AFD- Engine Co #18	X											4589	$57,000	2004	$830,000	2,004			4	2
Augusta-Richmond County	Fire Station	AFD- Engine Co #17	X											2800	$121,528	2004	$330,000	2,004			5	2
Augusta-Richmond County	Other	Sue Reynolds Park						X						2375	$85,000	2004	$20,000				60	2
Augusta-Richmond County	Fire Station	AFD- Engine Co #7	X											4800	$1,206,000	2004	$800,000	2,004			4	2
Augusta-Richmond County	Elementary School	Meadowbrook Elementary School	X											60954	$3,984,000	2004					754	2
Augusta-Richmond County	Public University	MCG Animal Care Facility Bldg OB												20017	$324,100	2005						2
Totals for Augusta-Richmond County, Hazard Score = 2														788,126	$65,612,033		$2,730,000		$0	$50,000	4,943	
Augusta-Richmond County	Other	Blythe Area Community Center						X						5850	$600,000	2002	$30,000				125	1
Augusta-Richmond County	Fire Station	AFD- Engine Co #12 (Abandoned)											X	13225	$132,000	2004						1
Augusta-Richmond County	Elementary School	Freedom Park Elementary	X											79604	$186,043,000	2004					710	1
Augusta-Richmond County	Fire Station	AFD- Engine Co #12	X											2800	$1,065,000	2004	$1,250,000	2,004			4	1
Augusta-Richmond County	Other	McBean Community Park						X						6300	$700,000	2004	$75,000				110	1
Augusta-Richmond County	Elementary School	McBean Elementary School	X											68867	$4,640,000	2004					583	1
Augusta-Richmond County	Fire Station	Fort Gordon Fire Department	X											0	$186,043,000	2004						1
Totals for Augusta-Richmond County, Hazard Score = 1														176,646	$379,223,000		$1,355,000		$0	$0	1,532	
Augusta-Richmond County	Elementary School	Rollins Elementary School	X											54093	$2,672,000	2004					482	0
Augusta-Richmond County	Elementary School	Walker Traditional Elementary School	X											73803	$1,624,492	2004					719	0
Augusta-Richmond County	Elementary School	Jamestown Elementary School	X											59022	$6,913,000	2004					884	0

Augusta-Richmond County	Elementary School	Collins Elementary School	X											59022	$4,941,000	2004					538	0
Augusta-Richmond County	Elementary School	Goshen Elementary School	X											68792	$3,411,000	2004					601	0
Augusta-Richmond County	Middle School	Glenn Hills Middle School	X											138219	$1,278,956	2004					1,287	0
Augusta-Richmond County	Elementary School	Monte Sano Elementary School	X											80804	$586,000	2004					585	0
Augusta-Richmond County	Elementary School	Southside Elementary School	X											48590	$939,000	2004					435	0
Augusta-Richmond County	Elementary School	Craig Elementary School	X											77536	$7,777,468	2004					540	0
Augusta-Richmond County	Elementary School	Hornsby Elementary School (Former)	X											40916	$659,000	2004					343	0
Augusta-Richmond County	Middle School	East Augusta Middle School	X											79754	$1,802,000	2004					508	0
Augusta-Richmond County	Elementary School	Houghton Elementary School (Former)						X						85813	$523,100	2004						0
Augusta-Richmond County	Elementary School	Milledge Elementary School	X											43941	$1,048,000	2004					350	0
Augusta-Richmond County	Elementary School	Old Sue Reynolds Elementary School	X											38599	$754,000	2004						0
Augusta-Richmond County	Elementary School	Windsor Spring Road Elementary School	X											66799	$830,743	2004					765	0
Augusta-Richmond County	Elementary School	Barton Chapel Elementary School	X											62726	$2,169,739	2004					658	0
Augusta-Richmond County	Elementary School	Copeland Elementary School	X											50174	$1,518,000	2004					507	0
Augusta-Richmond County	Elementary School	Glenn Hills Elementary School	X											65123	$2,552,999	2004					523	0
Augusta-Richmond County	Recycling Center	Johnson Magnet											X	1166	$14,000	2004						0
Augusta-Richmond County	Emergency Services	9-1-1 Center/Emergency Operation Center	X											8740	$1,250,000	1997						0
Augusta-Richmond County	Elementary School	Garrett Elementary School	X											45342	$1,836,000	2004					291	0
Augusta-Richmond County	Elementary School	Warren Road Elementary School	X											69594	$1,508,259	2004					512	0
Augusta-Richmond County	Elementary School	Lake Forest Hills Elementary School	X											72971	$4,672,637	2004					566	0
Augusta-Richmond County	Private Four-Year College	Paine College						X						52896	$6,240,916	2004						0
Augusta-Richmond County	Other	R.C.B.O.E. Headquarters	X											96285	$440,000	2004					425	0
Augusta-	Sheriffs Office	Sheriffs Office -	X											699754	$6,309,288	2004					50	0

Richmond County		Daniel Village Substation																				
Augusta-Richmond County	Sheriffs Office	Sheriffs Office - Southgate Plaza Substation	X											2690	$1,360,287	2004					50	0
Augusta-Richmond County	Marshals Office	Richmond County Marshal's Office						X						197762	$23,063,403	2004						0
Augusta-Richmond County	Courthouse	Richmond County Courthouse						X						1100000	$23,063,403	2004						0
Augusta-Richmond County	City Hall	Augusta/Richmond Co Municipal Building						X						1100000	$23,063,403	2004						0
Augusta-Richmond County	Hospital, Admissions Entrance	Georgia Regional Hospital at Augusta Campus	X											0	$8,082,000	2004						0
Augusta-Richmond County	Private School	Southgate Christian School (closed)						X						49400	$1,573,129	2004						0
Augusta-Richmond County	Private School	Augusta Seventh Day Adventist (closed)						X						6900	$479,000	2004						0
Augusta-Richmond County	Private School	Ebenezer Seventh Day Adventist Junior Academy						X						2800	$292,495	2002	$247,380				10	0
Augusta-Richmond County	Private Four-Year College	Paine College						X						0	$1,330,000	2004						0
Augusta-Richmond County	Sheriffs Office	Richmond County Sheriff's Office	X						X					160736	$22,576,000	2004					750	0
Augusta-Richmond County	Sheriffs Office	Sheriffs Office - Eisenhower Drive Substation	X											750	$78,750	2004					2	0
Augusta-Richmond County	Private School	Hillcrest Baptist School						X						176418	$1,577,394	2004					275	0
Augusta-Richmond County	Private School	Aquinas High School						X						17250	$2,231,000	2004					375	0
Augusta-Richmond County	Private School	Curtis Baptist Elementary School	X											111949	$849,357	2004						0
Augusta-Richmond County	Private School	Curtis Baptist High School						X						35719	$271,000	2004					150	0
Augusta-Richmond County	Private School	Immaculate Conception School						X						66647	$495,000	2004					65	0
Augusta-Richmond County	Private School	Augusta Christian Acadeny						X						52708	$240,000	2004						0
Augusta-Richmond County	Private School	Westminster Schools of Augusta												34524	$2,273,060	2004	$266,180	2,004	$1,000	$868	321	0
Augusta-Richmond County	Private School	St Mary's on the Hill (St. Joseph Academy)						X						40502	$4,231,755	2005	$800,000				536	0
Augusta-Richmond County	Private School	Episcopal Day School						X			X			79816	$6,500,000	2003	$1,200,000	2,003			537	0
Augusta-Richmond County	Private School	Wee Wisdom School						X						59400	$54,000	2004						0
Augusta-Richmond	Private School	Alleluia Community School						X						26434	$2,643,400	2005	$1,000,000	2,005			250	0

County																							
Augusta-Richmond County	High School, Public	Academy of Richmond County High School	X											243108	$15,808,601	2004						1,343	0
Augusta-Richmond County	High School, Public	George P. Butler Comprehensive High School	X											179820	$1,474,000	2004						1,244	0
Augusta-Richmond County	High School, Public	Glenn Hills High	X											157347	$10,407,572	2004						1,308	0
Augusta-Richmond County	Elementary School	A.R. Johnson Health Professions (Magnet) School	X											66199	$1,029,000	2004						469	0
Augusta-Richmond County	High School, Public	Lucy C. Laney Comprehensive High School	X											146681	$1,267,000	2004						684	0
Augusta-Richmond County	High School, Public	T.W. Josey Comprehensive High School	X											191336	$4,391,079	2004						1,037	0
Augusta-Richmond County	Elementary School	Wilkinson Gardens Elementary School	X											76484	$540,000	2004						573	0
Augusta-Richmond County	Middle School	Tutt Middle School	X											94466	$912,000	2004						669	0
Augusta-Richmond County	C&D	RICHMOND CO-DEANS BRIDGE RD PH 2C (SL)	X											2895	$1,215,435	2004							0
Augusta-Richmond County	Public Vocational Technical School	Augusta Technical College						X			X			22301	$9,761,000	2004	$17,700,000	2,004				2,500	0
Augusta-Richmond County	Public University	Medical College of Georgia						X						845500		2004							0
Augusta-Richmond County	High School, Public	Westside High	X											137018	$6,104,612	2004						905	0
Augusta-Richmond County	Elementary School	Wheeless Road Elementary School	X											47112	$781,000	2004						513	0
Augusta-Richmond County	Other School	Davidson Magnet School	X											117970	$5,406,000	2004						759	0
Augusta-Richmond County	Elementary School	Terrace Manor Elementary School	X											55526	$1,174,000	2004						409	0
Augusta-Richmond County	Elementary School	Hains Elementary School	X											38042	$963,000	2004						458	0
Augusta-Richmond County	Middle School	Murphey Middle School	X											94838	$5,275,000	2004						781	0
Augusta-Richmond County	Middle School	Tubman Middle School	X											116074	$1,800,443	2004						691	0
Augusta-Richmond County	Middle School	Sego Middle School	X											98109	$4,977,000	2004						1,014	0
Augusta-Richmond County	Elementary School	Jenkins-White Elementary	X											77803	$5,661,355	2004						453	0
Augusta-Richmond County	Elementary School	Sue Reynolds Elementary (new)	X											79604	$4,854,057	2004						635	0
Augusta-Richmond County	Sheriffs Office	Sheriff's Office Training Center						X						3600	$79,000	2004						25	0

Augusta-Richmond County	Private School	C.H. Terrell Academy	X											32670	$187,000	2002		2,004				0
Augusta-Richmond County	Hospital, Admissions Entrance	St. Joseph's Hospital of Augusta	X											400000	$24,753,000	2004					700	0
Augusta-Richmond County	Hospital, Emergency Entrance	Augusta VA Medical Center (Downtown Division)	X											628225	$105,000,000	1997	$70,000,000	1,997				0
Augusta-Richmond County	Fire Station	AFD- Engine Co #8	X											174240	$1,295,000	2004	$1,200,000					0
Augusta-Richmond County	Police Station	AFD- Engine Co #8 (Abandoned)	X											2100	$86,841	2004						0
Augusta-Richmond County	Library	Augusta-Richmond County Public Library									X			38500	$4,279,130	2004	$6,896,562	2,004		$1,051	75	0
Augusta-Richmond County	Middle/High School	Davidson High School (old location)	X											35747	$494,000	2004						0
Augusta-Richmond County	Other School	R.C.B.O.E. Maintenance	X											17010	$378,000	2004					117	0
Augusta-Richmond County	Psychoeducational	Sand Hills	X											23882	$893,883	2004					81	0
Augusta-Richmond County	Private School	Westminster Schools ofAugusta, Administration						X						5606	$369,099	2004	$43,222		$1,000	$868	40	0
Augusta-Richmond County	Private School	Westminster School of Augusta						X						6124	$403,204	2004	$47,216		$1,000	$868	170	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #14	X											2800	$114,000	2002	$330,000				3	0
Augusta-Richmond County	Hospital, Admissions Entrance	Charter Augusta Behavioral Health System	X											12500	$1,715,322	2004						0
Augusta-Richmond County	Other School	William Robinson Center	X											18447	$1,488,927	2004					3	0
Augusta-Richmond County	Other	McDuffie Woods Community Center						X						11160	$1,500,000	2002	$80,000				400	0
Augusta-Richmond County	State Prison	Georgia Regional Youth Development Center						X						0		2004						0
Augusta-Richmond County	State Prison	Georgia Regional Youth Detention Center						X						0		2004						0
Augusta-Richmond County	Emergency Services	Record Retention Facility	X											9000	$550,000	1997	$250,000	1,997				0
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Sydenstricker Bldg)	X											336547	$38,053,369	1997	$40,989,247	1,997				0
Augusta-Richmond County	Hospital, Admissions Entrance	Georgia Regional Med-Surg Unit/Augusta	X											192	$8,082,000	2004						0
Augusta-Richmond County	Airport	Daniel Field		X	X									13000	$6,000	2004					25	0
Augusta-Richmond County	Hospital, Admissions Entrance	Augusta VA Medical Center (Uptown Division)	X											687930	$96,000,000	1997	$30,000,000	1,997				0
Augusta-	Hospital,	Walton Rehabilitation	X						X					70000	$2,255,000	2004					250	0

Richmond County	Admissions Entrance	Hospital																					
Augusta-Richmond County	Hospital, Emergency Entrance	University Hospital	X						X					802811	$145,586,307	2004							0
Augusta-Richmond County	Hospital, Admissions Entrance	Doctor's Hospital	X											280000	$36,000,000	1997	$20,100,000	1,997					0
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (East Wing)	X											55260	$7,609,854	1997	$4,571,107	1,997					0
Augusta-Richmond County	Fire Station	AFD- Engine Co #7 (Abandoned)										X		2100	$130,000	2002							0
Augusta-Richmond County	Fire Station	AFD- Engine Co #9	X											5600	$124,000	2002	$330,000	2,002				3	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #10	X											3000	$81,000	2004	$330,000	2,004				4	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #11	X											35719	$223,759	2004	$330,000	2,004				3	0
Augusta-Richmond County	Other	The Boathouse						X						7800	$1,250,000	2004	$90,000	2,004				250	0
Augusta-Richmond County	Other	H.H. Brigham Swim Center						X						13600	$950,000	2002	$175,000					300	0
Augusta-Richmond County	Other	H.H. Brigham Community Center						X						14000	$950,000	2002	$90,000					500	0
Augusta-Richmond County	Other	H.H. Brigham Senior Center						X						7700	$600,000	2002	$70,000					125	0
Augusta-Richmond County	Other	Doughty Park						X						2016	$100,000	2004	$15,000	2,004				75	0
Augusta-Richmond County	Other	Dyess Park						X						3125	$130,000	2004	$30,000	2,004				125	0
Augusta-Richmond County	Other	Eastview Park						X						4275	$600,000	2004	$50,000	2,004				120	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #19 (Abandoned)											X	1600	$73,000	2004							0
Augusta-Richmond County	Fire Station	AFD- Engine Co #1	X											52708	$1,438,000	2004	$750,000	2,004					0
Augusta-Richmond County	Fire Station	AFD- Engine Co #2	X											5000	$65,000	2004	$300,000	2,004				4	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #3	X											21780	$394,000	2004						22	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #4	X											10890	$168,000	2004	$600,000	2,004				4	0
Augusta-Richmond County	Other	Hickman Park						X						1350	$75,000	2002	$25,000					40	0
Augusta-Richmond County	Other	Jamestown Center						X						3840	$250,000	2004	$65,000	2,004				125	0
Augusta-Richmond	Fire Station	AFD- Engine Co #13	X											14810	$94,000	2004	$330,000					4	0

County																							
Augusta-Richmond County	Fire Station	AFD- Engine Co #15	X											4572	$100,000	2004	$300,000				3	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #16	X											3742	$251,000	2004	$330,000	2,004				0
Augusta-Richmond County	Other	Garrett Gymnasium						X						11100	$1,250,000	2004	$50,000	2,004			250	0
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Special Care Center)	X											365822	$43,898,640	2004	$21,349,372					0
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Talmadge Buidling)	X											428912	$59,065,472	1997	$35,479,601	1,997				0
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Talmedge & Syden Buildings)	X											765459	$107,164,260	2004						0
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Children's Medical Center)	X											219308	$38,378,900	2004						0
Augusta-Richmond County	Elementary School	Silas X. Floyd (Headstart Program)	X											35810	$507,000	2004					252	0
Augusta-Richmond County	Other	R.C.B.O.E. Transporation Facility	X											17846	$1,873,830	2004					298	0
Augusta-Richmond County	City Jail	CSRA Humane Society						X						15250	$345,930	2004						0
Augusta-Richmond County	County Correctional Institution	Richmond County Correctional Institute	X						X					12000	$3,423,634	2004						0
Augusta-Richmond County	County Jail	Richmond County Jail	X						X					150000	$22,576,000	2004						0
Augusta-Richmond County	County Jail	Charles B. Webster Detention Center	X						X					134166	$143,000	2004					550	0
Augusta-Richmond County	Library	Appleby Branch Library									X	X		4600	$783,462	2004	$981,133	2,004		$125	10	0
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Ambulatory Care Center)	X											365822	$43,898,640	2004	$21,349,372	1,997				0
Augusta-Richmond County	Private School	Risen Savior Academy						X						4800	$17,680	2004						0
Augusta-Richmond County	Library	Wallace Branch Library											X	5147	$372,978	2004	$656,895	2,004		$141	10	0
Augusta-Richmond County	Other	Administrative Office at Elliott Park						X						9100	$750,000	2004	$100,000				30	0
Augusta-Richmond County	Other	Augusta Aquatic Center						X						29200	$5,000,000	2004	$300,000				700	0
Augusta-Richmond County	Other	Augusta Municipal Golf Course						X						14150	$850,000	2004	$145,000				105	0
Augusta-Richmond County	Other	WT Johnson Community Center						X						27000	$1,400,000	2004	$100,000	2,004			500	0
Augusta-Richmond County	Other	Old Government House						X						7000	$350,000	2004	$160,000	2,004			100	0

Augusta-Richmond County	Library	Friedman Branch Library											X	10300	$775,325	2004	$1,179,410	2,004		$282	27	0
Augusta-Richmond County	Other	Gracewood Park						X						3840	$150,000	2004	$60,000				125	0
Augusta-Richmond County	Middle School	Morgan Road Middle School	X											99141	$6,913,000	2004					879	0
Augusta-Richmond County	Elementary School	Bungalow Road Elementary School						X						43272	$1,130,000	2004					347	0
Augusta-Richmond County	Public Four-Year College	Guard House										X		952	$210,000	2007	$100,000	2,007			7	0
Augusta-Richmond County	Public Four-Year College	Human Resources								X				2271	$685,000	2007	$200,000	2,007			170	0
Augusta-Richmond County	Public Four-Year College	Alumni House										X		4423	$3,000,000	2007	$250,000	2,007			53	0
Augusta-Richmond County	Public Four-Year College	Boykin Wright Hall										X		7800	$2,900,000	2007	$500,000	2,007			180	0
Augusta-Richmond County	Middle School	Langford Middle School	X											82352	$1,366,119	2004					802	0
Augusta-Richmond County	Elementary School	Lamar Elementary School	X											57833	$2,136,510	2004					401	0
Augusta-Richmond County	Elementary School	Willis Foreman Elem	X											59022	$11,069,120	2004					894	0
Augusta-Richmond County	Elementary School	Bayvale Elem School	X											42297	$600,000	2004					375	0
Augusta-Richmond County	Other	AFD- (Old Engine Co #1) Child Advocacy Group						X						2100	$1,281,238	2004						0
Augusta-Richmond County	Other	Julian Smith Bar B Que Pit						X						5400	$175,000	2002	$40,000				200	0
Augusta-Richmond County	Other	Julian Smith Casino						X						10500	$250,000	2002	$40,000				400	0
Augusta-Richmond County	Other	Warren Road Community Center						X						14000	$2,500,000	2004	$100,000	2,004			500	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #6	X											37897	$65,720	2002	$1,105,000	2,002			9	0
Augusta-Richmond County	Public Four-Year College	Allgood Hall								X				123190	$29,200,000	2007	$4,000,000	2,007			1,832	0
Augusta-Richmond County	Public Four-Year College	Archelogy Lab										X		978	$225,000	2007	$25,000	2,007			11	0
Augusta-Richmond County	Public Four-Year College	Bellevue Hall										X		5113	$1,900,000	2007	$300,000	2,007			38	0
Augusta-Richmond County	Public Four-Year College	Benet Hall										X		9389	$3,400,000	2007	$300,000	2,007			35	0
Augusta-Richmond County	Public Four-Year College	Fine Arts						X						20651	$11,000,000	2007	$1,000,000	2,007				0
Augusta-	Public Four-Year	Galloway Hall								X				16271	$6,000,000	2007	$500,000	2,007				0

Richmond County	College																						
Augusta-Richmond County	Public Four-Year College	Fanning Hall								X				10179	$5,500,000	2007	$1,000,000	2,007				75	0
Augusta-Richmond County	Public Four-Year College	Science Hall					X							121487	$36,900,000	2007	$3,000,000	2,007				1,500	0
Augusta-Richmond County	Public Four-Year College	Payne Hall										X		16540	$6,000,000	2007	$500,000	2,007				155	0
Augusta-Richmond County	Public Four-Year College	Performing Arts								X				28803	$21,000,000	2007	$1,000,000	2,007				1,000	0
Augusta-Richmond County	Public Four-Year College	Rains Hall										X		9564	$5,200,000	2007	$300,000	2,007				50	0
Augusta-Richmond County	Public Four-Year College	Washington Hall								X				44708	$15,200,000	2007	$3,000,000	2,007				233	0
Augusta-Richmond County	Public Four-Year College	Christenberry Field House	X											129870	$22,000,000	2007	$3,000,000	2,007				4,904	0
Augusta-Richmond County	Public Four-Year College	JSAC Student Activities						X						51435	$16,000,000	2007	$712,300	2,007				1,000	0
Augusta-Richmond County	Public Four-Year College	Public Safety (Police Department)	X											2641	$650,000	2007	$200,000	2,007				25	0
Augusta-Richmond County	Public Four-Year College	Reese Library										X		79337	$24,000,000	2007	$10,000,000	2,007				830	0
Augusta-Richmond County	Public Four-Year College	Carpentry Whse.						X						17187	$3,200,000	2007	$500,000	2,007				35	0
Augusta-Richmond County	Public Four-Year College	HazMat Building					X							128	$300,000	2007	$0	2,007					0
Augusta-Richmond County	Public University	Physical Plant Ofc Bldg RA												3417	$99,956	2005							0
Augusta-Richmond County	Public University	Facilities Management Storage Bldg RD												11974	$92,500	2005							0
Augusta-Richmond County	Public University	Lee Warehouse Bldg RE												114235	$1,238,055	2005							0
Augusta-Richmond County	Public Four-Year College	Central Utilities Plant								X				13791	$12,000,000	2007	$3,000,000	2,007				131	0
Augusta-Richmond County	Public Four-Year College	University Hall								X				112370	$25,200,000	2007	$6,000,000	2,007				1,123	0
Augusta-Richmond County	Public University	Child Care Center Bldg OC												6058	$342,000	2005							0
Augusta-Richmond County	Public University	President's Main House Bldg OF												13848	$251,080	2005							0
Augusta-Richmond County	Public University	President's House Garage Apt Bldg OG												2576	$47,100	2005							0
Augusta-Richmond County	Public University	President's House Cottage Bldg OH												910	$19,033	2005							0
Augusta-Richmond	Public University	Grounds Maintenance Bldg RB												4832	$26,900	2005							0

County																							
Augusta-Richmond County	Public University	Grounds Maint Storage Bldg RC												1232	$3,900	2005							0
Augusta-Richmond County	Public University	Community Medicine Offices Bldg HH												2511	$69,518	2005							0
Augusta-Richmond County	Public University	Mark Bldg HF												10213	$453,010	2005							0
Augusta-Richmond County	Public University	Physical Plant Shops Bldg HP												27655	$429,000	2005							0
Augusta-Richmond County	Public University	Respiratory Therapy Annex Bldg HN												1100	$864,000	2005							0
Augusta-Richmond County	Public University	Annex Building HS												168616	$2,574,316	2005							0
Augusta-Richmond County	Public University	Annex II Bldg HT												42352	$307,640	2005							0
Augusta-Richmond County	Public University	Employee Assistance Bldg FE												1145	$7,613	2005							0
Augusta-Richmond County	Public University	Dermatology Offices Bldg FH												4140	$36,192	2005							0
Augusta-Richmond County	Public University	Alumni Center Bldg FI												68000	$1,725,657	2005							0
Augusta-Richmond County	Public University	Residence VI Bldg FM												33840	$342,144	2005							0
Augusta-Richmond County	Public University	Faculty Office Bldg HB												34463	$966,749	2005							0
Augusta-Richmond County	Private University	Community Medicine Offices Bldg HH												2511	$69,518	2005							0
Augusta-Richmond County	Public University	Residence V Laundry Bldg DG												803	$4,200	2005							0
Augusta-Richmond County	Public University	Telemedicine Center Bldg EA												2648	$18,408	2005							0
Augusta-Richmond County	Public University	Jennings Wing Bldg EB												16717	$50,402	2005							0
Augusta-Richmond County	Private University	Shepard MT/OT Bldg EF												21101	$53,448	2005							0
Augusta-Richmond County	Public University	School of Nursing Bldg EG												18780	$118,750	2005							0
Augusta-Richmond County	Public University	Sickle Cell Adult Clinic Bldg FF												6438	$36,192	2005							0
Augusta-Richmond County	Public University	Liquid Transfer Bldg CM												400	$656,000	2005							0
Augusta-Richmond County	Public University	Material Safety Storage Facilty Bldg CS												2000	$60,000	2005							0
Augusta-Richmond County	Private University	Residence V Bldg D Bldg DF												12848	$153,000	2005							0

Augusta-Richmond County	Public University	Public Safety Sub Station Bldg DH												273	$6,200	2005						0
Augusta-Richmond County	Public University	Residence V Bldg B Bldg DD												16269	$190,000	2005						0
Augusta-Richmond County	Public University	Residence V Bldg C Bldg DE												16269	$190,000	2005						0
Augusta-Richmond County	Public University	Sanders Research & Education Bldg CB												303667	$25,777,198	2005						0
Augusta-Richmond County	Public University	Hamilton Wing Bldg CL												46695	$2,792,652	2005						0
Augusta-Richmond County	Public University	Cancer Research Center Bldg CN												26586	$12,262,605	2005						0
Augusta-Richmond County	Public University	RA Dent Blvd Deck Bldg CT												136069	$1,870,000	2005						0
Augusta-Richmond County	Public University	Environmental Health & Safety Bldg CI												4726	$26,600	2005						0
Augusta-Richmond County	Public University	Physical Therapy Bldg CH												13112	$217,000	2005						0
Augusta-Richmond County	Public University	Student Center Bldg DA												76145	$874,000	2005						0
Augusta-Richmond County	Public University	Student Study Center Bldg CK												23331	$874,000	2005						0
Augusta-Richmond County	Public University	Residence IV Bldg DB												22316	$259,000	2005						0
Augusta-Richmond County	Public University	Residence V Building A Bldg DC												16269	$190,000	2005						0
Augusta-Richmond County	Public University	Auditoria Center Bldg BC												18519	$196,000	2005						0
Augusta-Richmond County	Public University	Research Center Lab Building CA												109583	$49,305,675	2005						0
Augusta-Richmond County	Private University	School of Dentristy Bldg AD												198312	$4,875,000	2005						0
Augusta-Richmond County	Public University	Murphey Building BF												47007	$163,000	2005						0
Augusta-Richmond County	Public University	Dugas Building BG												43231	$279,000	2005						0
Augusta-Richmond County	Public University	Central Energy Plant Bldg BH												38151	$656,000	2005						0
Augusta-Richmond County	Public University	Pavillion III Bldg CJ												65938	$1,904,000	2005						0
Augusta-Richmond County	Public University	Goss Lane Parking Deck Bldg CP												153984	$1,505,000	2005						0
Augusta-Richmond County	Public University	Environmental Svcs Storage Bldg AG												1266	$26,600	2005						0
Augusta-	Public University	Telemedicine Bldg												2709	$18,325	2005						0

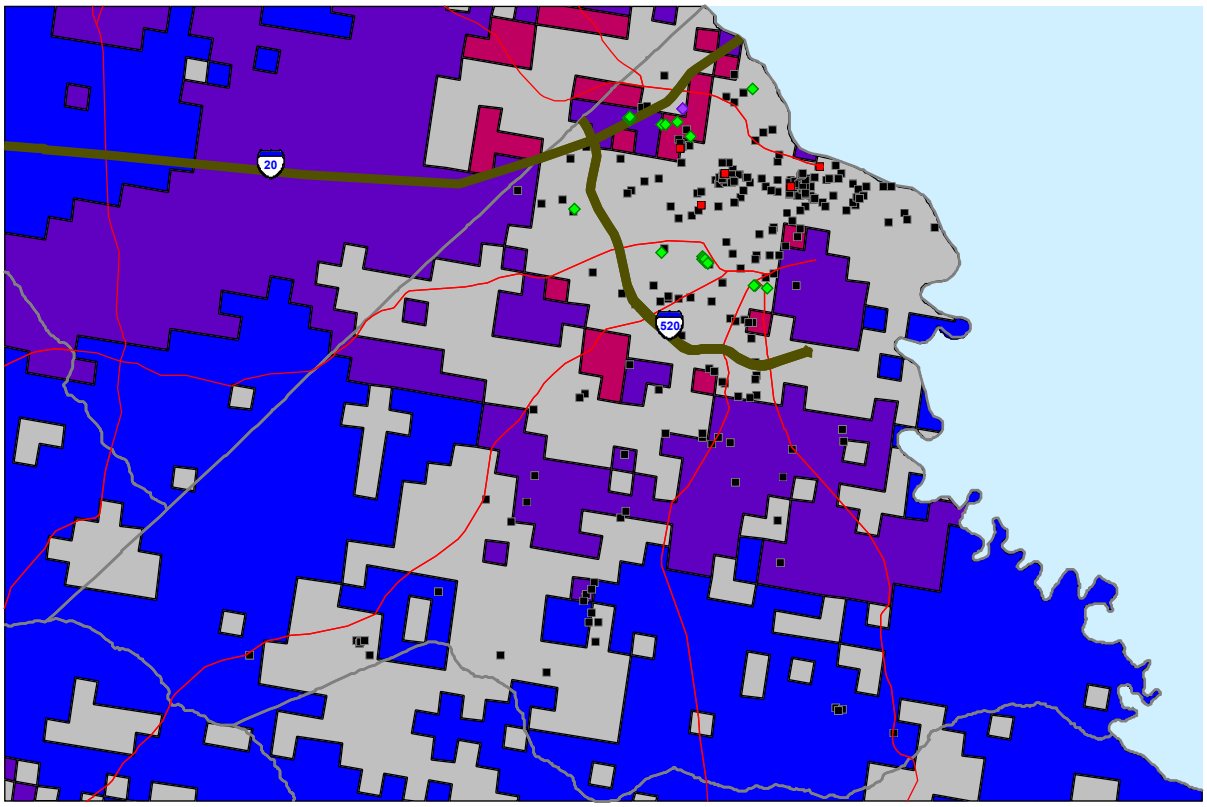
Richmond County		AR																				
Augusta-Richmond County	Public University	Telemedicine HIM Bldg AI												7439	$18,325	2005						0
Augusta-Richmond County	Public University	Student Health Bldg AJ												4646	$142,921	2005						0
Augusta-Richmond County	Public University	Classroom Services Bldg AK												4220	$84,345	2005						0
Augusta-Richmond County	Public University	Health Info. Management Bldg AL												3792	$75,612	2005						0
Augusta-Richmond County	Public University	Administration Bldg AA												40618	$485,000	2005						0
Augusta-Richmond County	Public University	Pavillion II Bldg AF												26000	$337,000	2005						0
Augusta-Richmond County	Public University	Pavilion I Bldg AE												37183	$487,000	2005						0
Augusta-Richmond County	Public University	Crosswalk Talmadge to Pavillion III Bldg AP												4030	$261,000	2005						0
Augusta-Richmond County	Public University	Greenblatt Libary Bldg AB												77583	$1,598,000	2005						0
Augusta-Richmond County	Public University	Protein Chemistry Laboratory Bldg AC												4080	$75,000	2005						0
Augusta-Richmond County	Other	May Park Community Center						X						17000	$2,500,000	2004	$800,000	2,004			500	0
Augusta-Richmond County	Other	Merry Street Ceramic Shop						X						1400	$100,000	2002	$30,000				35	0
Augusta-Richmond County	Other	Minnick Park						X						2400	$65,000	2002	$7,500				45	0
Augusta-Richmond County	Other	Sand Hills Community Center						X						7300	$600,000	2004	$60,000				200	0
Totals for Augusta-Richmond County, Hazard Score = 0														18,512,695	$1,494,162,079		$323,411,497		$3,000	$4,203	56,862	
Blythe town	Elementary School	Blythe Elementary School	X											45765	$1,238,000	2004					419	0
Blythe town	City Hall	Blythe City Hall	X									X		3900	$210,000	2000	$13,900	2,000			4	0
Blythe town	Water System	City of Blythe Treatment Plant #2 (Old Well)											X	144	$35,000	1997	$25,000	1,997				0
Blythe town	Water System	City of Blythe Water System	X									X		3900	$210,000	2000	$51,200	2,000			3	0
Blythe town	Police Station	Blythe Police Department	X											3900	$210,000	2000	$13,900	2,000			4	0
Blythe town	Water System	City of Blythe Treatment Plant #1 (New Well)												120	$35,000	1997	$25,000	1,997				0
Blythe town	Water System	City of Blythe Water Tower			X									0		2004						0
Totals for Blythe town, Hazard Score = 0														57,729	$1,938,000		$129,000		$0	$0	430	
Hephzibah city	Elementary School	Hephzibah Elementary School	X											77701	$1,123,000	2004					543	2
Hephzibah city	City Hall	Hephzibah City Hall			X			X						2670	$210,750	2000	$48,150	2,000	$258,900		4	2

Hephzibah city	Police Station	Hepzhibah Police Department	X					X						2670	$210,750	2000	$48,150	2,000	$258,900		4	2
Hephzibah city	Elementary School	Graham Elementary School	X											0	$323,658	2004						2
Hephzibah city	Fire Station	Hephzibah Fire Department	X					X						3949	$228,300	2000	$26,400	2,000	$254,700		2	2
Hephzibah city	Water System	City of Hephzibah Water System	X		X		X							576	$58,800	2000	$89,300	2,000	$148,100			2
Totals for Hephzibah city, Hazard Score = 2														87,566	$2,155,258		$212,000		$920,600	$0	553	
Hephzibah city	High School, Public	Hephzibah Comprehensive High	X											145429	$5,940,000	2004					1,288	1
Totals for Hephzibah city, Hazard Score = 1														145,429	$5,940,000		$0		$0	$0	1,288	
Hephzibah city	Other	Hephzibah/Carroll Community Center						X						5320	$120,000	2002	$20,000				100	0
Hephzibah city	Middle School	Hephzibah Middle School	X											99398	$4,885,601	2004					1,156	0
Hephzibah city	Wastewater Treatment Plant	Hephzibah WPCP	X		X		X							90	$6,200	2000	$6,200	2,000				0
Hephzibah city	Water System	Hephzibah-Oakridge-Water Tower	X		X		X							336	$35,800	2000	$52,100	2,000	$87,900			0
Totals for Hephzibah city, Hazard Score = 0														105,144	$5,047,601		$78,300		$87,900	$0	1,256	
Grand Totals														**20,088,367**	**$1,966,988,995**		**$330,404,575**		**$1,013,500**	**$56,135**	**68,887**	

- Pre-Disaster Mitigation
- Fiscal Year: 2009
- Report created: Jul 22, 2011
- For more information call GEMA Pre-Disaster Mitigation at 1-800-TRY-GEMA

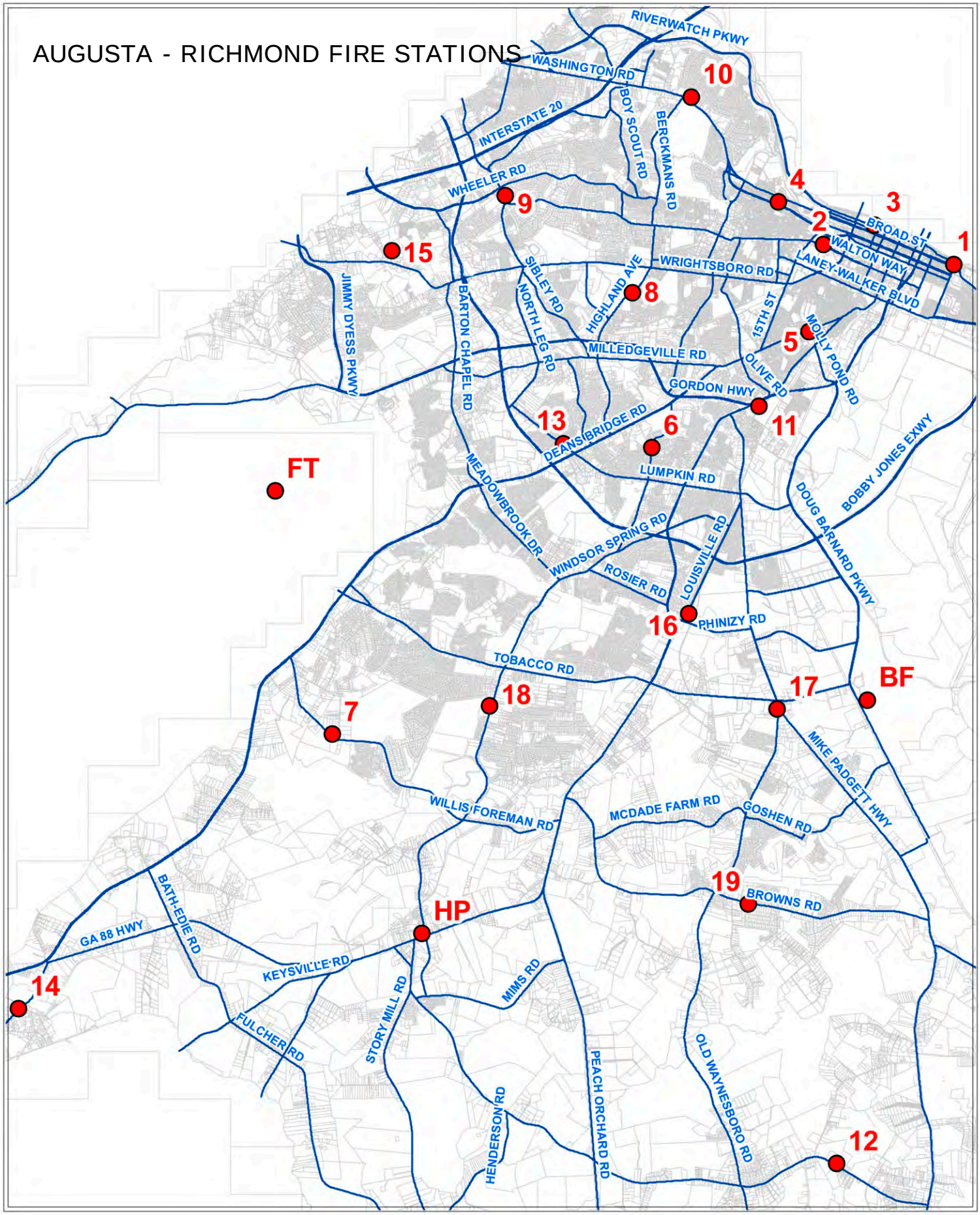
Export options: Raw Data Format (xls) | Report Format (xls)

GMIS WILDFIRE MAP – BY JURISDCTION



Score	Original Value	Description
4	5	High
3	4	Moderate
2	3	Low
1	2	Very Low
0	1	No Houses
	7	Agriculture
	8	Water
	9	City

1 = BLUE
2 = PURPLE
3 = MAGENTA
4 = RED
0= GREY


AUGUSTA - RICHMOND FIRE STATIONS
RIVERWATCH PKWY
WASHINGTON RD
INTERSTATE 20
BOY SCOUT RD
BERCKMANS RD
WHEELER RD
BROAD ST
WALTON WAY
LANEY-WALKER BLVD
WRIGHTSBORO RD
SIBLEY RD
HIGHLAND AVE
NORTH LEG RD
JIMMY DYESS PKWY
BARTON CHAPEL RD
15TH ST
MOLLY POND RD
MILLEDGEVILLE RD
OLIVE RD
GORDON HWY
DEANS BRIDGE RD
LUMPKIN RD
MEADOWBROOK DR
BOBBY JONES EXWY
DOUG BARNARD PKWY
WINDSOR SPRING RD
ROSIER RD
LOUISVILLE RD
PHINIZY RD
TOBACCO RD
MIKE PADGETT HWY
WILLIS FOREMAN RD
MCDADE FARM RD
GOSHEN RD
BROWNS RD
BATH-EDIE RD
GA 88 HWY
KEYSVILLE RD
FULCHER RD
STORY MILL RD
MIMS RD
HENDERSON RD
PEACH ORCHARD RD
OLD WAYNESBORO RD
1
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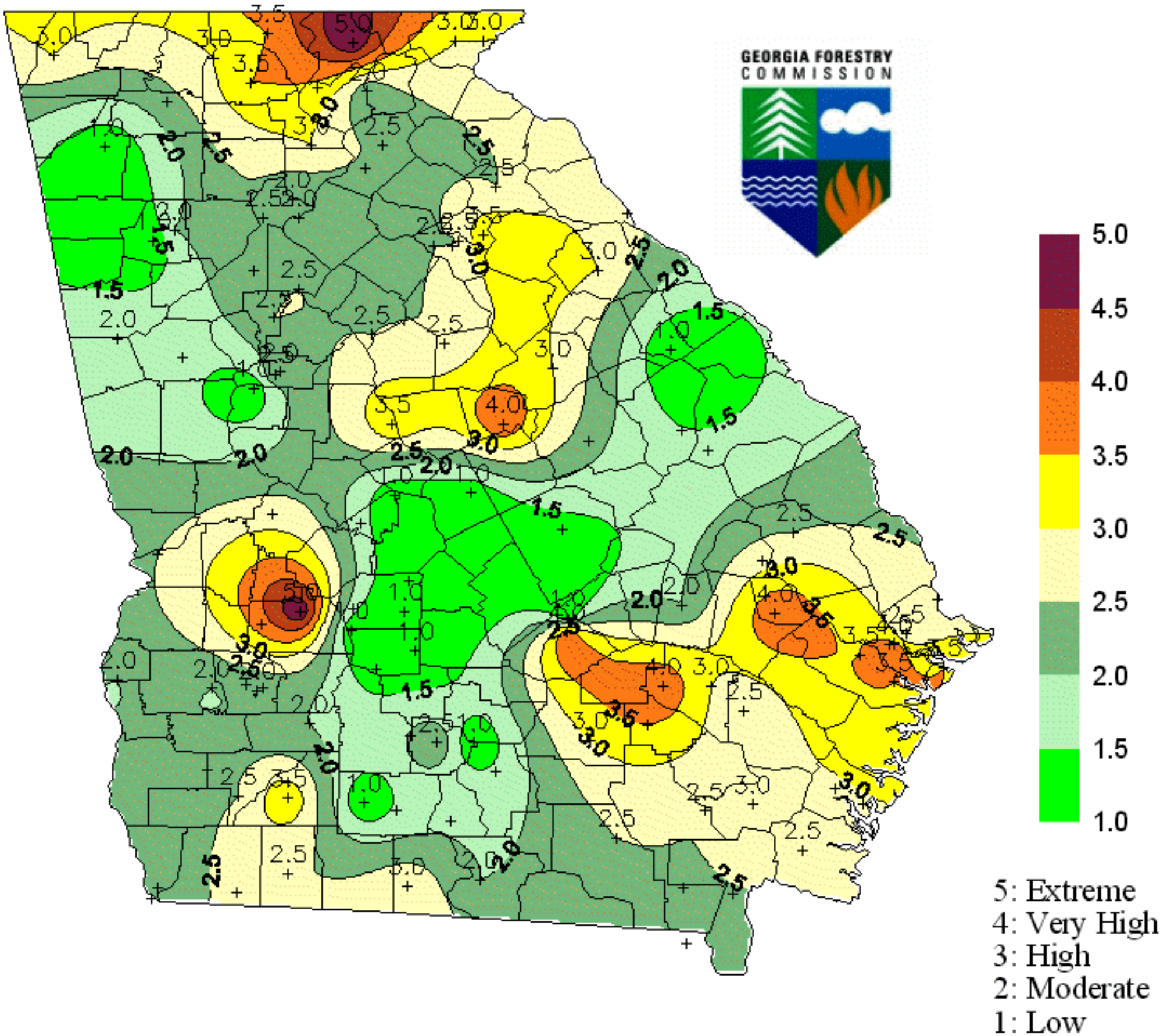
19
FT
HP
BF
Miles
0 0.25 0.5 1 1.5 2
Augusta Richmond County GIS
Projection Stateplane
Zone 3651
Units Feet
Augusta, GA Disclaimer
The data represented on this map has been compiled by the best methods available. Accuracy is contingent upon the source information as compiled by various agencies and departments both internal and external to the consolidated government of Augusta, GA. Augusta, GA and the companies contracted to develop these data assume no legal responsibilities for the information or accuracy contained on this map. It is strictly forbidden to sell or reproduce these maps or data for any reason without the written consent of the Augusta-Richmond County Commission.
I:\Michele\maps\Fire dept\fire_stations.jpg 5/27/2005 @ 11:20:42 AM

Fire Danger Rating
as of June 27, 2011 230pm



The Georgia Forestry Commission meteorologist produces the above map each afternoon at 230pm by utilizing National Fire Danger Rating System output from weather station locations across Georgia. Values are interpolated between the stations to produce the map.
The system is designed to cover large geographical areas. Localized conditions may differ from the above map based on local rainfall, windspeeds, and relative humidity.

For more detailed information select 'weather' on our web site.

If you have questions contact Daniel Chan at 1-800-GATREES.

GEORGIA FORESTRY COMMISSION

Georgia Wildfires of 2007 Summary of Facts and Costs for Recovery

Overview of The Fires of 2007

The Georgia Forestry Commission led the battle to control Georgia's largest wildfire in recorded history. The Georgia Bay Complex burned 441,705 acres in Georgia and destroyed 9 homes.

An additional 21,000 acres burned in the 21-County Governor Declared Emergency area.

More than 3,300 people from 44 states worked to control the wildfires.

Over $8 million is needed to reforest non-industrial private land; $2.2 million in cost-share assistance has been procured to date.

Funds are needed to rehabilitate over 352 miles of firebreaks surrounding the Okefenokee National Wildlife Refuge.

During fiscal year 2007, over 9,500 fires burned more than 504,000 acres. The largest ever recorded annual GFC expenditures for fire control efforts totaled over $62,000,000.

Now that The Fires have been controlled, we all have the opportunity to leave a lasting legacy by the way we manage Georgia's recovery.

The GFC is working to refine assessments of damage and recovery beyond preliminary figures presented in this document.

7/20/2007

The Bottom Line: Damage, Destruction & Cost of The South Georgia Fires of 2007

Fire Location	Ownership of Burned Land	Acres of Land Burned	Number of Landowners	Value of Lost Timber	Acres to Reforest	Estimated Cost To Reforest
Georgia Bay Complex*	*Georgia only*	*441,705*				
	Corporate Lands	70,529	11	$34,971,981	45,844	$18,337,540
	Non-Industrial Private Farms	19,129	123	$ 9,485,162	12,434	$ 4,973,540
	DOI Easements	6,344		$ 3,145,688	4,124	$ 1,649,440
	State Forests	19,187		$ 6,605,600	4,539	$ 1,268,000
		115,189	134	$54,208,431	66,941	$26,228,520
21 County Emergency Declaration Area	Corporate Lands	9,256	23	$ 4,589,611	6,016	$ 2,406,560
	Non-Industrial Private Farms	11,792	164	$ 5,847,093	7,665	$ 3,065,920
		21,048	187	$ 10,436,704	13,681	$ 5,472,480
Totals of All Non-Industrial Private Farms		30,921	287	$15,332,255	20,099	$ 8,039,460
Totals of All Private Lands		117,050	321	$58,039,535	76,083	$30,433,000

**Georgia Bay Complex – Total acres burned in both Georgia and Florida: 564,450*

Revised 10-07

A.6 Natural Hazard F: Earthquake

GEMA Worksheet #3a Inventory of Assets

Jurisdiction Richmond County

Hazard: Earthquake

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

(Source: U.S. Census 2000, HAZUS-MR4 data)

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$,000's in Community or State	$,000's in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	71,769	71,769	100%	8,967,798	8,967,798	100%	199,775	199,775	100%
Commercial	4,202	4,202	100%	2,707,355	2,707,355	100%			N/A
Industrial	961	961	100%	495,189	495,189	100%			N/A
Agricultural	196	196	100%	26,011	26,011	100%			N/A
Religious/ Non-profit	515	515	100%	312,465	312,465	100%			N/A
Government	129	129	100%	96,570	96,570	100%			N/A
Education	145	145	100%	137,831	137,831	100%			N/A
Utilities			N/A	388,200	388,200	N/A			N/A
Total	77,917	77,917	100%	13,131,419	13,131,419	100%	199,775	199,775	100%

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

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

GMIS Reporting for Seismic Hazard by Jurisdiction
Grouped by Hazard Score

NOTE: Only completed facilities will be reported

Government Jurisdiction	Type	Name or Structure Description	Essential Facility	Transportation System	Lifeline System	High Potential Loss	Haz Mat Facility	Important Facility	Vulnerable Population	Economic Assets	Special Considerations	Historic Considerations	Other	Size of Bldg. (sq. ft.)	Replace Value ($)	Replace Value Year	Contents Value ($)	Contents Value Year	Functional Value ($)	Displace Cost ($ per day)	Occupancy	Hazard Score
Augusta-Richmond County	Middle School	Langford Middle School	X											82352	$1,366,119	2004					802	3
Augusta-Richmond County	Elementary School	Lamar Elementary School	X											57833	$2,136,510	2004					401	3
Augusta-Richmond County	Elementary School	Willis Foreman Elem	X											59022	$11,069,120	2004					894	3
Augusta-Richmond County	Elementary School	Bayvale Elem School	X											42297	$600,000	2004					375	3
Augusta-Richmond County	Elementary School	Meadowbrook Elementary School	X											60954	$3,984,000	2004					754	3
Augusta-Richmond County	Middle School	Morgan Road Middle School	X											99141	$6,913,000	2004					879	3
Augusta-Richmond County	Elementary School	Bungalow Road Elementary School						X						43272	$1,130,000	2004					347	3
Augusta-Richmond County	Public Four-Year College	Guard House										X		952	$210,000	2007	$100,000	2,007			7	3
Augusta-Richmond County	Public Four-Year College	Human Resources								X				2271	$685,000	2007	$200,000	2,007			170	3
Augusta-Richmond County	Public Four-Year College	Alumni House										X		4423	$3,000,000	2007	$250,000	2,007			53	3
Augusta-Richmond County	Public Four-Year College	Boykin Wright Hall										X		7800	$2,900,000	2007	$500,000	2,007			180	3
Augusta-Richmond County	Private School	Westminster Schools, Band/Weight Room Bldg						X						1740	$114,561	1992	$13,415				50	3
Augusta-Richmond County	Private School	Westminster Schools, Media Center						X						5290	$384,293	1988	$40,758				150	3
Augusta-Richmond County	Public Four-Year College	Allgood Hall								X				123190	$29,200,000	2007	$4,000,000	2,007			1,832	3
Augusta-Richmond County	Public Four-Year College	Archelogy Lab										X		978	$225,000	2007	$25,000	2,007			11	3
Augusta-Richmond County	Public Four-Year College	Bellevue Hall										X		5113	$1,900,000	2007	$300,000	2,007			38	3
Augusta-Richmond County	Public Four-Year College	Benet Hall										X		9389	$3,400,000	2007	$300,000	2,007			35	3
Augusta-Richmond County	Public Four-Year College	Fine Arts						X						20651	$11,000,000	2007	$1,000,000	2,007				3

Augusta-Richmond County	Public Four-Year College	Galloway Hall								X				16271	$6,000,000	2007	$500,000	2,007				3
Augusta-Richmond County	Public Four-Year College	Fanning Hall								X				10179	$5,500,000	2007	$1,000,000	2,007			75	3
Augusta-Richmond County	Public Four-Year College	Science Hall					X							121487	$36,900,000	2007	$3,000,000	2,007			1,500	3
Augusta-Richmond County	Public Four-Year College	Payne Hall										X		16540	$6,000,000	2007	$500,000	2,007			155	3
Augusta-Richmond County	Public Four-Year College	Performing Arts								X				28803	$21,000,000	2007	$1,000,000	2,007			1,000	3
Augusta-Richmond County	Public Four-Year College	Rains Hall										X		9564	$5,200,000	2007	$300,000	2,007			50	3
Augusta-Richmond County	Public Four-Year College	Washington Hall								X				44708	$15,200,000	2007	$3,000,000	2,007			233	3
Augusta-Richmond County	Public Four-Year College	Christenberry Field House	X											129870	$22,000,000	2007	$3,000,000	2,007			4,904	3
Augusta-Richmond County	Public Four-Year College	JSAC Student Activities						X						51435	$16,000,000	2007	$712,300	2,007			1,000	3
Augusta-Richmond County	Public Four-Year College	Public Safety (Police Department)	X											2641	$650,000	2007	$200,000	2,007			25	3
Augusta-Richmond County	Public Four-Year College	Reese Library										X		79337	$24,000,000	2007	$10,000,000	2,007			830	3
Augusta-Richmond County	Public Four-Year College	Carpentry Whse.						X						17187	$3,200,000	2007	$500,000	2,007			35	3
Augusta-Richmond County	Public Four-Year College	HazMat Building					X							128	$300,000	2007	$0	2,007				3
Augusta-Richmond County	Public University	Physical Plant Ofc Bldg RA												3417	$99,956	2005						3
Augusta-Richmond County	Public University	Facilities Management Storage Bldg RD												11974	$92,500	2005						3
Augusta-Richmond County	Public University	Lee Warehouse Bldg RE												114235	$1,238,055	2005						3
Augusta-Richmond County	Public University	MCG Animal Care Facility Bldg OB												20017	$324,100	2005						3
Augusta-Richmond County	Public Four-Year College	Central Utilities Plant								X				13791	$12,000,000	2007	$3,000,000	2,007			131	3
Augusta-Richmond County	Public Four-Year College	University Hall								X				112370	$25,200,000	2007	$6,000,000	2,007			1,123	3
Augusta-Richmond County	Public University	Child Care Center Bldg OC												6058	$342,000	2005						3
Augusta-Richmond County	Public University	President's Main House Bldg OF												13848	$251,080	2005						3
Augusta-Richmond County	Public University	President's House Garage Apt Bldg OG												2576	$47,100	2005						3
Augusta-	Public University	President's House												910	$19,033	2005						3

Richmond County		Cottage Bldg OH																					
Augusta-Richmond County	Public University	Grounds Maintenance Bldg RB												4832	$26,900	2005							3
Augusta-Richmond County	Public University	Grounds Maint Storage Bldg RC												1232	$3,900	2005							3
Augusta-Richmond County	Public University	Community Medicine Offices Bldg HH												2511	$69,518	2005							3
Augusta-Richmond County	Public University	Mark Bldg HF												10213	$453,010	2005							3
Augusta-Richmond County	Public University	Physical Plant Shops Bldg HP												27655	$429,000	2005							3
Augusta-Richmond County	Public University	Respiratory Therapy Annex Bldg HN												1100	$864,000	2005							3
Augusta-Richmond County	Public University	Annex Building HS												168616	$2,574,316	2005							3
Augusta-Richmond County	Public University	Annex II Bldg HT												42352	$307,640	2005							3
Augusta-Richmond County	Public University	Employee Assistance Bldg FE												1145	$7,613	2005							3
Augusta-Richmond County	Public University	Dermatology Offices Bldg FH												4140	$36,192	2005							3
Augusta-Richmond County	Public University	Alumni Center Bldg FI												68000	$1,725,657	2005							3
Augusta-Richmond County	Public University	Residence VI Bldg FM												33840	$342,144	2005							3
Augusta-Richmond County	Public University	Faculty Office Bldg HB												34463	$966,749	2005							3
Augusta-Richmond County	Private University	Community Medicine Offices Bldg HH												2511	$69,518	2005							3
Augusta-Richmond County	Public University	Residence V Laundry Bldg DG												803	$4,200	2005							3
Augusta-Richmond County	Public University	Telemedicine Center Bldg EA												2648	$18,408	2005							3
Augusta-Richmond County	Public University	Jennings Wing Bldg EB												16717	$50,402	2005							3
Augusta-Richmond County	Private University	Shepard MT/OT Bldg EF												21101	$53,448	2005							3
Augusta-Richmond County	Public University	School of Nursing Bldg EG												18780	$118,750	2005							3
Augusta-Richmond County	Public University	Sickle Cell Adult Clinic Bldg FF												6438	$36,192	2005							3
Augusta-Richmond County	Public University	Liquid Transfer Bldg CM												400	$656,000	2005							3
Augusta-Richmond	Public University	Material Safety Storage Facilty Bldg												2000	$60,000	2005							3

County		CS																					
Augusta-Richmond County	Private University	Residence V Bldg D Bldg DF												12848	$153,000	2005							3
Augusta-Richmond County	Public University	Public Safety Sub Station Bldg DH												273	$6,200	2005							3
Augusta-Richmond County	Public University	Residence V Bldg B Bldg DD												16269	$190,000	2005							3
Augusta-Richmond County	Public University	Residence V Bldg C Bldg DE												16269	$190,000	2005							3
Augusta-Richmond County	Public University	Sanders Research & Education Bldg CB												303667	$25,777,198	2005							3
Augusta-Richmond County	Public University	Hamilton Wing Bldg CL												46695	$2,792,652	2005							3
Augusta-Richmond County	Public University	Cancer Research Center Bldg CN												26586	$12,262,605	2005							3
Augusta-Richmond County	Public University	RA Dent Blvd Deck Bldg CT												136069	$1,870,000	2005							3
Augusta-Richmond County	Public University	Environmental Health & Safety Bldg CI												4726	$26,600	2005							3
Augusta-Richmond County	Public University	Physical Therapy Bldg CH												13112	$217,000	2005							3
Augusta-Richmond County	Public University	Student Center Bldg DA												76145	$874,000	2005							3
Augusta-Richmond County	Public University	Student Study Center Bldg CK												23331	$874,000	2005							3
Augusta-Richmond County	Public University	Residence IV Bldg DB												22316	$259,000	2005							3
Augusta-Richmond County	Public University	Residence V Building A Bldg DC												16269	$190,000	2005							3
Augusta-Richmond County	Public University	Auditoria Center Bldg BC												18519	$196,000	2005							3
Augusta-Richmond County	Public University	Research Center Lab Building CA												109583	$49,305,675	2005							3
Augusta-Richmond County	Private University	School of Dentristy Bldg AD												198312	$4,875,000	2005							3
Augusta-Richmond County	Public University	Murphey Building BF												47007	$163,000	2005							3
Augusta-Richmond County	Public University	Dugas Building BG												43231	$279,000	2005							3
Augusta-Richmond County	Public University	Central Energy Plant Bldg BH												38151	$656,000	2005							3
Augusta-Richmond County	Public University	Pavillion III Bldg CJ												65938	$1,904,000	2005							3
Augusta-Richmond County	Public University	Goss Lane Parking Deck Bldg CP												153984	$1,505,000	2005							3

Augusta-Richmond County	Public University	Environmental Svcs Storage Bldg AG												1266	$26,600	2005							3
Augusta-Richmond County	Public University	Telemedicine Bldg AR												2709	$18,325	2005							3
Augusta-Richmond County	Public University	Telemedicine HIM Bldg AI												7439	$18,325	2005							3
Augusta-Richmond County	Public University	Student Health Bldg AJ												4646	$142,921	2005							3
Augusta-Richmond County	Public University	Classroom Services Bldg AK												4220	$84,345	2005							3
Augusta-Richmond County	Public University	Health Info. Management Bldg AL												3792	$75,612	2005							3
Augusta-Richmond County	Public University	Administration Bldg AA												40618	$485,000	2005							3
Augusta-Richmond County	Public University	Pavillion II Bldg AF												26000	$337,000	2005							3
Augusta-Richmond County	Public University	Pavilion I Bldg AE												37183	$487,000	2005							3
Augusta-Richmond County	Public University	Crosswalk Talmadge to Pavillion III Bldg AP												4030	$261,000	2005							3
Augusta-Richmond County	Public University	Greenblatt Libary Bldg AB												77583	$1,598,000	2005							3
Augusta-Richmond County	Public University	Protein Chemistry Laboratory Bldg AC												4080	$75,000	2005							3
Augusta-Richmond County	Other	May Park Community Center						X						17000	$2,500,000	2004	$800,000	2,004				500	3
Augusta-Richmond County	Other	Merry Street Ceramic Shop						X						1400	$100,000	2002	$30,000					35	3
Augusta-Richmond County	Other	Minnick Park						X						2400	$65,000	2002	$7,500					45	3
Augusta-Richmond County	Other	Sand Hills Community Center						X						7300	$600,000	2004	$60,000					200	3
Augusta-Richmond County	Other	Sue Reynolds Park						X						2375	$85,000	2004	$20,000					60	3
Augusta-Richmond County	Other	Warren Road Community Center						X						14000	$2,500,000	2004	$100,000	2,004				500	3
Augusta-Richmond County	Fire Station	AFD- Engine Co #5	X											23958	$442,000	2004	$330,000	2,004				4	3
Augusta-Richmond County	Fire Station	AFD- Engine Co #6	X											37897	$65,720	2002	$1,105,000	2,002				9	3
Augusta-Richmond County	Fire Station	AFD- Engine Co #7	X											4800	$1,206,000	2004	$800,000	2,004				4	3
Augusta-Richmond County	Other	AFD- (Old Engine Co #1) Child Advocacy Group						X						2100	$1,281,238	2004							3
Augusta-	Other	Julian Smith Bar B						X						5400	$175,000	2002	$40,000					200	3

Richmond County		Que Pit																					
Augusta-Richmond County	Other	Julian Smith Casino						X						10500	$250,000	2002	$40,000					400	3
Augusta-Richmond County	Fire Station	AFD- Engine Co #18	X											4589	$57,000	2004	$830,000	2,004				4	3
Augusta-Richmond County	Fire Station	AFD- Engine Co #19 (Abandoned)											X	1600	$73,000	2004							3
Augusta-Richmond County	Fire Station	AFD- Engine Co #1	X											52708	$1,438,000	2004	$750,000	2,004					3
Augusta-Richmond County	Fire Station	AFD- Engine Co #2	X											5000	$65,000	2004	$300,000	2,004				4	3
Augusta-Richmond County	Fire Station	AFD- Engine Co #3	X											21780	$394,000	2004						22	3
Augusta-Richmond County	Fire Station	AFD- Engine Co #4	X											10890	$168,000	2004	$600,000	2,004				4	3
Augusta-Richmond County	Other	Hickman Park						X						1350	$75,000	2002	$25,000					40	3
Augusta-Richmond County	Other	Jamestown Center						X						3840	$250,000	2004	$65,000	2,004				125	3
Augusta-Richmond County	Fire Station	AFD- Engine Co #13	X											14810	$94,000	2004	$330,000					4	3
Augusta-Richmond County	Fire Station	AFD- Engine Co #15	X											4572	$100,000	2004	$300,000					3	3
Augusta-Richmond County	Fire Station	AFD- Engine Co #16	X											3742	$251,000	2004	$330,000	2,004					3
Augusta-Richmond County	Fire Station	AFD- Engine Co #17	X											2800	$121,528	2004	$330,000	2,004				5	3
Augusta-Richmond County	Other	Doughty Park						X						2016	$100,000	2004	$15,000	2,004				75	3
Augusta-Richmond County	Other	Dyess Park						X						3125	$130,000	2004	$30,000	2,004				125	3
Augusta-Richmond County	Other	Eastview Park						X						4275	$600,000	2004	$50,000	2,004				120	3
Augusta-Richmond County	Other	Fleming Athletic Office							X					4600	$120,000	1999	$75,000					45	3
Augusta-Richmond County	Other	Bernie Ward Community Center						X						17000	$2,900,000	2003	$100,000					500	3
Augusta-Richmond County	Other	Gracewood Park						X						3840	$150,000	2004	$60,000					125	3
Augusta-Richmond County	Other	Blythe Area Community Center						X						5850	$600,000	2002	$30,000					125	3
Augusta-Richmond County	Other	The Boathouse						X						7800	$1,250,000	2004	$90,000	2,004				250	3
Augusta-Richmond	Other	H.H. Brigham Swim Center						X						13600	$950,000	2002	$175,000					300	3

County																							
Augusta-Richmond County	Other	H.H. Brigham Community Center						X						14000	$950,000	2002	$90,000				500	3	
Augusta-Richmond County	Other	H.H. Brigham Senior Center						X						7700	$600,000	2002	$70,000				125	3	
Augusta-Richmond County	Other	Carrie Mays						X						15960	$850,000	2004	$100,000	2,004			425	3	
Augusta-Richmond County	Library	Friedman Branch Library											X	10300	$775,325	2004	$1,179,410	2,004		$282	27	3	
Augusta-Richmond County	Library	Jeff Maxwell Branch Library											X	7158	$587,883	2004	$1,685,698	2,004		$196	28	3	
Augusta-Richmond County	Library	Wallace Branch Library											X	5147	$372,978	2004	$656,895	2,004		$141	10	3	
Augusta-Richmond County	Other	Administrative Office at Elliott Park						X						9100	$750,000	2004	$100,000				30	3	
Augusta-Richmond County	Other	Augusta Aquatic Center						X						29200	$5,000,000	2004	$300,000				700	3	
Augusta-Richmond County	Other	Augusta Municipal Golf Course						X						14150	$850,000	2004	$145,000				105	3	
Augusta-Richmond County	Other	WT Johnson Community Center						X						27000	$1,400,000	2004	$100,000	2,004			500	3	
Augusta-Richmond County	Other	Old Government House						X						7000	$350,000	2004	$160,000	2,004			100	3	
Augusta-Richmond County	Hospital, Admissions Entrance	Gracewood State School & Hospital	X											4500	$10,040,079	2004						3	
Augusta-Richmond County	Fire Station	AFD- Engine Co #8	X											174240	$1,295,000	2004	$1,200,000					3	
Augusta-Richmond County	Police Station	AFD- Engine Co #8 (Abandoned)	X											2100	$86,841	2004						3	
Augusta-Richmond County	Library	Augusta-Richmond County Public Library									X			38500	$4,279,130	2004	$6,896,562	2,004		$1,051	75	3	
Augusta-Richmond County	Middle/High School	Davidson High School (old location)	X											35747	$494,000	2004						3	
Augusta-Richmond County	Other School	R.C.B.O.E. Maintenance	X											17010	$378,000	2004					117	3	
Augusta-Richmond County	Psychoeducational	Sand Hills	X											23882	$893,883	2004					81	3	
Augusta-Richmond County	Elementary School	Freedom Park Elementary	X											79604	$186,043,000	2004					710	3	
Augusta-Richmond County	Private School	Westminster Schools, Maintenance Shop											X	2400	$158,016	2003	$18,504		$1,000	$868	3	3	
Augusta-Richmond County	Other	Garrett Gymnasium						X						11100	$1,250,000	2004	$50,000	2,004			250	3	
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Special Care Center)	X											365822	$43,898,640	2004	$21,349,372					3	

Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Talmadge Buidling)	X											428912	$59,065,472	1997	$35,479,601	1,997				3
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Talmedge & Syden Buildings)	X											765459	$107,164,260	2004						3
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Children's Medical Center)	X											219308	$38,378,900	2004						3
Augusta-Richmond County	Elementary School	Silas X. Floyd (Headstart Program)	X											35810	$507,000	2004					252	3
Augusta-Richmond County	Other	R.C.B.O.E. Transporation Facility	X											17846	$1,873,830	2004					298	3
Augusta-Richmond County	City Jail	CSRA Humane Society						X						15250	$345,930	2004						3
Augusta-Richmond County	County Correctional Institution	Richmond County Correctional Institute	X						X					12000	$3,423,634	2004						3
Augusta-Richmond County	County Jail	Richmond County Jail	X						X					150000	$22,576,000	2004						3
Augusta-Richmond County	County Jail	Charles B. Webster Detention Center	X						X					134166	$143,000	2004					550	3
Augusta-Richmond County	Library	Appleby Branch Library									X	X		4600	$783,462	2004	$981,133	2,004		$125	10	3
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Ambulatory Care Center)	X											365822	$43,898,640	2004	$21,349,372	1,997				3
Augusta-Richmond County	Private School	Risen Savior Academy						X						4800	$17,680	2004						3
Augusta-Richmond County	Private School	Westminster Schools, Prep School Gym											X	16265	$1,070,887	2004	$125,403		$1,000	$868	130	3
Augusta-Richmond County	Private School	Westminster Schools ofAugusta, Administration						X						5606	$369,099	2004	$43,222		$1,000	$868	40	3
Augusta-Richmond County	Private School	Westminster School of Augusta						X						6124	$403,204	2004	$47,216		$1,000	$868	170	3
Augusta-Richmond County	Fire Station	AFD- Engine Co #14	X											2800	$114,000	2002	$330,000				3	3
Augusta-Richmond County	Hospital, Admissions Entrance	Charter Augusta Behavioral Health System	X											12500	$1,715,322	2004						3
Augusta-Richmond County	High School, Public	Cross Creek High	X											205100	$19,466,248	2004					1,314	3
Augusta-Richmond County	Elementary School	Jenkins-White Elementary	X											77803	$5,661,355	2004					453	3
Augusta-Richmond County	Elementary School	Sue Reynolds Elementary (new)	X											79604	$4,854,057	2004					635	3
Augusta-Richmond County	MSWL	Deans Bridge Road Municipal Landfill						X						2895	$79,000	2004				$50,000	26	3
Augusta-Richmond County	Sheriffs Office	Sheriff's Office Training Center						X						3600	$79,000	2004					25	3
Augusta-	Private School	C.H. Terrell Academy	X											32670	$187,000	2002		2,004				3

Richmond County																							
Augusta-Richmond County	Hospital, Admissions Entrance	St. Joseph's Hospital of Augusta	X											400000	$24,753,000	2004						700	3
Augusta-Richmond County	Hospital, Emergency Entrance	Augusta VA Medical Center (Downtown Division)	X											628225	$105,000,000	1997	$70,000,000	1,997					3
Augusta-Richmond County	Fire Station	AFD- Engine Co #12	X											2800	$1,065,000	2004	$1,250,000	2,004				4	3
Augusta-Richmond County	Fire Station	Bush Field Fire Department	X											4420	$5,814,245	2004						3	3
Augusta-Richmond County	Private School	First Baptist Church of Gracewood Academy						X						5200	$860,450	2004							3
Augusta-Richmond County	Emergency Services	9-1-1 Center/Emergency Operation Center	X											8740	$1,250,000	1997							3
Augusta-Richmond County	Airport	Bush Field Airport		X	X									68058	$5,814,245	2004						300	3
Augusta-Richmond County	Airport	Daniel Field		X	X									13000	$6,000	2004						25	3
Augusta-Richmond County	Hospital, Admissions Entrance	Augusta VA Medical Center (Uptown Division)	X											687930	$96,000,000	1997	$30,000,000	1,997					3
Augusta-Richmond County	Hospital, Admissions Entrance	Walton Rehabilitation Hospital	X						X					70000	$2,255,000	2004						250	3
Augusta-Richmond County	Hospital, Emergency Entrance	University Hospital	X						X					802811	$145,586,307	2004							3
Augusta-Richmond County	Hospital, Admissions Entrance	Doctor's Hospital	X											280000	$36,000,000	1997	$20,100,000	1,997					3
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (East Wing)	X											55260	$7,609,854	1997	$4,571,107	1,997					3
Augusta-Richmond County	Fire Station	AFD- Engine Co #7 (Abandoned)										X		2100	$130,000	2002							3
Augusta-Richmond County	Fire Station	AFD- Engine Co #9	X											5600	$124,000	2002	$330,000	2,002				3	3
Augusta-Richmond County	Fire Station	AFD- Engine Co #10	X											3000	$81,000	2004	$330,000	2,004				4	3
Augusta-Richmond County	Fire Station	AFD- Engine Co #11	X											35719	$223,759	2004	$330,000	2,004				3	3
Augusta-Richmond County	Fire Station	AFD- Engine Co #12 (Abandoned)											X	13225	$132,000	2004							3
Augusta-Richmond County	Other School	William Robinson Center	X											18447	$1,488,927	2004						3	3
Augusta-Richmond County	Other	McDuffie Woods Community Center						X						11160	$1,500,000	2002	$80,000					400	3
Augusta-Richmond County	State Prison	Georgia Regional Youth Development Center						X						0		2004							3
Augusta-Richmond	State Prison	Georgia Regional Youth Detention						X						0		2004							3

County		Center																					
Augusta-Richmond County	Emergency Services	Record Retention Facility	X											9000	$550,000	1997	$250,000	1,997					3
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Sydenstricker Bldg)	X											336547	$38,053,369	1997	$40,989,247	1,997					3
Augusta-Richmond County	Hospital, Admissions Entrance	Georgia Regional Med-Surg Unit/Augusta	X											192	$8,082,000	2004							3
Augusta-Richmond County	Fire Station	Fort Gordon Fire Department	X											0	$186,043,000	2004							3
Augusta-Richmond County	Fire Station	AFD- Engine Co #19	X											148200	$1,277,000	2004	$750,000	2,004			3		3
Augusta-Richmond County	Other	McBean Community Park						X						6300	$700,000	2004	$75,000				110		3
Augusta-Richmond County	Private Four-Year College	Paine College						X						52896	$6,240,916	2004							3
Augusta-Richmond County	Other	R.C.B.O.E. Headquarters	X											96285	$440,000	2004					425		3
Augusta-Richmond County	Sheriffs Office	Sheriffs Office - Daniel Village Substation	X											699754	$6,309,288	2004					50		3
Augusta-Richmond County	Sheriffs Office	Sheriffs Office - Southgate Plaza Substation	X											2690	$1,360,287	2004					50		3
Augusta-Richmond County	Marshals Office	Richmond County Marshal's Office						X						197762	$23,063,403	2004							3
Augusta-Richmond County	Courthouse	Richmond County Courthouse						X						1100000	$23,063,403	2004							3
Augusta-Richmond County	City Hall	Augusta/Richmond Co Municipal Building						X						1100000	$23,063,403	2004							3
Augusta-Richmond County	Hospital, Admissions Entrance	Georgia Regional Hospital at Augusta Campus	X											0	$8,082,000	2004							3
Augusta-Richmond County	Private School	Southgate Christian School (closed)						X						49400	$1,573,129	2004							3
Augusta-Richmond County	Private School	Augusta Seventh Day Adventist (closed)						X						6900	$479,000	2004							3
Augusta-Richmond County	Private School	Ebenezer Seventh Day Adventist Junior Academy						X						2800	$292,495	2002	$247,380				10		3
Augusta-Richmond County	Private Four-Year College	Paine College						X						0	$1,330,000	2004							3
Augusta-Richmond County	Sheriffs Office	Richmond County Sheriff's Office	X						X					160736	$22,576,000	2004					750		3
Augusta-Richmond County	Sheriffs Office	Sheriffs Office - Eisenhower Drive Substation	X											750	$78,750	2004					2		3
Augusta-Richmond County	Private School	Hillcrest Baptist School						X						176418	$1,577,394	2004					275		3
Augusta-Richmond County	Private School	Aquinas High School						X						17250	$2,231,000	2004					375		3

Augusta-Richmond County	Private School	Curtis Baptist Elementary School	X											111949	$849,357	2004							3
Augusta-Richmond County	Private School	Curtis Baptist High School						X						35719	$271,000	2004						150	3
Augusta-Richmond County	Private School	Immaculate Conception School						X						66647	$495,000	2004						65	3
Augusta-Richmond County	Private School	Augusta Christian Acadeny						X						52708	$240,000	2004							3
Augusta-Richmond County	High School, Public	Richmond County Alter. & Opportunity Magnet School	X											30873	$2,932,935	2004							3
Augusta-Richmond County	Private School	Westminster Schools of Augusta												34524	$2,273,060	2004	$266,180	2,004	$1,000	$868		321	3
Augusta-Richmond County	Private School	St Mary's on the Hill (St. Joseph Academy)						X						40502	$4,231,755	2005	$800,000					536	3
Augusta-Richmond County	Private School	Episcopal Day School						X			X			79816	$6,500,000	2003	$1,200,000	2,003				537	3
Augusta-Richmond County	Private School	Wee Wisdom School						X						59400	$54,000	2004							3
Augusta-Richmond County	Private School	Alleluia Community School						X						26434	$2,643,400	2005	$1,000,000	2,005				250	3
Augusta-Richmond County	High School, Public	Academy of Richmond County High School	X											243108	$15,808,601	2004						1,343	3
Augusta-Richmond County	High School, Public	George P. Butler Comprehensive High School	X											179820	$1,474,000	2004						1,244	3
Augusta-Richmond County	High School, Public	Glenn Hills High	X											157347	$10,407,572	2004						1,308	3
Augusta-Richmond County	Elementary School	A.R. Johnson Health Professions (Magnet) School	X											66199	$1,029,000	2004						469	3
Augusta-Richmond County	High School, Public	Lucy C. Laney Comprehensive High School	X											146681	$1,267,000	2004						684	3
Augusta-Richmond County	High School, Public	T.W. Josey Comprehensive High School	X											191336	$4,391,079	2004						1,037	3
Augusta-Richmond County	Elementary School	Wilkinson Gardens Elementary School	X											76484	$540,000	2004						573	3
Augusta-Richmond County	Middle School	Tutt Middle School	X											94466	$912,000	2004						669	3
Augusta-Richmond County	C&D	RICHMOND CO-DEANS BRIDGE RD PH 2C (SL)	X											2895	$1,215,435	2004							3
Augusta-Richmond County	Public Vocational Technical School	Augusta Technical College						X			X			22301	$9,761,000	2004	$17,700,000	2,004				2,500	3
Augusta-Richmond County	Public University	Medical College of Georgia						X						845500		2004							3
Augusta-Richmond County	High School, Public	Westside High	X											137018	$6,104,612	2004						905	3
Augusta-	Elementary School	Wheeless Road	X											47112	$781,000	2004						513	3

Richmond County		Elementary School																					
Augusta-Richmond County	Other School	Davidson Magnet School	X											117970	$5,406,000	2004						759	3
Augusta-Richmond County	Elementary School	Terrace Manor Elementary School	X											55526	$1,174,000	2004						409	3
Augusta-Richmond County	Elementary School	Hains Elementary School	X											38042	$963,000	2004						458	3
Augusta-Richmond County	Middle School	Murphey Middle School	X											94838	$5,275,000	2004						781	3
Augusta-Richmond County	Middle School	Tubman Middle School	X											116074	$1,800,443	2004						691	3
Augusta-Richmond County	Middle School	Sego Middle School	X											98109	$4,977,000	2004						1,014	3
Augusta-Richmond County	Elementary School	Jenkins Elementary School (Former)	X											41000	$573,000	2004						170	3
Augusta-Richmond County	Recycling Center	Johnson Magnet											X	1166	$14,000	2004							3
Augusta-Richmond County	Elementary School	Gracewood Elementary School						X						47408	$1,338,018	2004						474	3
Augusta-Richmond County	Elementary School	Monte Sano Elementary School	X											80804	$586,000	2004						585	3
Augusta-Richmond County	Elementary School	Southside Elementary School	X											48590	$939,000	2004						435	3
Augusta-Richmond County	Elementary School	Craig Elementary School	X											77536	$7,777,468	2004						540	3
Augusta-Richmond County	Elementary School	Hornsby Elementary School (Former)	X											40916	$659,000	2004						343	3
Augusta-Richmond County	Middle School	East Augusta Middle School	X											79754	$1,802,000	2004						508	3
Augusta-Richmond County	Elementary School	Houghton Elementary School (Former)						X						85813	$523,100	2004							3
Augusta-Richmond County	Elementary School	Milledge Elementary School	X											43941	$1,048,000	2004						350	3
Augusta-Richmond County	Elementary School	Old Sue Reynolds Elementary School	X											38599	$754,000	2004							3
Augusta-Richmond County	Elementary School	Windsor Spring Road Elementary School	X											66799	$830,743	2004						765	3
Augusta-Richmond County	Elementary School	Barton Chapel Elementary School	X											62726	$2,169,739	2004						658	3
Augusta-Richmond County	Elementary School	Copeland Elementary School	X											50174	$1,518,000	2004						507	3
Augusta-Richmond County	Elementary School	Glenn Hills Elementary School	X											65123	$2,552,999	2004						523	3
Augusta-Richmond	Elementary School	Merry Elementary School	X											60193	$2,318,449	2004						441	3

County																						
Augusta-Richmond County	Elementary School	Warren Road Elementary School	X											69594	$1,508,259	2004					512	3
Augusta-Richmond County	Elementary School	Lake Forest Hills Elementary School	X											72971	$4,672,637	2004					566	3
Augusta-Richmond County	Middle School	Spirit Creek Middle School	X											99141	$11,069,120	2004					1,008	3
Augusta-Richmond County	Elementary School	Garrett Elementary School	X											45342	$1,836,000	2004					291	3
Augusta-Richmond County	Elementary School	National Hills Elementary School	X											29595	$1,032,000	2004					247	3
Augusta-Richmond County	Elementary School	Rollins Elementary School	X											54093	$2,672,000	2004					482	3
Augusta-Richmond County	Elementary School	Walker Traditional Elementary School	X											73803	$1,624,492	2004					719	3
Augusta-Richmond County	Elementary School	Jamestown Elementary School	X											59022	$6,913,000	2004					884	3
Augusta-Richmond County	Elementary School	Collins Elementary School	X											59022	$4,941,000	2004					538	3
Augusta-Richmond County	Elementary School	Goshen Elementary School	X											68792	$3,411,000	2004					601	3
Augusta-Richmond County	Middle School	Glenn Hills Middle School	X											138219	$1,278,956	2004					1,287	3
Augusta-Richmond County	Elementary School	Tobacco Road Elementary School	X											66669	$3,503,000	2004					818	3
Augusta-Richmond County	Elementary School	McBean Elementary School	X											68867	$4,640,000	2004					583	3
Totals for Augusta-Richmond County, Hazard Score = 3														19,692,499	$1,951,908,136		$329,985,275		$5,000	$56,135	65,360	
Blythe town	Elementary School	Blythe Elementary School	X											45765	$1,238,000	2004					419	3
Blythe town	City Hall	Blythe City Hall	X									X		3900	$210,000	2000	$13,900	2,000			4	3
Blythe town	Water System	City of Blythe Treatment Plant #2 (Old Well)											X	144	$35,000	1997	$25,000	1,997				3
Blythe town	Water System	City of Blythe Water System	X									X		3900	$210,000	2000	$51,200	2,000			3	3
Blythe town	Police Station	Blythe Police Department	X											3900	$210,000	2000	$13,900	2,000			4	3
Blythe town	Water System	City of Blythe Treatment Plant #1 (New Well)												120	$35,000	1997	$25,000	1,997				3
Blythe town	Water System	City of Blythe Water Tower			X									0		2004						3
Totals for Blythe town, Hazard Score = 3														57,729	$1,938,000		$129,000		$0	$0	430	
Hephzibah city	Middle School	Hephzibah Middle School	X											99398	$4,885,601	2004					1,156	3
Hephzibah city	Elementary School	Hephzibah Elementary School	X											77701	$1,123,000	2004					543	3
Hephzibah city	High School, Public	Hephzibah Comprehensive High	X											145429	$5,940,000	2004					1,288	3
Hephzibah city	City Hall	Hephzibah City Hall			X			X						2670	$210,750	2000	$48,150	2,000	$258,900		4	3

Hephzibah city	Police Station	Hepzhibah Police Department	X					X						2670	$210,750	2000	$48,150	2,000	$258,900		4	3
Hephzibah city	Other	Hephzibah/Carroll Community Center						X						5320	$120,000	2002	$20,000				100	3
Hephzibah city	Elementary School	Graham Elementary School	X											0	$323,658	2004						3
Hephzibah city	Water System	Hephzibah-Oakridge-Water Tower	X		X		X							336	$35,800	2000	$52,100	2,000	$87,900			3
Hephzibah city	Fire Station	Hephzibah Fire Department	X					X						3949	$228,300	2000	$26,400	2,000	$254,700		2	3
Hephzibah city	Water System	City of Hephzibah Water System	X		X		X							576	$58,800	2000	$89,300	2,000	$148,100			3
Hephzibah city	Wastewater Treatment Plant	Hephzibah WPCP	X		X		X							90	$6,200	2000	$6,200	2,000				3
Totals for Hephzibah city, Hazard Score = 3														338,139	$13,142,859		$290,300		$1,008,500	$0	3,097	
Grand Totals														**20,088,367**	**$1,966,988,995**		**$330,404,575**		**$1,013,500**	**$56,135**	**68,887**	

- Pre-Disaster Mitigation
- Fiscal Year: 2009
- Report created: Jul 22, 2011
- For more information call GEMA Pre-Disaster Mitigation at 1-800-TRY-GEMA

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GMIS Reporting for Landslide Hazard by Jurisdiction
Grouped by Hazard Score

NOTE: Only completed facilities will be reported

Government Jurisdiction	Type	Name or Structure Description	Essential Facility	Transportation System	Lifeline System	High Potential Loss	Haz Mat Facility	Important Facility	Vulnerable Population	Economic Assets	Special Considerations	Historic Considerations	Other	Size of Bldg. (sq. ft.)	Replace Value ($)	Replace Value Year	Contents Value ($)	Contents Value Year	Functional Value ($)	Displace Cost ($ per day)	Occupancy	Hazard Score
Augusta-Richmond County	Middle School	Langford Middle School	X											82352	$1,366,119	2004					802	0
Augusta-Richmond County	Elementary School	Lamar Elementary School	X											57833	$2,136,510	2004					401	0
Augusta-Richmond County	Elementary School	Willis Foreman Elem	X											59022	$11,069,120	2004					894	0
Augusta-Richmond County	Elementary School	Bayvale Elem School	X											42297	$600,000	2004					375	0
Augusta-Richmond County	Elementary School	Meadowbrook Elementary School	X											60954	$3,984,000	2004					754	0
Augusta-Richmond County	Middle School	Morgan Road Middle School	X											99141	$6,913,000	2004					879	0
Augusta-Richmond County	Elementary School	Bungalow Road Elementary School						X						43272	$1,130,000	2004					347	0
Augusta-Richmond County	Public Four-Year College	Guard House										X		952	$210,000	2007	$100,000	2,007			7	0
Augusta-Richmond County	Public Four-Year College	Human Resources								X				2271	$685,000	2007	$200,000	2,007			170	0
Augusta-Richmond County	Public Four-Year College	Alumni House										X		4423	$3,000,000	2007	$250,000	2,007			53	0
Augusta-Richmond County	Public Four-Year College	Boykin Wright Hall										X		7800	$2,900,000	2007	$500,000	2,007			180	0
Augusta-Richmond County	Private School	Westminster Schools, Band/Weight Room Bldg						X						1740	$114,561	1992	$13,415				50	0
Augusta-Richmond County	Private School	Westminster Schools, Media Center						X						5290	$384,293	1988	$40,758				150	0
Augusta-Richmond County	Public Four-Year College	Allgood Hall								X				123190	$29,200,000	2007	$4,000,000	2,007			1,832	0
Augusta-Richmond County	Public Four-Year College	Archelogy Lab										X		978	$225,000	2007	$25,000	2,007			11	0
Augusta-Richmond County	Public Four-Year College	Bellevue Hall										X		5113	$1,900,000	2007	$300,000	2,007			38	0
Augusta-Richmond County	Public Four-Year College	Benet Hall										X		9389	$3,400,000	2007	$300,000	2,007			35	0
Augusta-Richmond County	Public Four-Year College	Fine Arts						X						20651	$11,000,000	2007	$1,000,000	2,007				0

Augusta-Richmond County	Public Four-Year College	Galloway Hall								X				16271	$6,000,000	2007	$500,000	2,007				0
Augusta-Richmond County	Public Four-Year College	Fanning Hall								X				10179	$5,500,000	2007	$1,000,000	2,007			75	0
Augusta-Richmond County	Public Four-Year College	Science Hall					X							121487	$36,900,000	2007	$3,000,000	2,007			1,500	0
Augusta-Richmond County	Public Four-Year College	Payne Hall										X		16540	$6,000,000	2007	$500,000	2,007			155	0
Augusta-Richmond County	Public Four-Year College	Performing Arts								X				28803	$21,000,000	2007	$1,000,000	2,007			1,000	0
Augusta-Richmond County	Public Four-Year College	Rains Hall										X		9564	$5,200,000	2007	$300,000	2,007			50	0
Augusta-Richmond County	Public Four-Year College	Washington Hall								X				44708	$15,200,000	2007	$3,000,000	2,007			233	0
Augusta-Richmond County	Public Four-Year College	Christenberry Field House	X											129870	$22,000,000	2007	$3,000,000	2,007			4,904	0
Augusta-Richmond County	Public Four-Year College	JSAC Student Activities						X						51435	$16,000,000	2007	$712,300	2,007			1,000	0
Augusta-Richmond County	Public Four-Year College	Public Safety (Police Department)	X											2641	$650,000	2007	$200,000	2,007			25	0
Augusta-Richmond County	Public Four-Year College	Reese Library										X		79337	$24,000,000	2007	$10,000,000	2,007			830	0
Augusta-Richmond County	Public Four-Year College	Carpentry Whse.						X						17187	$3,200,000	2007	$500,000	2,007			35	0
Augusta-Richmond County	Public Four-Year College	HazMat Building					X							128	$300,000	2007	$0	2,007				0
Augusta-Richmond County	Public University	Physical Plant Ofc Bldg RA												3417	$99,956	2005						0
Augusta-Richmond County	Public University	Facilities Management Storage Bldg RD												11974	$92,500	2005						0
Augusta-Richmond County	Public University	Lee Warehouse Bldg RE												114235	$1,238,055	2005						0
Augusta-Richmond County	Public University	MCG Animal Care Facility Bldg OB												20017	$324,100	2005						0
Augusta-Richmond County	Public Four-Year College	Central Utilities Plant								X				13791	$12,000,000	2007	$3,000,000	2,007			131	0
Augusta-Richmond County	Public Four-Year College	University Hall								X				112370	$25,200,000	2007	$6,000,000	2,007			1,123	0
Augusta-Richmond County	Public University	Child Care Center Bldg OC												6058	$342,000	2005						0
Augusta-Richmond County	Public University	President's Main House Bldg OF												13848	$251,080	2005						0
Augusta-Richmond County	Public University	President's House Garage Apt Bldg OG												2576	$47,100	2005						0
Augusta-	Public University	President's House												910	$19,033	2005						0

Richmond County		Cottage Bldg OH																					
Augusta-Richmond County	Public University	Grounds Maintenance Bldg RB												4832	$26,900	2005							0
Augusta-Richmond County	Public University	Grounds Maint Storage Bldg RC												1232	$3,900	2005							0
Augusta-Richmond County	Public University	Community Medicine Offices Bldg HH												2511	$69,518	2005							0
Augusta-Richmond County	Public University	Mark Bldg HF												10213	$453,010	2005							0
Augusta-Richmond County	Public University	Physical Plant Shops Bldg HP												27655	$429,000	2005							0
Augusta-Richmond County	Public University	Respiratory Therapy Annex Bldg HN												1100	$864,000	2005							0
Augusta-Richmond County	Public University	Annex Building HS												168616	$2,574,316	2005							0
Augusta-Richmond County	Public University	Annex II Bldg HT												42352	$307,640	2005							0
Augusta-Richmond County	Public University	Employee Assistance Bldg FE												1145	$7,613	2005							0
Augusta-Richmond County	Public University	Dermatology Offices Bldg FH												4140	$36,192	2005							0
Augusta-Richmond County	Public University	Alumni Center Bldg FI												68000	$1,725,657	2005							0
Augusta-Richmond County	Public University	Residence VI Bldg FM												33840	$342,144	2005							0
Augusta-Richmond County	Public University	Faculty Office Bldg HB												34463	$966,749	2005							0
Augusta-Richmond County	Private University	Community Medicine Offices Bldg HH												2511	$69,518	2005							0
Augusta-Richmond County	Public University	Residence V Laundry Bldg DG												803	$4,200	2005							0
Augusta-Richmond County	Public University	Telemedicine Center Bldg EA												2648	$18,408	2005							0
Augusta-Richmond County	Public University	Jennings Wing Bldg EB												16717	$50,402	2005							0
Augusta-Richmond County	Private University	Shepard MT/OT Bldg EF												21101	$53,448	2005							0
Augusta-Richmond County	Public University	School of Nursing Bldg EG												18780	$118,750	2005							0
Augusta-Richmond County	Public University	Sickle Cell Adult Clinic Bldg FF												6438	$36,192	2005							0
Augusta-Richmond County	Public University	Liquid Transfer Bldg CM												400	$656,000	2005							0
Augusta-Richmond	Public University	Material Safety Storage Facilty Bldg												2000	$60,000	2005							0

County		CS																					
Augusta-Richmond County	Private University	Residence V Bldg D Bldg DF												12848	$153,000	2005							0
Augusta-Richmond County	Public University	Public Safety Sub Station Bldg DH												273	$6,200	2005							0
Augusta-Richmond County	Public University	Residence V Bldg B Bldg DD												16269	$190,000	2005							0
Augusta-Richmond County	Public University	Residence V Bldg C Bldg DE												16269	$190,000	2005							0
Augusta-Richmond County	Public University	Sanders Research & Education Bldg CB												303667	$25,777,198	2005							0
Augusta-Richmond County	Public University	Hamilton Wing Bldg CL												46695	$2,792,652	2005							0
Augusta-Richmond County	Public University	Cancer Research Center Bldg CN												26586	$12,262,605	2005							0
Augusta-Richmond County	Public University	RA Dent Blvd Deck Bldg CT												136069	$1,870,000	2005							0
Augusta-Richmond County	Public University	Environmental Health & Safety Bldg CI												4726	$26,600	2005							0
Augusta-Richmond County	Public University	Physical Therapy Bldg CH												13112	$217,000	2005							0
Augusta-Richmond County	Public University	Student Center Bldg DA												76145	$874,000	2005							0
Augusta-Richmond County	Public University	Student Study Center Bldg CK												23331	$874,000	2005							0
Augusta-Richmond County	Public University	Residence IV Bldg DB												22316	$259,000	2005							0
Augusta-Richmond County	Public University	Residence V Building A Bldg DC												16269	$190,000	2005							0
Augusta-Richmond County	Public University	Auditoria Center Bldg BC												18519	$196,000	2005							0
Augusta-Richmond County	Public University	Research Center Lab Building CA												109583	$49,305,675	2005							0
Augusta-Richmond County	Private University	School of Dentristy Bldg AD												198312	$4,875,000	2005							0
Augusta-Richmond County	Public University	Murphey Building BF												47007	$163,000	2005							0
Augusta-Richmond County	Public University	Dugas Building BG												43231	$279,000	2005							0
Augusta-Richmond County	Public University	Central Energy Plant Bldg BH												38151	$656,000	2005							0
Augusta-Richmond County	Public University	Pavillion III Bldg CJ												65938	$1,904,000	2005							0
Augusta-Richmond County	Public University	Goss Lane Parking Deck Bldg CP												153984	$1,505,000	2005							0

Augusta-Richmond County	Public University	Environmental Svcs Storage Bldg AG												1266	$26,600	2005							0
Augusta-Richmond County	Public University	Telemedicine Bldg AR												2709	$18,325	2005							0
Augusta-Richmond County	Public University	Telemedicine HIM Bldg AI												7439	$18,325	2005							0
Augusta-Richmond County	Public University	Student Health Bldg AJ												4646	$142,921	2005							0
Augusta-Richmond County	Public University	Classroom Services Bldg AK												4220	$84,345	2005							0
Augusta-Richmond County	Public University	Health Info. Management Bldg AL												3792	$75,612	2005							0
Augusta-Richmond County	Public University	Administration Bldg AA												40618	$485,000	2005							0
Augusta-Richmond County	Public University	Pavillion II Bldg AF												26000	$337,000	2005							0
Augusta-Richmond County	Public University	Pavilion I Bldg AE												37183	$487,000	2005							0
Augusta-Richmond County	Public University	Crosswalk Talmadge to Pavillion III Bldg AP												4030	$261,000	2005							0
Augusta-Richmond County	Public University	Greenblatt Libary Bldg AB												77583	$1,598,000	2005							0
Augusta-Richmond County	Public University	Protein Chemistry Laboratory Bldg AC												4080	$75,000	2005							0
Augusta-Richmond County	Other	May Park Community Center						X						17000	$2,500,000	2004	$800,000	2,004				500	0
Augusta-Richmond County	Other	Merry Street Ceramic Shop						X						1400	$100,000	2002	$30,000					35	0
Augusta-Richmond County	Other	Minnick Park						X						2400	$65,000	2002	$7,500					45	0
Augusta-Richmond County	Other	Sand Hills Community Center						X						7300	$600,000	2004	$60,000					200	0
Augusta-Richmond County	Other	Sue Reynolds Park						X						2375	$85,000	2004	$20,000					60	0
Augusta-Richmond County	Other	Warren Road Community Center						X						14000	$2,500,000	2004	$100,000	2,004				500	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #5	X											23958	$442,000	2004	$330,000	2,004				4	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #6	X											37897	$65,720	2002	$1,105,000	2,002				9	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #7	X											4800	$1,206,000	2004	$800,000	2,004				4	0
Augusta-Richmond County	Other	AFD- (Old Engine Co #1) Child Advocacy Group						X						2100	$1,281,238	2004							0
Augusta-	Other	Julian Smith Bar B						X						5400	$175,000	2002	$40,000					200	0

Richmond County		Que Pit																					
Augusta-Richmond County	Other	Julian Smith Casino						X						10500	$250,000	2002	$40,000					400	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #18	X											4589	$57,000	2004	$830,000	2,004				4	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #19 (Abandoned)											X	1600	$73,000	2004							0
Augusta-Richmond County	Fire Station	AFD- Engine Co #1	X											52708	$1,438,000	2004	$750,000	2,004					0
Augusta-Richmond County	Fire Station	AFD- Engine Co #2	X											5000	$65,000	2004	$300,000	2,004				4	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #3	X											21780	$394,000	2004						22	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #4	X											10890	$168,000	2004	$600,000	2,004				4	0
Augusta-Richmond County	Other	Hickman Park						X						1350	$75,000	2002	$25,000					40	0
Augusta-Richmond County	Other	Jamestown Center						X						3840	$250,000	2004	$65,000	2,004				125	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #13	X											14810	$94,000	2004	$330,000					4	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #15	X											4572	$100,000	2004	$300,000					3	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #16	X											3742	$251,000	2004	$330,000	2,004					0
Augusta-Richmond County	Fire Station	AFD- Engine Co #17	X											2800	$121,528	2004	$330,000	2,004				5	0
Augusta-Richmond County	Other	Doughty Park						X						2016	$100,000	2004	$15,000	2,004				75	0
Augusta-Richmond County	Other	Dyess Park						X						3125	$130,000	2004	$30,000	2,004				125	0
Augusta-Richmond County	Other	Eastview Park						X						4275	$600,000	2004	$50,000	2,004				120	0
Augusta-Richmond County	Other	Fleming Athletic Office							X					4600	$120,000	1999	$75,000					45	0
Augusta-Richmond County	Other	Bernie Ward Community Center						X						17000	$2,900,000	2003	$100,000					500	0
Augusta-Richmond County	Other	Gracewood Park						X						3840	$150,000	2004	$60,000					125	0
Augusta-Richmond County	Other	Blythe Area Community Center						X						5850	$600,000	2002	$30,000					125	0
Augusta-Richmond County	Other	The Boathouse						X						7800	$1,250,000	2004	$90,000	2,004				250	0
Augusta-Richmond	Other	H.H. Brigham Swim Center						X						13600	$950,000	2002	$175,000					300	0

County																							
Augusta-Richmond County	Other	H.H. Brigham Community Center						X						14000	$950,000	2002	$90,000				500	0	
Augusta-Richmond County	Other	H.H. Brigham Senior Center						X						7700	$600,000	2002	$70,000				125	0	
Augusta-Richmond County	Other	Carrie Mays						X						15960	$850,000	2004	$100,000	2,004			425	0	
Augusta-Richmond County	Library	Friedman Branch Library											X	10300	$775,325	2004	$1,179,410	2,004		$282	27	0	
Augusta-Richmond County	Library	Jeff Maxwell Branch Library											X	7158	$587,883	2004	$1,685,698	2,004		$196	28	0	
Augusta-Richmond County	Library	Wallace Branch Library											X	5147	$372,978	2004	$656,895	2,004		$141	10	0	
Augusta-Richmond County	Other	Administrative Office at Elliott Park						X						9100	$750,000	2004	$100,000				30	0	
Augusta-Richmond County	Other	Augusta Aquatic Center						X						29200	$5,000,000	2004	$300,000				700	0	
Augusta-Richmond County	Other	Augusta Municipal Golf Course						X						14150	$850,000	2004	$145,000				105	0	
Augusta-Richmond County	Other	WT Johnson Community Center						X						27000	$1,400,000	2004	$100,000	2,004			500	0	
Augusta-Richmond County	Other	Old Government House						X						7000	$350,000	2004	$160,000	2,004			100	0	
Augusta-Richmond County	Hospital, Admissions Entrance	Gracewood State School & Hospital	X											4500	$10,040,079	2004						0	
Augusta-Richmond County	Fire Station	AFD- Engine Co #8	X											174240	$1,295,000	2004	$1,200,000					0	
Augusta-Richmond County	Police Station	AFD- Engine Co #8 (Abandoned)	X											2100	$86,841	2004						0	
Augusta-Richmond County	Library	Augusta-Richmond County Public Library									X			38500	$4,279,130	2004	$6,896,562	2,004		$1,051	75	0	
Augusta-Richmond County	Middle/High School	Davidson High School (old location)	X											35747	$494,000	2004						0	
Augusta-Richmond County	Other School	R.C.B.O.E. Maintenance	X											17010	$378,000	2004					117	0	
Augusta-Richmond County	Psychoeducational	Sand Hills	X											23882	$893,883	2004					81	0	
Augusta-Richmond County	Elementary School	Freedom Park Elementary	X											79604	$186,043,000	2004					710	0	
Augusta-Richmond County	Private School	Westminster Schools, Maintenance Shop											X	2400	$158,016	2003	$18,504		$1,000	$868	3	0	
Augusta-Richmond County	Other	Garrett Gymnasium						X						11100	$1,250,000	2004	$50,000	2,004			250	0	
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Special Care Center)	X											365822	$43,898,640	2004	$21,349,372					0	

Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Talmadge Buidling)	X											428912	$59,065,472	1997	$35,479,601	1,997				0
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Talmedge & Syden Buildings)	X											765459	$107,164,260	2004						0
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Children's Medical Center)	X											219308	$38,378,900	2004						0
Augusta-Richmond County	Elementary School	Silas X. Floyd (Headstart Program)	X											35810	$507,000	2004					252	0
Augusta-Richmond County	Other	R.C.B.O.E. Transporation Facility	X											17846	$1,873,830	2004					298	0
Augusta-Richmond County	City Jail	CSRA Humane Society						X						15250	$345,930	2004						0
Augusta-Richmond County	County Correctional Institution	Richmond County Correctional Institute	X						X					12000	$3,423,634	2004						0
Augusta-Richmond County	County Jail	Richmond County Jail	X						X					150000	$22,576,000	2004						0
Augusta-Richmond County	County Jail	Charles B. Webster Detention Center	X						X					134166	$143,000	2004					550	0
Augusta-Richmond County	Library	Appleby Branch Library									X	X		4600	$783,462	2004	$981,133	2,004		$125	10	0
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Ambulatory Care Center)	X											365822	$43,898,640	2004	$21,349,372	1,997				0
Augusta-Richmond County	Private School	Risen Savior Academy						X						4800	$17,680	2004						0
Augusta-Richmond County	Private School	Westminster Schools, Prep School Gym											X	16265	$1,070,887	2004	$125,403		$1,000	$868	130	0
Augusta-Richmond County	Private School	Westminster Schools ofAugusta, Administration						X						5606	$369,099	2004	$43,222		$1,000	$868	40	0
Augusta-Richmond County	Private School	Westminster School of Augusta						X						6124	$403,204	2004	$47,216		$1,000	$868	170	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #14	X											2800	$114,000	2002	$330,000				3	0
Augusta-Richmond County	Hospital, Admissions Entrance	Charter Augusta Behavioral Health System	X											12500	$1,715,322	2004						0
Augusta-Richmond County	High School, Public	Cross Creek High	X											205100	$19,466,248	2004					1,314	0
Augusta-Richmond County	Elementary School	Jenkins-White Elementary	X											77803	$5,661,355	2004					453	0
Augusta-Richmond County	Elementary School	Sue Reynolds Elementary (new)	X											79604	$4,854,057	2004					635	0
Augusta-Richmond County	MSWL	Deans Bridge Road Municipal Landfill						X						2895	$79,000	2004				$50,000	26	0
Augusta-Richmond County	Sheriffs Office	Sheriff's Office Training Center						X						3600	$79,000	2004					25	0
Augusta-	Private School	C.H. Terrell Academy	X											32670	$187,000	2002		2,004				0

Richmond County																							
Augusta-Richmond County	Hospital, Admissions Entrance	St. Joseph's Hospital of Augusta	X											400000	$24,753,000	2004						700	0
Augusta-Richmond County	Hospital, Emergency Entrance	Augusta VA Medical Center (Downtown Division)	X											628225	$105,000,000	1997	$70,000,000	1,997					0
Augusta-Richmond County	Fire Station	AFD- Engine Co #12	X											2800	$1,065,000	2004	$1,250,000	2,004				4	0
Augusta-Richmond County	Fire Station	Bush Field Fire Department	X											4420	$5,814,245	2004						3	0
Augusta-Richmond County	Private School	First Baptist Church of Gracewood Academy						X						5200	$860,450	2004							0
Augusta-Richmond County	Emergency Services	9-1-1 Center/Emergency Operation Center	X											8740	$1,250,000	1997							0
Augusta-Richmond County	Airport	Bush Field Airport		X	X									68058	$5,814,245	2004						300	0
Augusta-Richmond County	Airport	Daniel Field		X	X									13000	$6,000	2004						25	0
Augusta-Richmond County	Hospital, Admissions Entrance	Augusta VA Medical Center (Uptown Division)	X											687930	$96,000,000	1997	$30,000,000	1,997					0
Augusta-Richmond County	Hospital, Admissions Entrance	Walton Rehabilitation Hospital	X						X					70000	$2,255,000	2004						250	0
Augusta-Richmond County	Hospital, Emergency Entrance	University Hospital	X						X					802811	$145,586,307	2004							0
Augusta-Richmond County	Hospital, Admissions Entrance	Doctor's Hospital	X											280000	$36,000,000	1997	$20,100,000	1,997					0
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (East Wing)	X											55260	$7,609,854	1997	$4,571,107	1,997					0
Augusta-Richmond County	Fire Station	AFD- Engine Co #7 (Abandoned)										X		2100	$130,000	2002							0
Augusta-Richmond County	Fire Station	AFD- Engine Co #9	X											5600	$124,000	2002	$330,000	2,002				3	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #10	X											3000	$81,000	2004	$330,000	2,004				4	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #11	X											35719	$223,759	2004	$330,000	2,004				3	0
Augusta-Richmond County	Fire Station	AFD- Engine Co #12 (Abandoned)											X	13225	$132,000	2004							0
Augusta-Richmond County	Other School	William Robinson Center	X											18447	$1,488,927	2004						3	0
Augusta-Richmond County	Other	McDuffie Woods Community Center						X						11160	$1,500,000	2002	$80,000					400	0
Augusta-Richmond County	State Prison	Georgia Regional Youth Development Center						X						0		2004							0
Augusta-Richmond	State Prison	Georgia Regional Youth Detention						X						0		2004							0

County		Center																					
Augusta-Richmond County	Emergency Services	Record Retention Facility	X											9000	$550,000	1997	$250,000	1,997					0
Augusta-Richmond County	Hospital, Admissions Entrance	Medical College of Georgia (Sydenstricker Bldg)	X											336547	$38,053,369	1997	$40,989,247	1,997					0
Augusta-Richmond County	Hospital, Admissions Entrance	Georgia Regional Med-Surg Unit/Augusta	X											192	$8,082,000	2004							0
Augusta-Richmond County	Fire Station	Fort Gordon Fire Department	X											0	$186,043,000	2004							0
Augusta-Richmond County	Fire Station	AFD- Engine Co #19	X											148200	$1,277,000	2004	$750,000	2,004				3	0
Augusta-Richmond County	Other	McBean Community Park						X						6300	$700,000	2004	$75,000					110	0
Augusta-Richmond County	Private Four-Year College	Paine College						X						52896	$6,240,916	2004							0
Augusta-Richmond County	Other	R.C.B.O.E. Headquarters	X											96285	$440,000	2004						425	0
Augusta-Richmond County	Sheriffs Office	Sheriffs Office - Daniel Village Substation	X											699754	$6,309,288	2004						50	0
Augusta-Richmond County	Sheriffs Office	Sheriffs Office - Southgate Plaza Substation	X											2690	$1,360,287	2004						50	0
Augusta-Richmond County	Marshals Office	Richmond County Marshal's Office						X						197762	$23,063,403	2004							0
Augusta-Richmond County	Courthouse	Richmond County Courthouse						X						1100000	$23,063,403	2004							0
Augusta-Richmond County	City Hall	Augusta/Richmond Co Municipal Building						X						1100000	$23,063,403	2004							0
Augusta-Richmond County	Hospital, Admissions Entrance	Georgia Regional Hospital at Augusta Campus	X											0	$8,082,000	2004							0
Augusta-Richmond County	Private School	Southgate Christian School (closed)						X						49400	$1,573,129	2004							0
Augusta-Richmond County	Private School	Augusta Seventh Day Adventist (closed)						X						6900	$479,000	2004							0
Augusta-Richmond County	Private School	Ebenezer Seventh Day Adventist Junior Academy						X						2800	$292,495	2002	$247,380					10	0
Augusta-Richmond County	Private Four-Year College	Paine College						X						0	$1,330,000	2004							0
Augusta-Richmond County	Sheriffs Office	Richmond County Sheriff's Office	X						X					160736	$22,576,000	2004						750	0
Augusta-Richmond County	Sheriffs Office	Sheriffs Office - Eisenhower Drive Substation	X											750	$78,750	2004						2	0
Augusta-Richmond County	Private School	Hillcrest Baptist School						X						176418	$1,577,394	2004						275	0
Augusta-Richmond County	Private School	Aquinas High School						X						17250	$2,231,000	2004						375	0

Augusta-Richmond County	Private School	Curtis Baptist Elementary School	X											111949	$849,357	2004							0
Augusta-Richmond County	Private School	Curtis Baptist High School						X						35719	$271,000	2004						150	0
Augusta-Richmond County	Private School	Immaculate Conception School						X						66647	$495,000	2004						65	0
Augusta-Richmond County	Private School	Augusta Christian Acadeny						X						52708	$240,000	2004							0
Augusta-Richmond County	High School, Public	Richmond County Alter. & Opportunity Magnet School	X											30873	$2,932,935	2004							0
Augusta-Richmond County	Private School	Westminster Schools of Augusta												34524	$2,273,060	2004	$266,180	2,004	$1,000	$868		321	0
Augusta-Richmond County	Private School	St Mary's on the Hill (St. Joseph Academy)						X						40502	$4,231,755	2005	$800,000					536	0
Augusta-Richmond County	Private School	Episcopal Day School						X			X			79816	$6,500,000	2003	$1,200,000	2,003				537	0
Augusta-Richmond County	Private School	Wee Wisdom School						X						59400	$54,000	2004							0
Augusta-Richmond County	Private School	Alleluia Community School						X						26434	$2,643,400	2005	$1,000,000	2,005				250	0
Augusta-Richmond County	High School, Public	Academy of Richmond County High School	X											243108	$15,808,601	2004						1,343	0
Augusta-Richmond County	High School, Public	George P. Butler Comprehensive High School	X											179820	$1,474,000	2004						1,244	0
Augusta-Richmond County	High School, Public	Glenn Hills High	X											157347	$10,407,572	2004						1,308	0
Augusta-Richmond County	Elementary School	A.R. Johnson Health Professions (Magnet) School	X											66199	$1,029,000	2004						469	0
Augusta-Richmond County	High School, Public	Lucy C. Laney Comprehensive High School	X											146681	$1,267,000	2004						684	0
Augusta-Richmond County	High School, Public	T.W. Josey Comprehensive High School	X											191336	$4,391,079	2004						1,037	0
Augusta-Richmond County	Elementary School	Wilkinson Gardens Elementary School	X											76484	$540,000	2004						573	0
Augusta-Richmond County	Middle School	Tutt Middle School	X											94466	$912,000	2004						669	0
Augusta-Richmond County	C&D	RICHMOND CO-DEANS BRIDGE RD PH 2C (SL)	X											2895	$1,215,435	2004							0
Augusta-Richmond County	Public Vocational Technical School	Augusta Technical College						X			X			22301	$9,761,000	2004	$17,700,000	2,004				2,500	0
Augusta-Richmond County	Public University	Medical College of Georgia						X						845500		2004							0
Augusta-Richmond County	High School, Public	Westside High	X											137018	$6,104,612	2004						905	0
Augusta-	Elementary School	Wheeless Road	X											47112	$781,000	2004						513	0

Richmond County		Elementary School																				
Augusta-Richmond County	Other School	Davidson Magnet School	X											117970	$5,406,000	2004					759	0
Augusta-Richmond County	Elementary School	Terrace Manor Elementary School	X											55526	$1,174,000	2004					409	0
Augusta-Richmond County	Elementary School	Hains Elementary School	X											38042	$963,000	2004					458	0
Augusta-Richmond County	Middle School	Murphey Middle School	X											94838	$5,275,000	2004					781	0
Augusta-Richmond County	Middle School	Tubman Middle School	X											116074	$1,800,443	2004					691	0
Augusta-Richmond County	Middle School	Sego Middle School	X											98109	$4,977,000	2004					1,014	0
Augusta-Richmond County	Elementary School	Jenkins Elementary School (Former)	X											41000	$573,000	2004					170	0
Augusta-Richmond County	Recycling Center	Johnson Magnet											X	1166	$14,000	2004						0
Augusta-Richmond County	Elementary School	Gracewood Elementary School						X						47408	$1,338,018	2004					474	0
Augusta-Richmond County	Elementary School	Monte Sano Elementary School	X											80804	$586,000	2004					585	0
Augusta-Richmond County	Elementary School	Southside Elementary School	X											48590	$939,000	2004					435	0
Augusta-Richmond County	Elementary School	Craig Elementary School	X											77536	$7,777,468	2004					540	0
Augusta-Richmond County	Elementary School	Hornsby Elementary School (Former)	X											40916	$659,000	2004					343	0
Augusta-Richmond County	Middle School	East Augusta Middle School	X											79754	$1,802,000	2004					508	0
Augusta-Richmond County	Elementary School	Houghton Elementary School (Former)						X						85813	$523,100	2004						0
Augusta-Richmond County	Elementary School	Milledge Elementary School	X											43941	$1,048,000	2004					350	0
Augusta-Richmond County	Elementary School	Old Sue Reynolds Elementary School	X											38599	$754,000	2004						0
Augusta-Richmond County	Elementary School	Windsor Spring Road Elementary School	X											66799	$830,743	2004					765	0
Augusta-Richmond County	Elementary School	Barton Chapel Elementary School	X											62726	$2,169,739	2004					658	0
Augusta-Richmond County	Elementary School	Copeland Elementary School	X											50174	$1,518,000	2004					507	0
Augusta-Richmond County	Elementary School	Glenn Hills Elementary School	X											65123	$2,552,999	2004					523	0
Augusta-Richmond	Elementary School	Merry Elementary School	X											60193	$2,318,449	2004					441	0

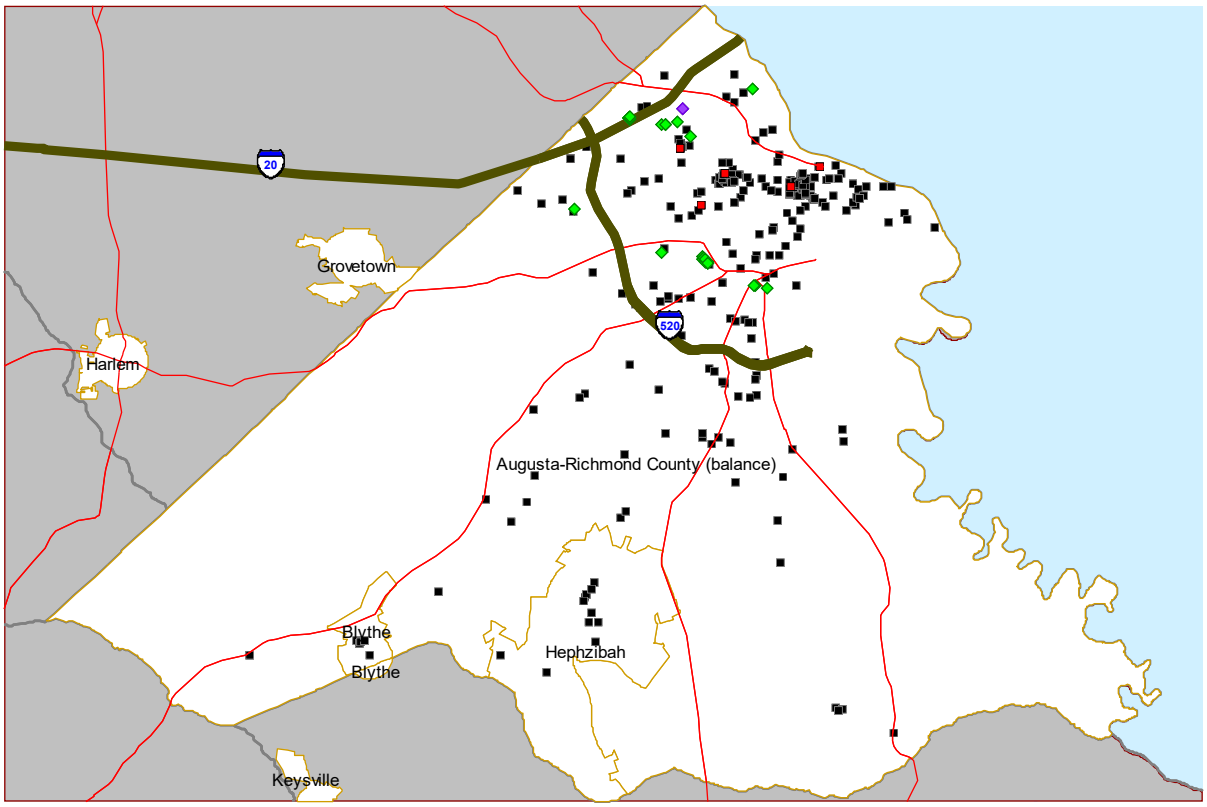
County																						
Augusta-Richmond County	Elementary School	Warren Road Elementary School	X											69594	$1,508,259	2004					512	0
Augusta-Richmond County	Elementary School	Lake Forest Hills Elementary School	X											72971	$4,672,637	2004					566	0
Augusta-Richmond County	Middle School	Spirit Creek Middle School	X											99141	$11,069,120	2004					1,008	0
Augusta-Richmond County	Elementary School	Garrett Elementary School	X											45342	$1,836,000	2004					291	0
Augusta-Richmond County	Elementary School	National Hills Elementary School	X											29595	$1,032,000	2004					247	0
Augusta-Richmond County	Elementary School	Rollins Elementary School	X											54093	$2,672,000	2004					482	0
Augusta-Richmond County	Elementary School	Walker Traditional Elementary School	X											73803	$1,624,492	2004					719	0
Augusta-Richmond County	Elementary School	Jamestown Elementary School	X											59022	$6,913,000	2004					884	0
Augusta-Richmond County	Elementary School	Collins Elementary School	X											59022	$4,941,000	2004					538	0
Augusta-Richmond County	Elementary School	Goshen Elementary School	X											68792	$3,411,000	2004					601	0
Augusta-Richmond County	Middle School	Glenn Hills Middle School	X											138219	$1,278,956	2004					1,287	0
Augusta-Richmond County	Elementary School	Tobacco Road Elementary School	X											66669	$3,503,000	2004					818	0
Augusta-Richmond County	Elementary School	McBean Elementary School	X											68867	$4,640,000	2004					583	0
Totals for Augusta-Richmond County, Hazard Score = 0														19,692,499	$1,951,908,136		$329,985,275		$5,000	$56,135	65,360	
Blythe town	Elementary School	Blythe Elementary School	X											45765	$1,238,000	2004					419	0
Blythe town	City Hall	Blythe City Hall	X									X		3900	$210,000	2000	$13,900	2,000			4	0
Blythe town	Water System	City of Blythe Treatment Plant #2 (Old Well)											X	144	$35,000	1997	$25,000	1,997				0
Blythe town	Water System	City of Blythe Water System	X									X		3900	$210,000	2000	$51,200	2,000			3	0
Blythe town	Police Station	Blythe Police Department	X											3900	$210,000	2000	$13,900	2,000			4	0
Blythe town	Water System	City of Blythe Treatment Plant #1 (New Well)												120	$35,000	1997	$25,000	1,997				0
Blythe town	Water System	City of Blythe Water Tower			X									0		2004						0
Totals for Blythe town, Hazard Score = 0														57,729	$1,938,000		$129,000		$0	$0	430	
Hephzibah city	Middle School	Hephzibah Middle School	X											99398	$4,885,601	2004					1,156	0
Hephzibah city	Elementary School	Hephzibah Elementary School	X											77701	$1,123,000	2004					543	0
Hephzibah city	High School, Public	Hephzibah Comprehensive High	X											145429	$5,940,000	2004					1,288	0
Hephzibah city	City Hall	Hephzibah City Hall			X			X						2670	$210,750	2000	$48,150	2,000	$258,900		4	0

Hephzibah city	Police Station	Hepzhibah Police Department	X					X						2670	$210,750	2000	$48,150	2,000	$258,900		4	0
Hephzibah city	Other	Hephzibah/Carroll Community Center						X						5320	$120,000	2002	$20,000				100	0
Hephzibah city	Elementary School	Graham Elementary School	X											0	$323,658	2004						0
Hephzibah city	Water System	Hephzibah-Oakridge-Water Tower	X		X		X							336	$35,800	2000	$52,100	2,000	$87,900			0
Hephzibah city	Fire Station	Hephzibah Fire Department	X					X						3949	$228,300	2000	$26,400	2,000	$254,700		2	0
Hephzibah city	Water System	City of Hephzibah Water System	X		X		X							576	$58,800	2000	$89,300	2,000	$148,100			0
Hephzibah city	Wastewater Treatment Plant	Hephzibah WPCP	X		X		X							90	$6,200	2000	$6,200	2,000				0
Totals for Hephzibah city, Hazard Score = 0														338,139	$13,142,859		$290,300		$1,008,500	$0	3,097	
Grand Totals														**20,088,367**	**$1,966,988,995**		**$330,404,575**		**$1,013,500**	**$56,135**	**68,887**	

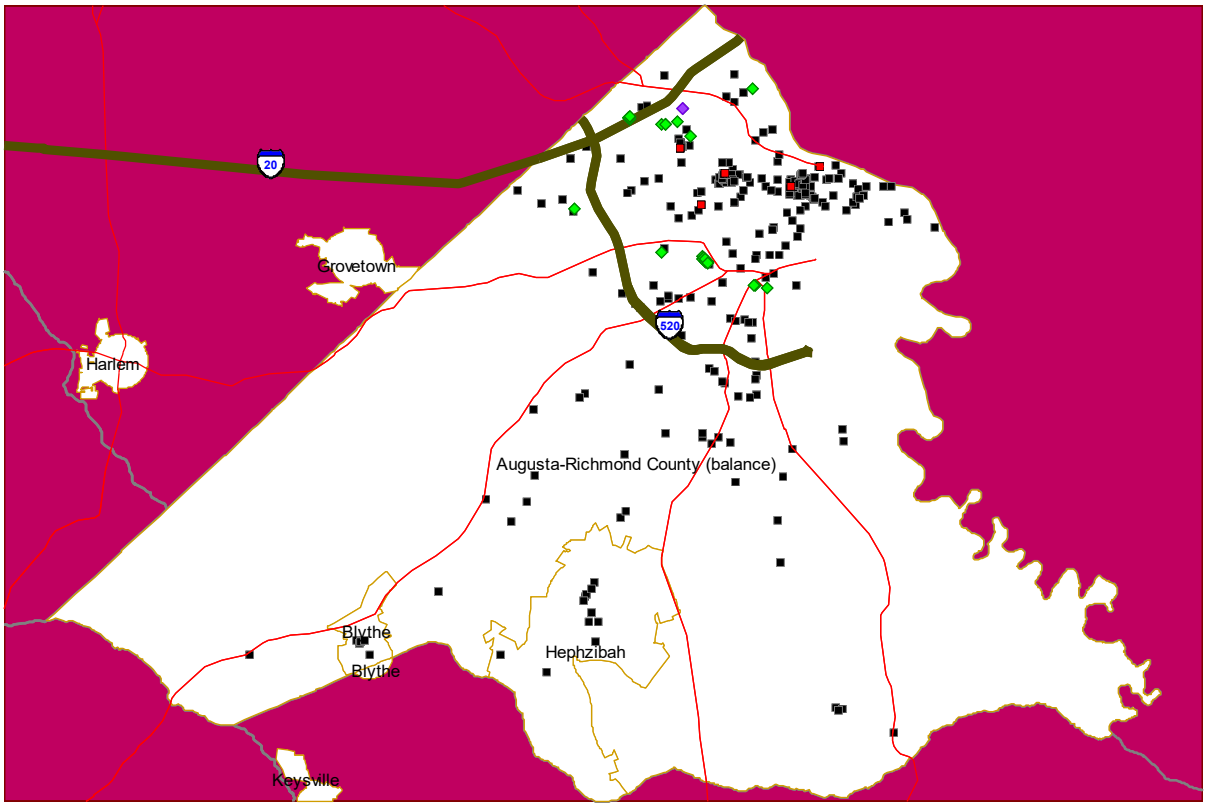
- Pre-Disaster Mitigation
- Fiscal Year: 2009
- Report created: Jul 22, 2011
- For more information call GEMA Pre-Disaster Mitigation at 1-800-TRY-GEMA

Export options: Raw Data Format (xls) | Report Format (xls)

GMIS LANDSLIDE MAP – BY JURISDICTION



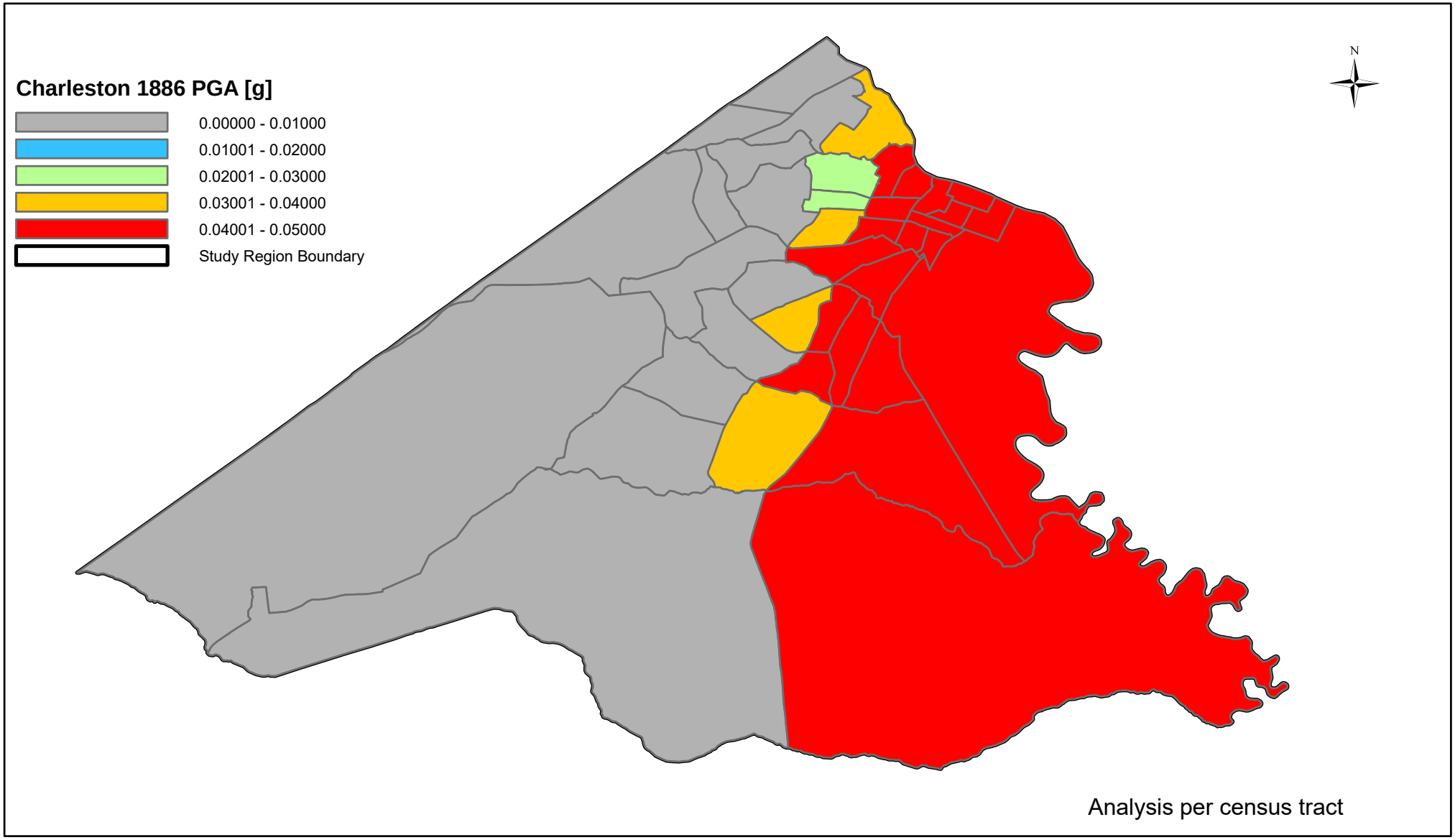
GMIS SEISMIC MAP – BY JURISDICTION



Score	Original Value	Description
4	D1 RED	50 - 83% gravity
3	C MAGENTA	33 - 50% gravity
2	B PURPLE	17 - 33% gravity
1	A BLUE	0 -17% gravity

Study Region: Augusta-Richmond County PGA Score

Hazard Scenario : Charleston 6.8 1886

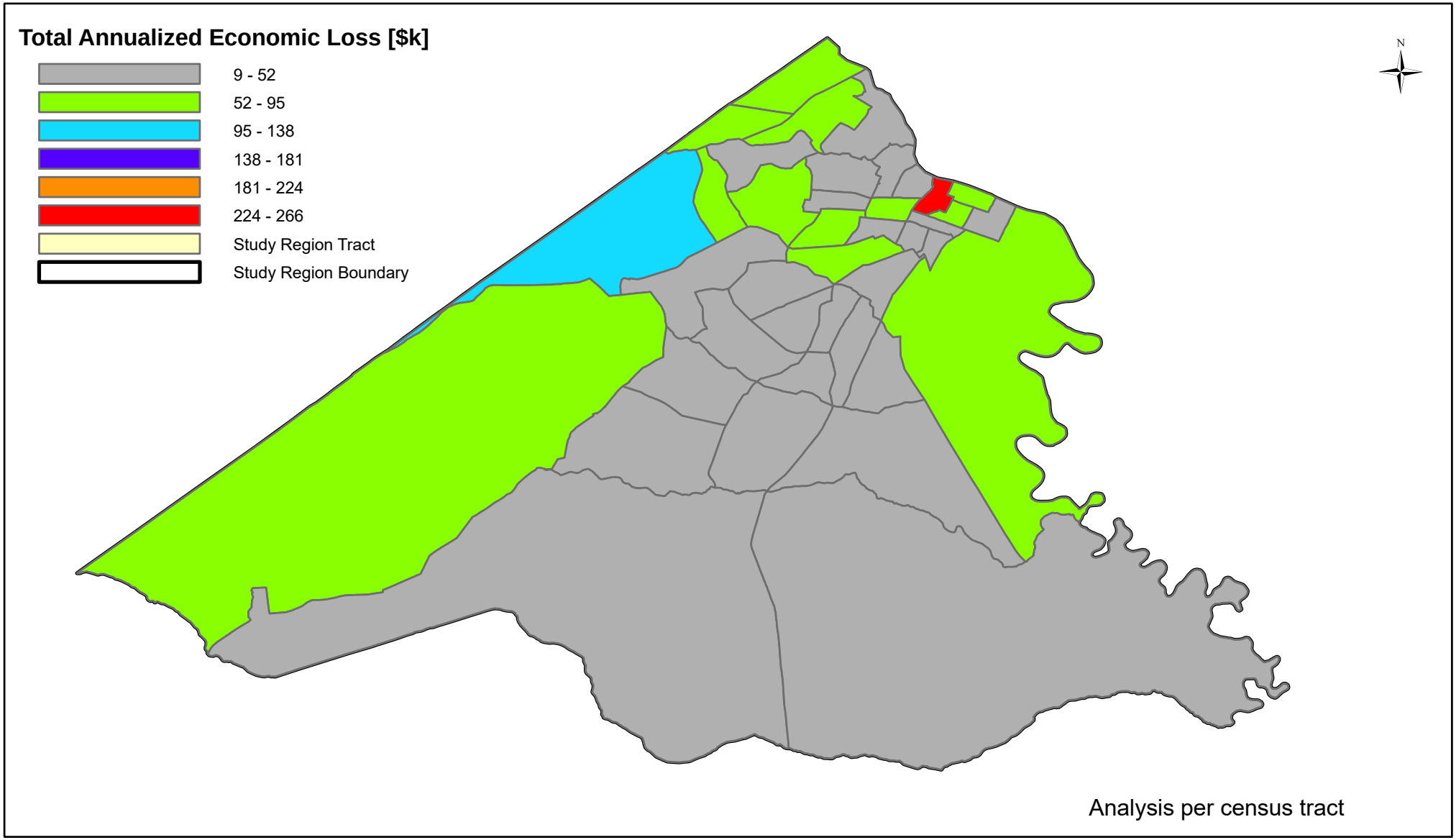


5 2.5 0 5 Miles

(c) 1997-2003 FEMA.

Seismic Study Region new: Augusta-Richmond County

Hazard Scenario: Annualized event

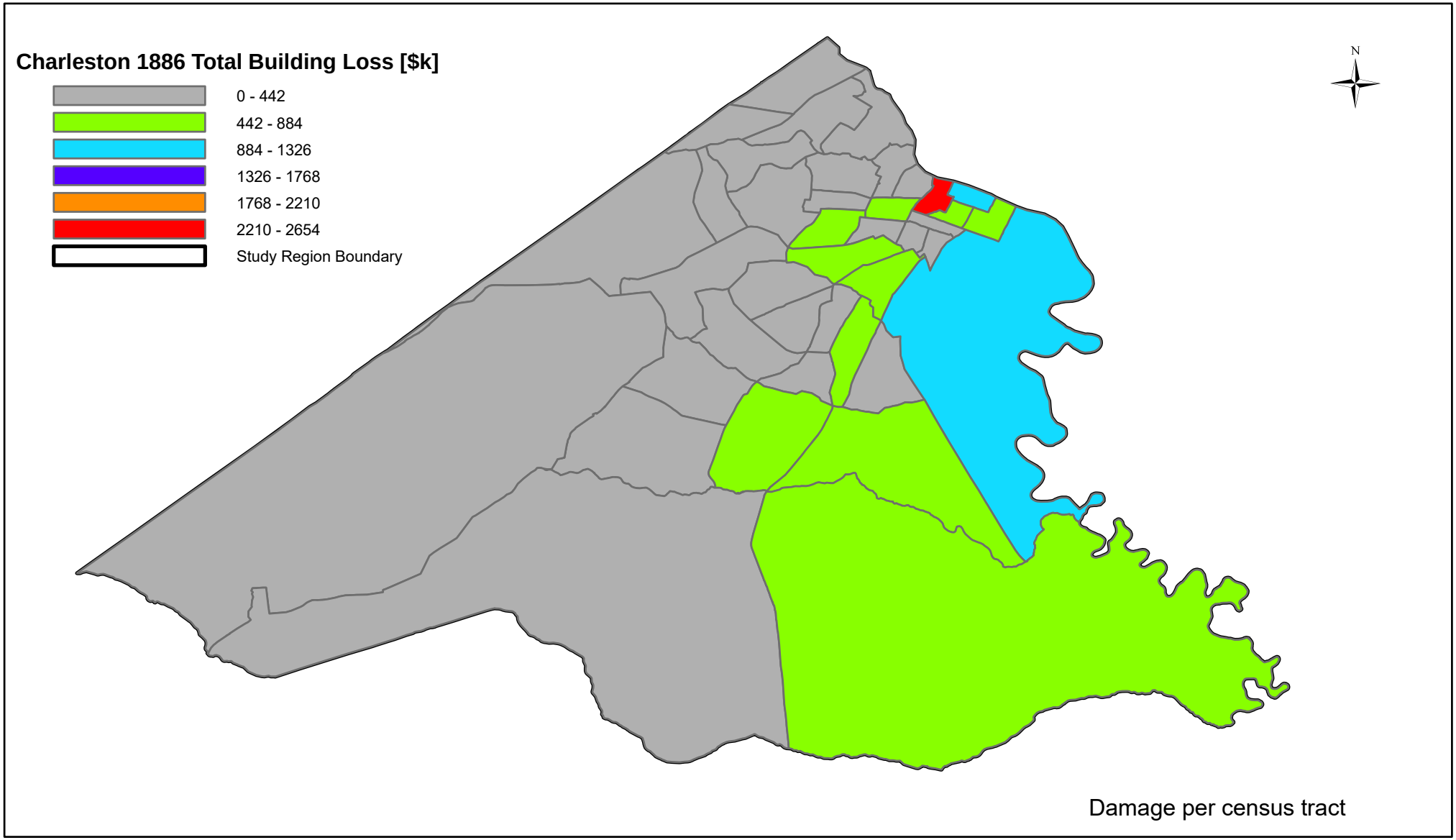


5 2.5 0 5 Miles

(c) 1997-2003 FEMA.

Study Region: Augusta-Richmond County Building Loss

Hazard Scenario : Charleston 6.8 1886



5 2.5 0 5 Miles

(c) 1997-2003 FEMA.

HAZUS-MH: Earthquake Event Report

Region Name: Augusta-Richmond County

Earthquake Scenario: Annualized event

Print Date: July 19, 2011

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

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

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General Description of the Region

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

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

Georgia

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

The geographical size of the region is 328.51 square miles and contains 40 census tracts. There are over 73 thousand households in the region and has a total population of 199,775 people (2000 Census Bureau data). The distribution of population by State and County is provided in Appendix B.

There are an estimated 77 thousand buildings in the region with a total building replacement value (excluding contents) of 12,743 (millions of dollars). Approximately 92.00 % of the buildings (and 70.00% of the building value) are associated with residential housing.

The replacement value of the transportation and utility lifeline systems is estimated to be 2,285 and 273 (millions of dollars) , respectively.

Building and Lifeline Inventory

Building Inventory

HAZUS estimates that there are 77 thousand buildings in the region which have an aggregate total replacement value of 12,743 (millions of dollars) . Appendix B provides a general distribution of the building value by State and County.

In terms of building construction types found in the region, wood frame construction makes up 74% of the building inventory. The remaining percentage is distributed between the other general building types.

Critical Facility Inventory

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

For essential facilities, there are 8 hospitals in the region with a total bed capacity of 2,353 beds. There are 75 schools, 2 fire stations, 4 police stations and 0 emergency operation facilities. With respect to HPL facilities, there are 30 dams identified within the region. Of these, 6 of the dams are classified as 'high hazard'. The inventory also includes 106 hazardous material sites, 0 military installations and 0 nuclear power plants.

Transportation and Utility Lifeline Inventory

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

The total value of the lifeline inventory is over 2,558.00 (millions of dollars). This inventory includes over 260 kilometers of highways, 134 bridges, 5,737 kilometers of pipes.

Table 2.13: Transportation System Lifeline Inventory

System	Component	# locations/ # Segments	Replacement value (millions of dollars)
Highway	Bridges	134	270.40
	Segments	130	1,707.10
	Tunnels	0	0.00
		Subtotal	**1,977.40**
Railways	Bridges	0	0.00
	Facilities	5	13.30
	Segments	104	119.30
	Tunnels	0	0.00
		Subtotal	**132.60**
Light Rail	Bridges	0	0.00
	Facilities	0	0.00
	Segments	0	0.00
	Tunnels	0	0.00
		Subtotal	**0.00**
Bus	Facilities	2	1.90
		Subtotal	**1.90**
Ferry	Facilities	0	0.00
		Subtotal	**0.00**
Port	Facilities	0	0.00
		Subtotal	**0.00**
Airport	Facilities	2	21.30
	Runways	4	151.90
		Subtotal	**173.20**
		Total	**2,285.10**

Table 2.14: Utility System Lifeline Inventory

System	Component	# Locations / Segments	Replacement value (millions of dollars)
Potable Water	Distribution Lines	NA	57.40
	Facilities	0	0.00
	Pipelines	0	0.00
		Subtotal	**57.40**
Waste Water	Distribution Lines	NA	34.40
	Facilities	3	175.80
	Pipelines	0	0.00
		Subtotal	**210.20**
Natural Gas	Distribution Lines	NA	23.00
	Facilities	0	0.00
	Pipelines	0	0.00
		Subtotal	**23.00**
Oil Systems	Facilities	0	0.00
	Pipelines	0	0.00
		Subtotal	**0.00**
Electrical Power	Facilities	1	96.80
		Subtotal	**96.80**
Communication	Facilities	9	0.80
		Subtotal	**0.80**
		Total	**388.20**

Earthquake Scenario

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

Scenario Name	Annualized event
Type of Earthquake	Probabilistic
Fault Name	NA
Historical Epicenter ID #	NA
Probabilistic Return Period	Annualized
Longitude of Epicenter	NA
Latitude of Epicenter	NA
Earthquake Magnitude	NA
Depth (Km)	NA
Rupture Length (Km)	NA
Rupture Orientation (degrees)	NA
Attenuation Function	NA

Building Damage

HAZUS estimates that about 122 buildings will be at least moderately damaged. This is over 0.00 % of the total number of buildings in the region. There are an estimated 0 buildings that will be damaged beyond repair. The definition of the 'damage states' is provided in Volume 1: Chapter 5 of the HAZUS technical manual. Table 3 below summaries the expected damage by general occupancy for the buildings in the region. Table 4 summaries the expected damage by general building type.

Table 2.15: Expected Building Damage by Occupancy

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	64	0.09	0	0.00	0	0.00	0	0.00	0	0.00
Commercial	2,134	2.95	0	0.00	0	0.00	0	0.00	0	0.00
Education	4	0.01	0	0.00	0	0.00	0	0.00	0	0.00
Government	30	0.04	0	0.00	0	0.00	0	0.00	0	0.00
Industrial	305	0.42	0	0.00	0	0.00	0	0.00	0	0.00
Other Residential	16,120	22.32	250	39.87	89	72.95	0	0.00	0	0.00
Religion	292	0.40	0	0.00	0	0.00	0	0.00	0	0.00
Single Family	53,268	73.76	377	60.13	33	27.05	0	0.00	0	0.00
Total	**72,217**		**627**		**122**		**0**		**0**	

Table 2.16: Expected Building Damage by Building Type (All Design Levels)

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Wood	56,609	78.39	302	48.17	15	12.30	0	0.00	0	0.00
Steel	1,329	1.84	0	0.00	0	0.00	0	0.00	0	0.00
Concrete	267	0.37	0	0.00	0	0.00	0	0.00	0	0.00
Precast	29	0.04	0	0.00	0	0.00	0	0.00	0	0.00
RM	587	0.81	0	0.00	0	0.00	0	0.00	0	0.00
URM	6,279	8.69	79	12.60	18	14.75	0	0.00	0	0.00
MH	7,117	9.86	246	39.23	89	72.95	0	0.00	0	0.00
Total	**72,217**		**627**		**122**		**0**		**0**	

*Note:

RM Reinforced Masonry
URM Unreinforced Masonry
MH Manufactured Housing

Essential Facility Damage

Before the earthquake, the region had 2,353 hospital beds available for use. On the day of the earthquake, the model estimates that only 2,153 hospital beds (92.00%) are available for use by patients already in the hospital and those injured by the earthquake. After one week, 97.00% of the beds will be back in service. By 30 days, 99.00% will be operational.

Table 2.17: Expected Damage to Essential Facilities

Classification	Total	# Facilities		
		At Least Moderate Damage > 50%	Complete Damage > 50%	With Functionality > 50% on day 1
Hospitals	8	0	0	8
Schools	75	0	0	75
EOCs	0	0	0	0
PoliceStations	4	0	0	4
FireStations	2	0	0	2

Transportation and Utility Lifeline Damage

Table 2.18 provides damage estimates for the transportation system.

Table 2.18: Expected Damage to the Transportation Systems

System	Component		Number of Locations			
		Locations/ Segments	With at Least Mod. Damage	With Complete Damage	With Functionality > 50 %	
					After Day 1	After Day 7
Highway	Segments	130	0	0	130	130
	Bridges	134	0	0	134	134
	Tunnels	0	0	0	0	0
Railways	Segments	104	0	0	104	104
	Bridges	0	0	0	0	0
	Tunnels	0	0	0	0	0
	Facilities	5	0	0	5	5
Light Rail	Segments	0	0	0	0	0
	Bridges	0	0	0	0	0
	Tunnels	0	0	0	0	0
	Facilities	0	0	0	0	0
Bus	Facilities	2	0	0	2	2
Ferry	Facilities	0	0	0	0	0
Port	Facilities	0	0	0	0	0
Airport	Facilities	2	0	0	2	2
	Runways	4	0	0	4	4

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

The tables provide information on the damage to the utility lifeline systems. Table 2.19 provides damage to the utility system facilities. Table 2.20 provides estimates on the number of leaks and breaks by the pipelines of the utility systems. For electric power and potable water, HAZUS performs a simplified system performance analysis. Table 2.21 provides a summary of the system performance information.

Table 2.19 : Expected Utility System Facility Damage

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

Table 2.20 : Expected Utility System Pipeline Damage (Site Specific)

System	Total Pipelines Length (kms)	Number of Leaks	Number of Breaks
Potable Water	2,869	6	1
Waste Water	1,721	5	1
Natural Gas	1,148	5	1
Oil	0	0	0

Table 2.21: Expected Potable Water and Electric Power System Performance

	Total # of Households	Number of Households without Service				
		At Day 1	At Day 3	At Day 7	At Day 30	At Day 90
Potable Water	73,920	0	0	0	0	0
Electric Power		0	0	0	0	0

Induced Earthquake Damage

Fire Following Earthquake

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

Debris Generation

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

The model estimates that a total of 0.010 million tons of debris will be generated. Of the total amount, Brick/Wood comprises 72.00% of the total, with the remainder being Reinforced Concrete/Steel. If the debris tonnage is converted to an estimated number of truckloads, it will require 320 truckloads (@25 tons/truck) to remove the debris generated by the earthquake.

Social Impact

Shelter Requirement

HAZUS estimates the number of households that are expected to be displaced from their homes due to the earthquake and the number of displaced people that will require accommodations in temporary public shelters. The model estimates 9 households to be displaced due to the earthquake. Of these, 8 people (out of a total population of 199,775) will seek temporary shelter in public shelters.

Casualties

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

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

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

Table 2.22 provides a summary of the casualties estimated for this earthquake

Table 2.22: Casualty Estimates

		Level 1	Level 2	Level 3	Level 4
2 AM	Commercial	0	0	0	0
	Commuting	0	0	0	0
	Educational	0	0	0	0
	Hotels	0	0	0	0
	Industrial	0	0	0	0
	Other-Residential	2	0	0	0
	Single Family	2	0	0	0
	Total	**4**	**0**	**0**	**0**
2 PM	Commercial	4	0	0	0
	Commuting	0	0	0	0
	Educational	1	0	0	0
	Hotels	0	0	0	0
	Industrial	0	0	0	0
	Other-Residential	0	0	0	0
	Single Family	0	0	0	0
	Total	**6**	**1**	**0**	**0**
5 PM	Commercial	2	0	0	0
	Commuting	0	0	0	0
	Educational	0	0	0	0
	Hotels	0	0	0	0
	Industrial	0	0	0	0
	Other-Residential	1	0	0	0
	Single Family	1	0	0	0
	Total	**4**	**0**	**0**	**0**

Economic Loss

The total economic loss estimated for the earthquake is 2.65 (millions of dollars), which includes building and lifeline related losses based on the region's available inventory. The following three sections provide more detailed information about these losses.

Building-Related Losses

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

The total building-related losses were 2.10 (millions of dollars); 33 % of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies which made up over 38 % of the total loss. Table 11 below provides a summary of the losses associated with the building damage.

Table 2.23: Building-Related Economic Loss Estimates

(Millions of dollars)

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total
Income Loses							
	Wage	0.00	0.02	0.17	0.00	0.01	0.20
	Capital-Related	0.00	0.01	0.13	0.00	0.00	0.14
	Rental	0.01	0.04	0.07	0.00	0.00	0.12
	Relocation	0.04	0.03	0.13	0.01	0.03	0.24
	Subtotal	**0.05**	**0.10**	**0.49**	**0.02**	**0.04**	**0.70**
Capital Stock Loses							
	Structural	0.05	0.07	0.12	0.02	0.02	0.28
	Non_Structural	0.20	0.22	0.29	0.05	0.05	0.81
	Content	0.06	0.04	0.13	0.03	0.02	0.29
	Inventory	0.00	0.00	0.00	0.01	0.00	0.01
	Subtotal	**0.32**	**0.34**	**0.54**	**0.11**	**0.10**	**1.39**
	Total	**0.37**	**0.44**	**1.03**	**0.12**	**0.14**	**2.10**

Transportation and Utility Lifeline Losses

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

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

Table 2.24: Transportation System Economic Losses

(Millions of dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Highway	Segments	1,707.07	$0.00	0.00
	Bridges	270.36	$0.03	0.01
	Tunnels	0.00	$0.00	0.00
	Subtotal	**1977.40**	**0.00**	
Railways	Segments	119.30	$0.00	0.00
	Bridges	0.00	$0.00	0.00
	Tunnels	0.00	$0.00	0.00
	Facilities	13.32	$0.15	1.11
	Subtotal	**132.60**	**0.10**	
Light Rail	Segments	0.00	$0.00	0.00
	Bridges	0.00	$0.00	0.00
	Tunnels	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**0.00**	
Bus	Facilities	1.92	$0.02	1.05
	Subtotal	**1.90**	**0.00**	
Ferry	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**0.00**	
Port	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**0.00**	
Airport	Facilities	21.30	$0.13	0.60
	Runways	151.86	$0.00	0.00
	Subtotal	**173.20**	**0.10**	
	Total	**2285.10**	**0.30**	

Table 2.25: Utility System Economic Losses

(Millions of dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Potable Water	Pipelines	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Distribution Lines	57.40	$0.03	0.04
	Subtotal	**57.38**	**$0.03**	
Waste Water	Pipelines	0.00	$0.00	0.00
	Facilities	175.80	$0.16	0.09
	Distribution Lines	34.40	$0.02	0.06
	Subtotal	**210.25**	**$0.18**	
Natural Gas	Pipelines	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Distribution Lines	23.00	$0.02	0.09
	Subtotal	**22.95**	**$0.02**	
Oil Systems	Pipelines	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**$0.00**	
Electrical Power	Facilities	96.80	$0.00	0.00
	Subtotal	**96.80**	**$0.00**	
Communication	Facilities	0.80	$0.00	0.04
	Subtotal	**0.79**	**$0.00**	
	Total	**388.17**	**$0.23**	

Table 2.26. Indirect Economic Impact with outside aid
(Employment as # of people and Income in millions of $)

	LOSS	Total	%
First Year			
	Employment Impact	0	0.00
	Income Impact	0	0.00
Second Year			
	Employment Impact	0	0.00
	Income Impact	0	-0.01
Third Year			
	Employment Impact	0	0.00
	Income Impact	0	-0.01
Fourth Year			
	Employment Impact	0	0.00
	Income Impact	0	-0.01
Fifth Year			
	Employment Impact	0	0.00
	Income Impact	0	-0.01
Years 6 to 15			
	Employment Impact	0	0.00
	Income Impact	0	-0.01

Appendix A: County Listing for the Region

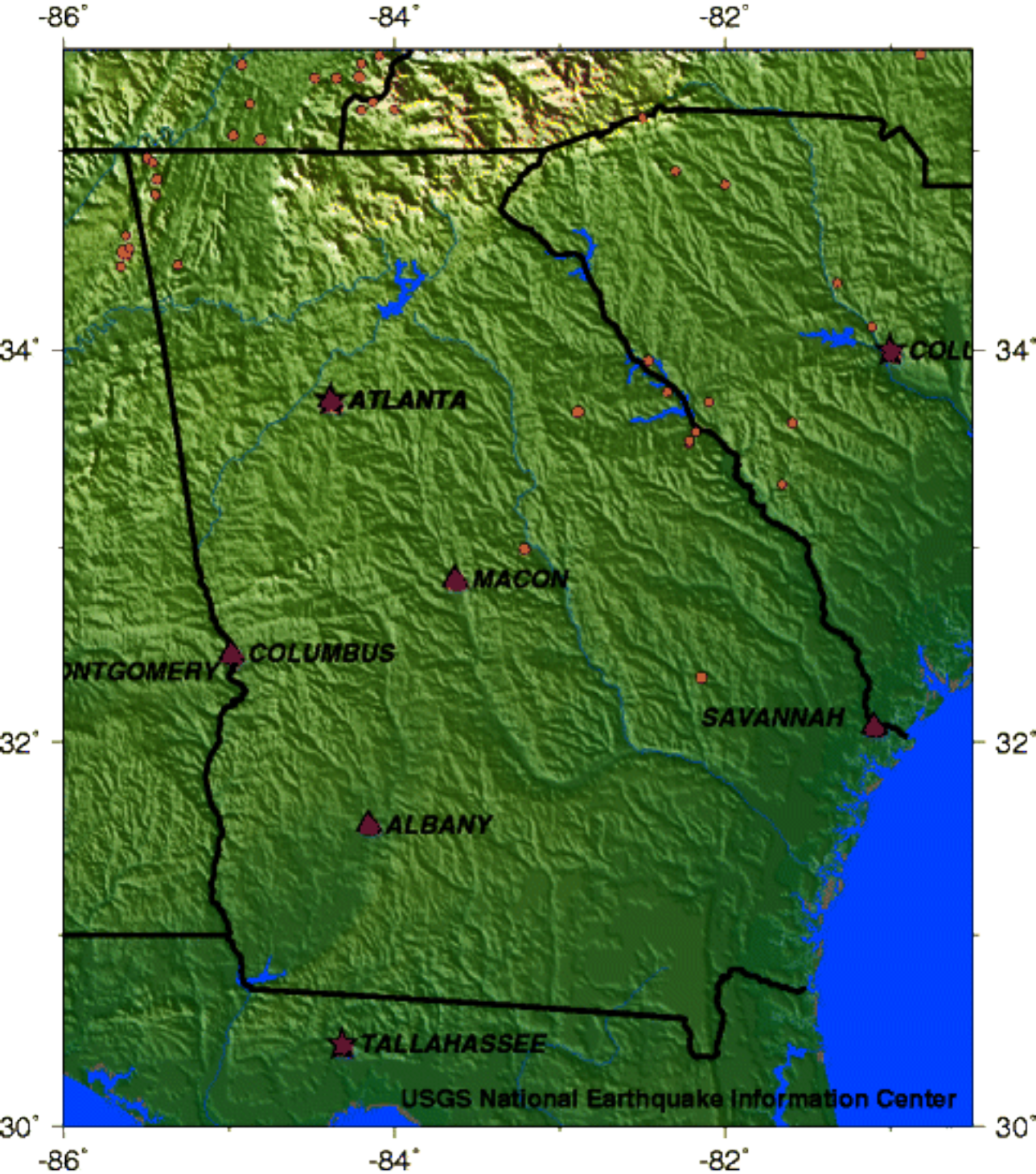
Richmond,GA

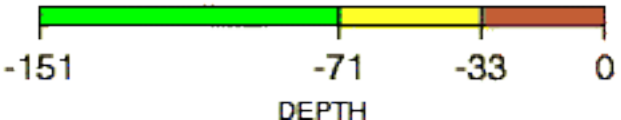
Appendix B: Regional Population and Building Value Data

State	County Name	Population	Building Value (millions of dollars)		
			Residential	Non-Residential	Total
Georgia					
	Richmond	199,775	8,967	3,775	12,743
Total State		**199,775**	**8,967**	**3,775**	**12,743**
Total Region		**199,775**	**8,967**	**3,775**	**12,743**

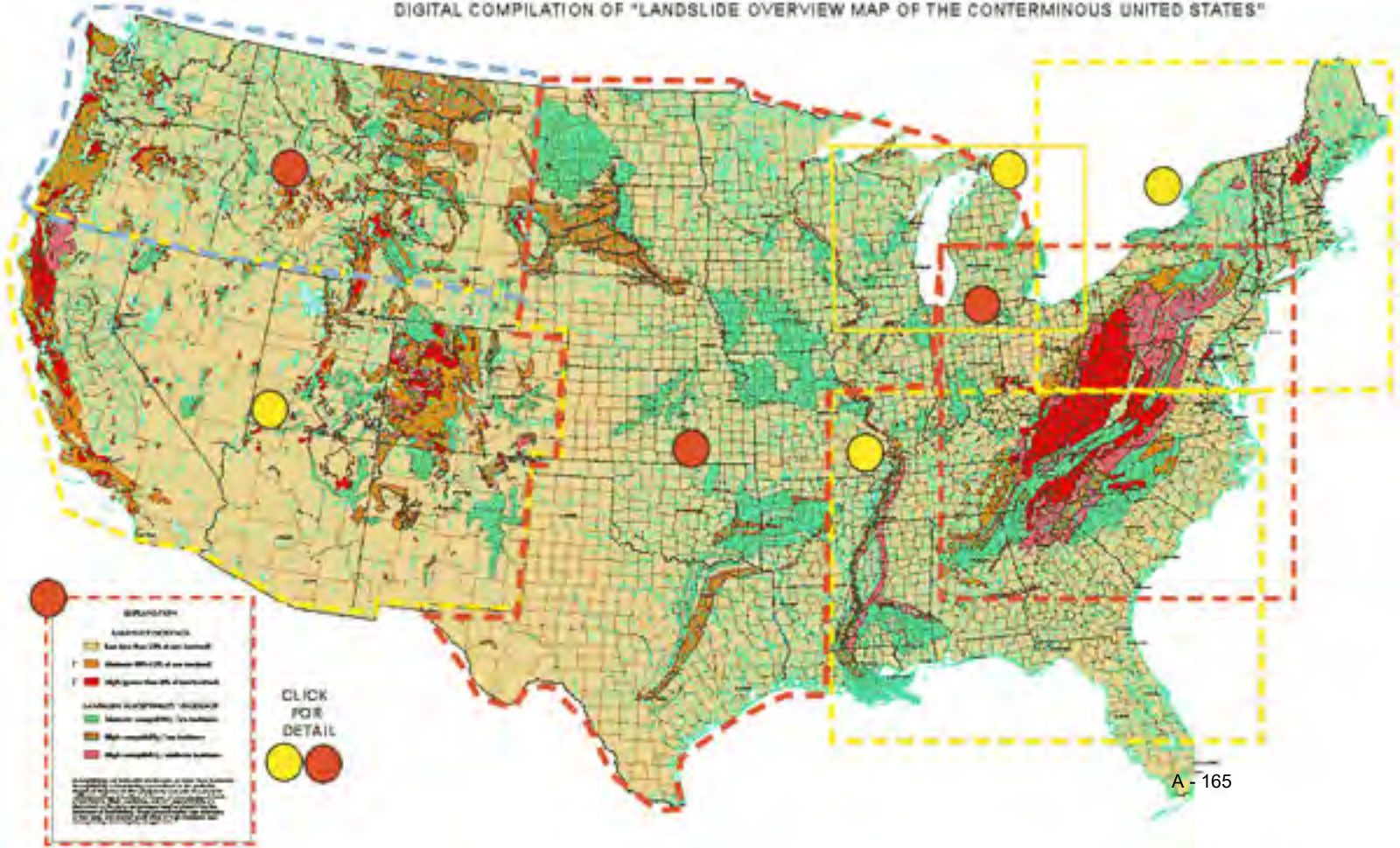
Seismicity of Georgia

1990 - 2006





DIGITAL COMPILATION OF "LANDSLIDE OVERVIEW MAP OF THE CONTERMINOUS UNITED STATES"



CITY OF AUGUSTA FACILITIES

Augusta GEORGIA

FACILITY NAME

1. 911/EMA FACILITY
2. ADMINISTRATOR'S OFFICE
3. ANIMAL SERVICES
4. APPLEBY BRANCH LIBRARY
5. AT&T PAYMENT CENTER
6. AT&T PAYMENT CENTER
7. AT&T PAYMENT CENTER
8. AT&T PAYMENT CENTER
9. AT&T PAYMENT CENTER
10. AT&T PAYMENT CENTER
11. AT&T PAYMENT CENTER
12. AT&T PAYMENT CENTER
13. AT&T PAYMENT CENTER
14. AT&T PAYMENT CENTER
15. AT&T PAYMENT CENTER
16. AUDIO VISUAL CENTER
17. AUGUSTA CARES
18. AUGUSTA MARINA
19. AUGUSTA MUNICIPAL GOLF COURSE
20. AUGUSTA REGIONAL AIRPORT
21. BOARD OF ELECTIONS
22. CEDAR GROVE CEMETERY
23. CIVIL AND MAGISTRATE COURT *
24. CLERK OF COMMISSION
25. CLERK OF STATE COURT *
26. CLERK OF SUPERIOR COURT *
27. CORONER'S OFFICE
28. CORRECTIONAL INSTITUTION
29. DANIEL FIELD AIRPORT
30. DEPT OF FAMILY AND CHILDREN SERVICES
31. DIAMOND LAKES BRANCH LIBRARY
32. DISADVANTAGED BUSINESS ENTERPRISE
33. DISTRICT ATTORNEY *
34. ENGINEERING ADMINISTRATION
35. ENGINEERING ENGINEERING DIVISION
36. ENGINEERING SIGN SHOP
37. ENGINEERING STREET LIGHTS
38. ENGINEERING TRAFFIC
39. ENGINEERING TRAFFIC ADMIN
40. EXTENSION SERVICE
41. FINANCE
42. FINANCE ACCOUNTING
43. FLEET MANAGEMENT ADMINISTRATION
44. FLEET MANAGEMENT HEAVY VEHICLES GARAGE
45. FLEET MANAGEMENT LIGHT VEHICLES SHOP
46. FLEET MANAGEMENT SHOP
47. FLEET MANAGEMENT SMALL ENGINE SHOP
48. FRIEDMAN BRANCH LIBRARY
49. GEORGIA DEPARTMENT OF DRIVER SERVICES
50. GEORGIA DEPARTMENT OF LABOR
51. GEORGIA POWER COMPANY
52. HEALTH DEPARTMENT
53. HEALTH DEPARTMENT
54. HEALTH DEPARTMENT ENVIRONMENTAL HEALTH
55. HEALTH DEPTARTMENT VITAL RECORDS
56. HILLCREST MEMORIAL CEMETERY
57. HOUSING AND ECONOMIC DEVELOPMENT
58. HUMAN RELATIONS
59. HUMAN RESOURCES
60. INFORMATION TECHNOLOGY
61. JAMES BROWN ARENA
62. JEFF MAXWELL BRANCH LIBRARY
63. JEFFERSON ENERGY COOPERATIVE
64. JUDICIAL CENTER *2011*
65. LAKE OLMSTEAD STADIUM
66. LAW DEPARTMENT
67. LAW LIBRARY *
68. LIBRARY MAIN
69. LICENSE AND INSPECTION
70. MAGNOLIA CEMETERY
71. MARSHAL'S OFFICE
72. MARSHAL'S OFFICE SUBSTATION
73. MAYOR'S OFFICE
74. NEIGHBORHOOD ENHANCEMENT (WEED & SEED)
75. PLANNING & ZONING COMMISSION
76. PROBATE COURT *
77. PROBATION OFFICE FELONY
78. PROBATION OFFICE MISDEMEANOR
79. PROCUREMENT
80. PUBLIC SERVICES ADMINISTRATION
81. PUBLIC SERVICES BLDG AND GROUNDS
82. PUBLIC SERVICES BLDG AND GROUNDS
83. PUBLIC SERVICES BLDG AND GROUNDS
84. PUBLIC SERVICES CONSTRUCTION SHOP
85. PUBLIC SERVICES FACILITIES MANAGEMENT
86. PUBLIC SERVICES MAINTENANCE
87. PUBLIC SERVICES MAINTENANCE
88. PUBLIC SERVICES RECORDS RETENTION
89. PUBLIC SERVICES TREES & LANDSCAPE DIV
90. PUBLIC SERVICES TREES & LANDSCAPE DIV
91. PUBLIC SERVICES TREES & LANDSCAPE DIV
92. PUBLIC SERVICES TREES & LANDSCAPE DIV
93. PUBLIC SERVICES TREES AND LANDSCAPING
94. PUBLIC TRANSIT OFFICE
95. RECREATION AND PARKS_ADMINISTRATION
96. RECREATION AND PARKS_AQUATICS CENTER
97. RECREATION AND PARKS_RIVERWALK SP EVENTS
98. RISK MANAGEMENT
99. SHERIFF_ADMIN AND LAW ENFORCEMENT CENTER
100. SHERIFF_CHARLES B WEBSTER DETENTION CTR
101. SHERIFF_CID_CRIME SCENE TECHNICIANS
102. SHERIFF_NARCOTICS
103. SHERIFF_NORTH PRECINCT SUBSTATION
104. SHERIFF_QUATERMASTER/PROPERTY/EOD GARAGE
105. SHERIFF_RD PATROL SATELLITE SUBSTATION
106. SHERIFF_RD PATROL SATELLITE SUBSTATION
107. SHERIFF_RD PATROL SATELLITE SUBSTATION
108. SHERIFF_RD PATROL SATELLITE SUBSTATION
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113. SHERIFF_RD PATROL SATELLITE SUBSTATION
114. SHERIFF_RD PATROL SATELLITE SUBSTATION
115. SHERIFF_RD PATROL SATELLITE SUBSTATION
116. SHERIFF_RD PATROL SATELLITE SUBSTATION
117. SHERIFF_RD PATROL SATELLITE SUBSTATION
118. SHERIFF_RD PATROL SATELLITE SUBSTATION
119. SHERIFF_RD PATROL SATELLITE SUBSTATION
120. SHERIFF_RD PATROL SATELLITE SUBSTATION
121. SHERIFF_RD PATROL SATELLITE SUBSTATION
122. SHERIFF_RD PATROL SATELLITE SUBSTATION
123. SHERIFF_RD PATROL SATELLITE SUBSTATION
124. SHERIFF_RD PATROL SATELLITE SUBSTATION
125. SHERIFF_RD PATROL SATELLITE SUBSTATION
126. SHERIFF_RD PATROL SATELLITE SUBSTATION
127. SHERIFF_RD PATROL SATELLITE SUBSTATION
128. SHERIFF_RD PATROL SATELLITE SUBSTATION
129. SHERIFF_SOUTH PRECINCT SUBSTATION
130. SHERIFF_TRAINING DIVISION
131. SOCIAL SECURITY ADMINISTRATION
132. SOLID WASTE - LANDFILL
133. STATE COURT *
134. STATE COURT SOLICITOR *
135. SUPERIOR COURT *
136. TAG OFFICE MAIN
137. TAG OFFICE SOUTH AUGUSTA
138. TAX COMMISSIONER
139. THE FAMILY Y SOUTH BRANCH
140. THE FAMILY Y TUBMAN BRANCH
141. THE FAMILY Y WILSON BRANCH
142. UNITED STATES POSTAL SERVICE
143. UNITED STATES POSTAL SERVICE
144. UNITED STATES POSTAL SERVICE
145. UNITES STATES POSTAL SERVICE
146. UTILITIES_ADMINISTRATION
147. UTILITIES_CONST & MAINT
148. UTILITIES_FILTER PLANT
149. UTILITIES_N MAX HICKS WTP
150. UTILITIES_OMI JAMES B MESSERLY WWTP
151. UTILITIES_PLANT 1
152. UTILITIES_PLANT 2
153. UTILITIES_PLANT 3
154. UTILITIES_SPIRIT CREEK SEWG TRMT PLANT
155. UTILITIES_WATER DEPT MUNICIPAL BLDG
156. UTILITIES_WATER PAYMENT CENTER
157. UTILITIES_WATER PUMP STATION
158. WALLACE BRANCH LIBRARY
159. WESTOVER CEMETERY
160. WESTVIEW CEMETERY
161. YOUTH DEVELOPMENT CENTER

Municipal Building

- ADMINISTRATOR'S OFFICE
- BOARD OF ELECTIONS
- CIVIL AND MAGISTRATE COURT *
- CLERK OF COMMISSION
- CLERK OF SUPERIOR COURT *
- FINANCE
- FINANCE_ACCOUNTING
- HUMAN RESOURCES
- INFORMATION TECHNOLOGY
- LAW LIBRARY *
- MARSHAL'S OFFICE
- MAYOR'S OFFICE
- PROBATE COURT *
- PROCUREMENT
- PUBLIC SERVICES_BLDG AND GROUNDS
- RISK MANAGEMENT
- SUPERIOR COURT *
- TAX COMMISSIONER
- UTILITIES_WATER DEPT MUNICIPAL BLDG

Law Enforcement Center

- CLERK OF STATE COURT *
- PUBLIC SERVICES_BLDG AND GROUNDS
- SHERIFF_ADMIN AND LAW ENFORCEMENT CENTER
- STATE COURT *
- STATE COURT SOLICITOR *

500 Building

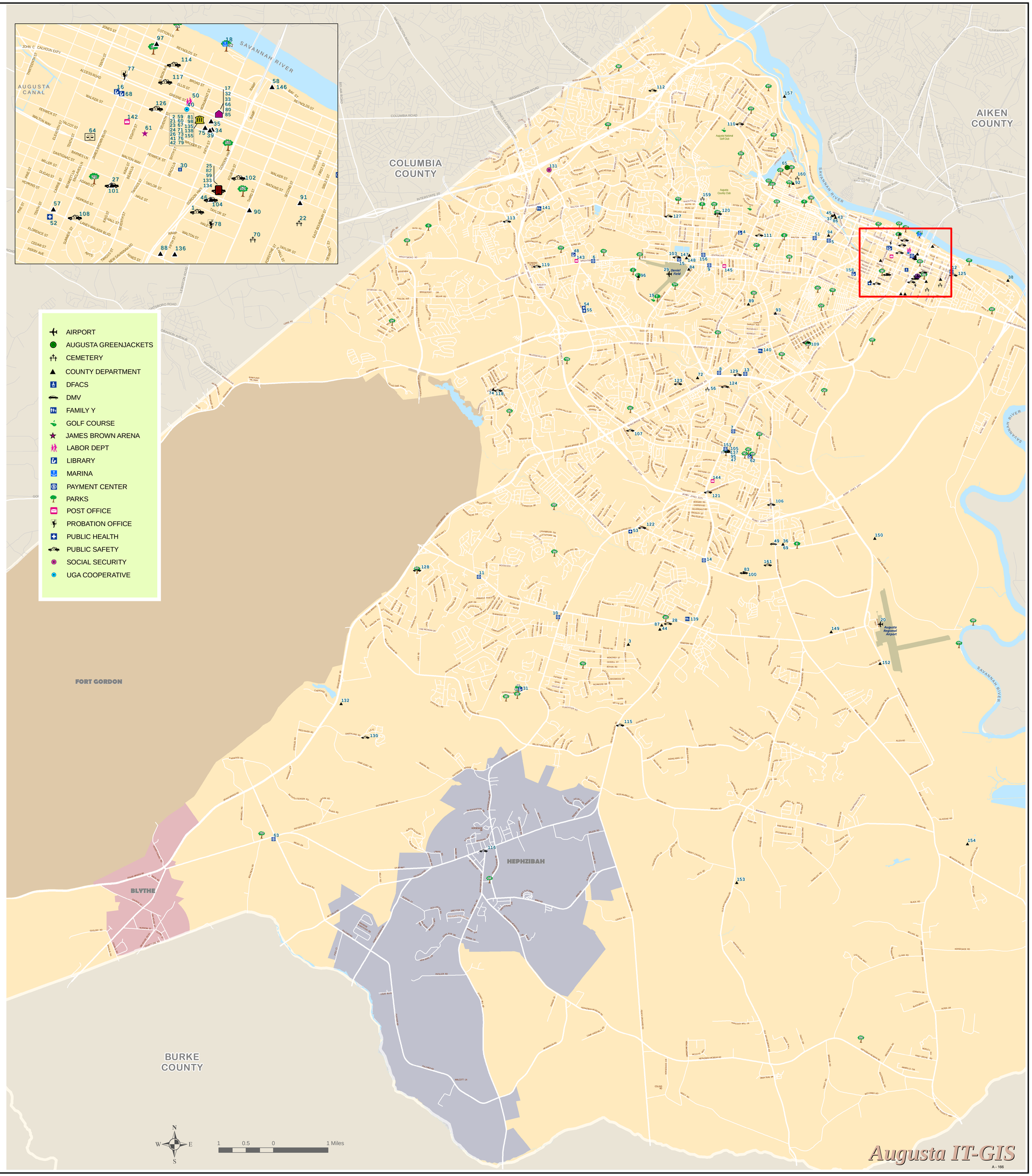
- AUGUSTA CARES
- DISADVANTAGED BUSINESS ENTERPRISE
- DISTRICT ATTORNEY *
- LAW DEPARTMENT
- PUBLIC SERVICES ADMINISTRATION
- PUBLIC SERVICES FACILITIES MANAGEMENT

JUDICIAL CENTER * 2011

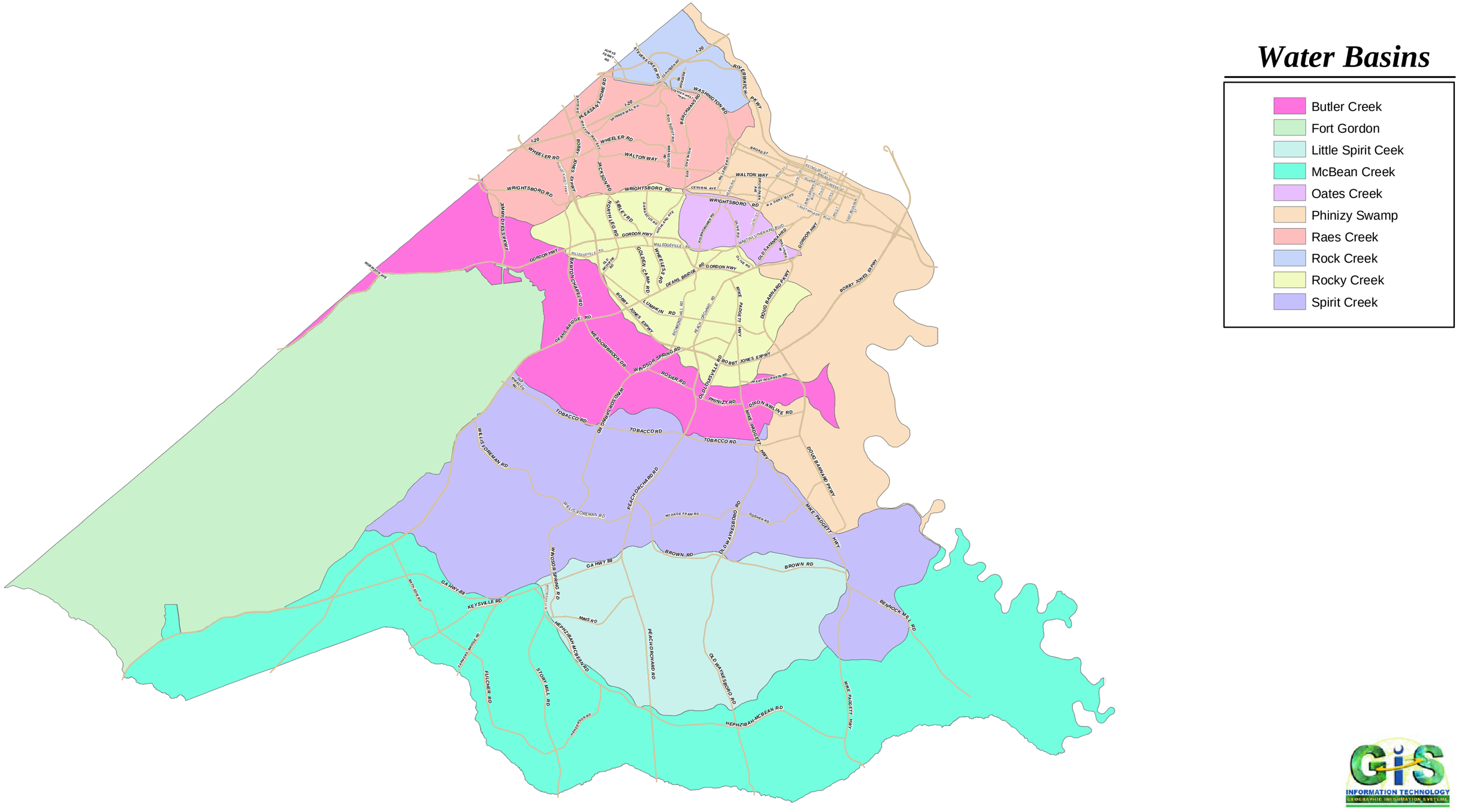
- CIVIL & MAGISTRATE COURT (JUDGES)
- PROBATE COURT
- SUPERIOR COURT (JUDGES)
- STATE COURT (JUDGES)
- CLERK CIVIL & MAGISTRATE COURT
- CLERK OF SUPERIOR COURT
- COURT ADMINISTRATION
- DISTRICT ATTORNEY
- SOLICITOR
- JURY CLERK
- LAW LIBRARY

PARKS

1. A.L. WILLIAMS PARK
2. ALEXANDER BARRETT PARK
3. APPLE VALLEY PARK
4. AUGUSTA AQUATICS CENTER
5. AUGUSTA BOXING CLUB
6. AUGUSTA COMMON
7. AUGUSTA GOLF COURSE
8. AUGUSTA SKATEBOARD PARK
9. AUGUSTA SOCCER PARK
10. AUGUSTA STATE UNIVERSITY PE COMPLEX
11. BAURLE BOAT LANDING
12. BAYVALE PARK
13. BEDFORD HEIGHTS PARK
14. BERNIE WARD COMMUNITY CENTER
15. BETHLEHEM COMMUNITY CENTER
16. BIG OAK PARK
17. BLOUNT PARK
18. BLYTHE AREA RECREATION CENTER
19. BOYKIN ROAD PARK
20. BROOKFIELD PARK
21. CARRIE J MAYS PARK
22. CENTRAL PARK
23. CHAFEE PARK
24. DIAMOND LAKES ATHLETIC OFFICE
25. DIAMOND LAKES CENTER
26. DIAMOND LAKES PARK
27. DIAMOND LAKES TENNIS CENTER
28. DOUGHTY PARK
29. DYESS PARK
30. EASTVIEW PARK
31. EISENHOWER PARK
32. ELLIOT PARK
33. FLEMING ATHLETIC OFFICE
34. FLEMING SPORTS COMPLEX
35. FLEMING TENNIS CENTER
36. GARRETT GYMNASIUM
37. GORDON LAKES
38. GRACEWOOD PARK
39. H. H. BRIGHAM PARK
40. HEPHZIBAH/CARROLL PARK
41. HICKMAN PARK
42. HILLSIDE PARK
43. HYDE PARK
44. JAMESTOWN COMMUNITY CENTER
45. JESSYE NORMAN AMPHITHEATER
46. JONES POOL
47. JULIAN SMITH BARBEQUE PIT
48. JULIAN SMITH CASINO
49. LAKE OLMSTEAD PARK
50. LOCK & DAM PARK
51. M.M. SCOTT PARK
52. MAY PARK
53. MCBEAN COMMUNITY PARK
54. MCDUFFIE WOODS PARK
55. MEADOWBROOK PARK
56. MINNICK PARK
57. NEWMAN TENNIS CENTER
58. OLD GOVERNMENT HOUSE
59. PENDLETON KING PARK
60. RADFORD PARK
61. RIVERWALK AUGUSTA
62. RIVERWALK MARINA
63. SAND HILLS PARK
64. SPRINGFIELD VILLAGE PARK
65. SUE REYNOLDS PARK
66. TANGLEWOOD PARK
67. THE BOATHOUSE
68. W. T. JOHNSON COMMUNITY CENTER
69. WARREN ROAD COMMUNITY CENTER
70. WEST VINELAND PARK
71. WOOD PARK
72. WOOD ST PARK
73. WOODLAKE PARK



Augusta IT-GIS



4

0 0.5 1 2 3 4 Miles

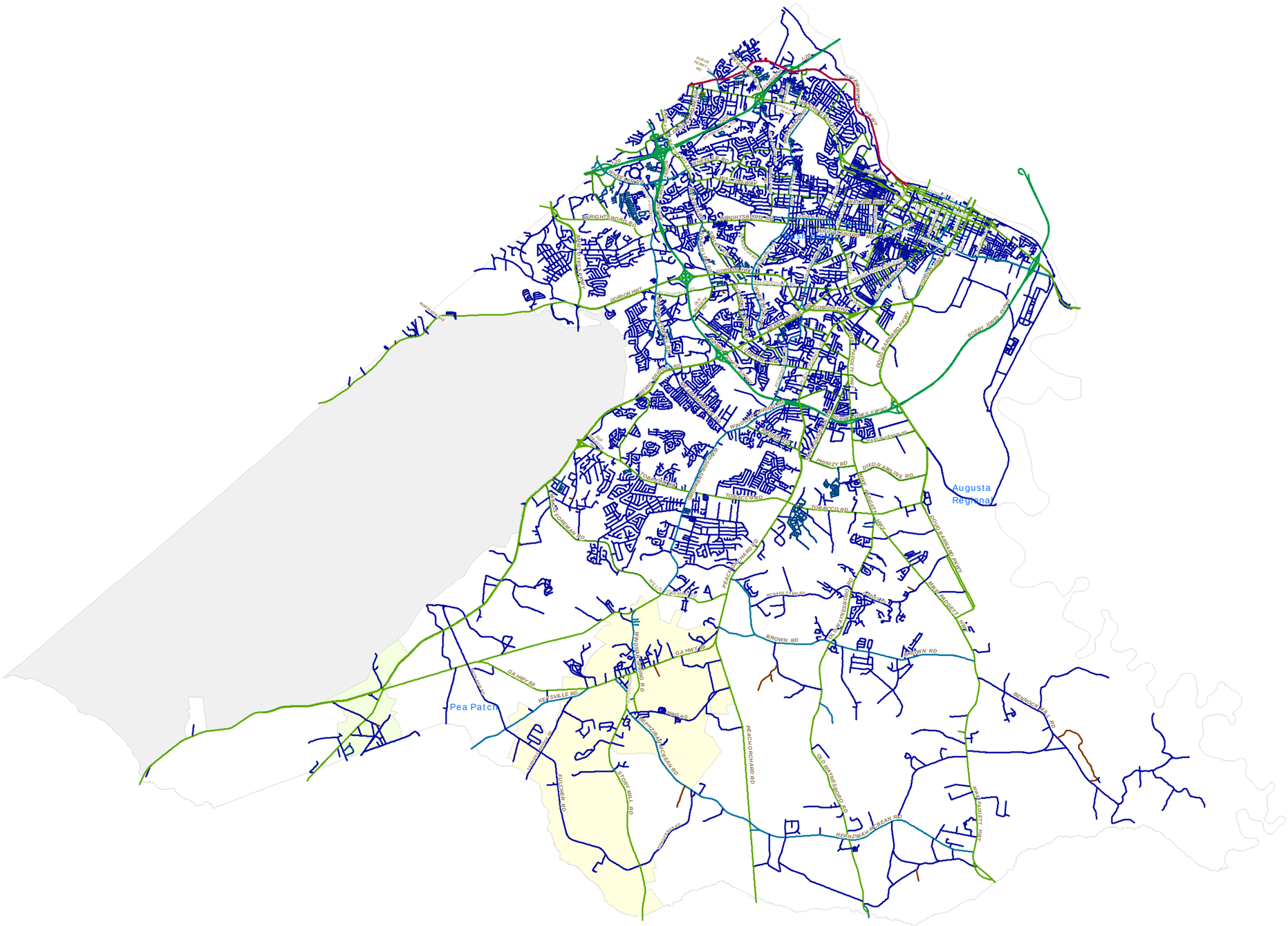
Augusta Richmond County GIS

Planning & Zoning Bldg
3rd Floor - GIS Division
525 Telfair St
Augusta, GA 30904

Projection	Stateplane
Zone	3651
Units	Feet

Augusta, GA Disclaimer: The data represented on this map has been compiled by the best methods available. Accuracy is contingent upon the source information as compiled by various agencies and departments both internal and external to the consolidated government of Augusta, GA. Augusta, GA and the companies contracted to develop these data assume no legal responsibilities for the information or accuracy contained on this map. It is strictly forbidden to sell or reproduce these maps or data for any reason without the written consent of the Augusta-Richmond County Commission.

Roads



Roads

- Alley
- Dirt Road
- Interstate Principal Arterial
- Private Street
- Urban Collector Street
- Urban Fwy and Exp
- Urban Local Street
- Urban Minor Arterial
- Urban Principal Arterial

Political Boundaries

- AUGUSTA
- BLYTHE
- FORT GORDON
- HEPHZIBAH

4

0 0.5 1 2 3 4 Miles

Augusta Richmond County GIS

Planning & Zoning Bldg
3rd Floor - GIS Division
525 Telfair St
Augusta, GA 30904

Projection	Stateplane
Zone	3651
Units	Feet

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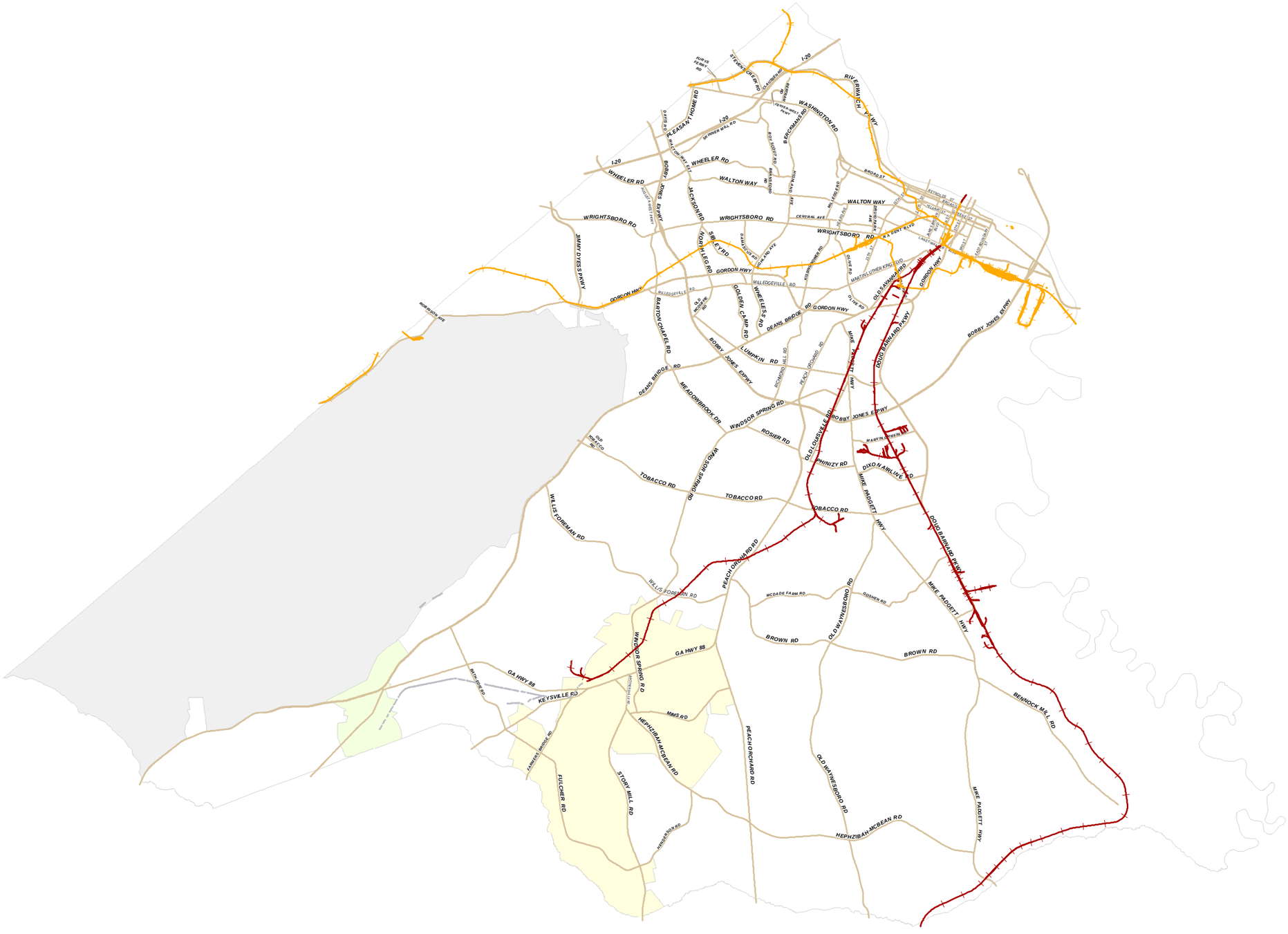
Railroads

Rail Roads By Owner

- ABANDONED
- CSX
- NORFOLK SOUTHERN

Political Boundaries

- AUGUSTA
- BLYTHE
- FORT GORDON
- HEPHZIBAH



4

0 0.5 1 2 3 4 Miles

Augusta Richmond County GIS

Planning & Zoning Bldg
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525 Telfair St
Augusta, GA 30904

Projection	Stateplane
Zone	3651
Units	Feet

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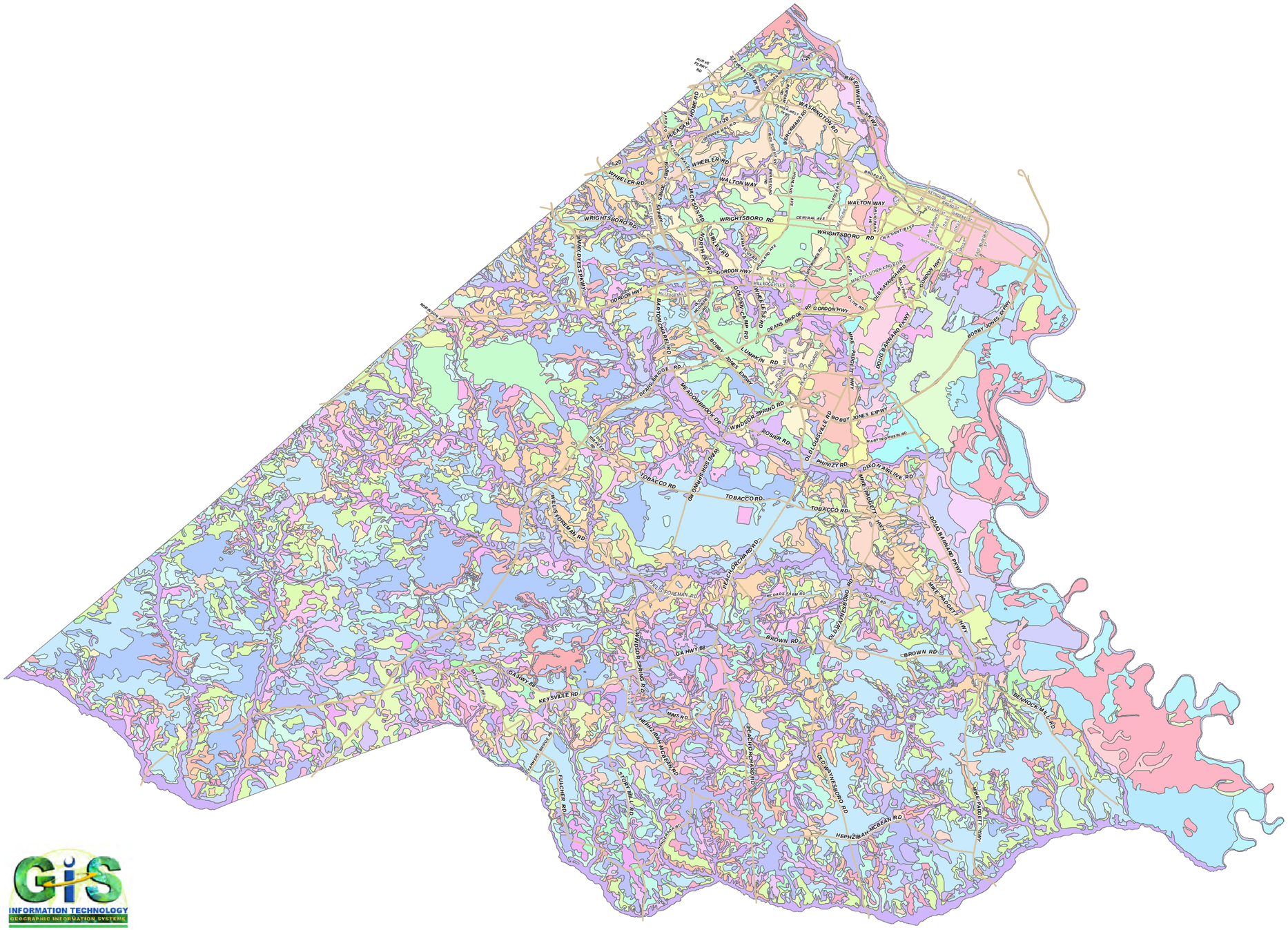


Soils 2008

Soil 2008 (MUSYM)	
AgB	LmB
AgC	LmC
AgD	LmD
Av	MkB
BO	OeA
CC	OeB
CR	OeD
Ca	OsC
DgA	Pm
DhA	Ra
DoA	Rh
DoB	Ro
DuB	Rp
FeA	Rr
FeB	TwB
FeC	TwC
FsB	TwD
FuC	TxC
GgB	UaA
GgC	Uc
GhC	Ud
GmA	VaC
GnA	VaD
GoE	VuC
Gr	VuD
GvB	W
GvC	WeC
HZ	WeD
LkB	WuC
LkC	WuD
LkD	WvB

4

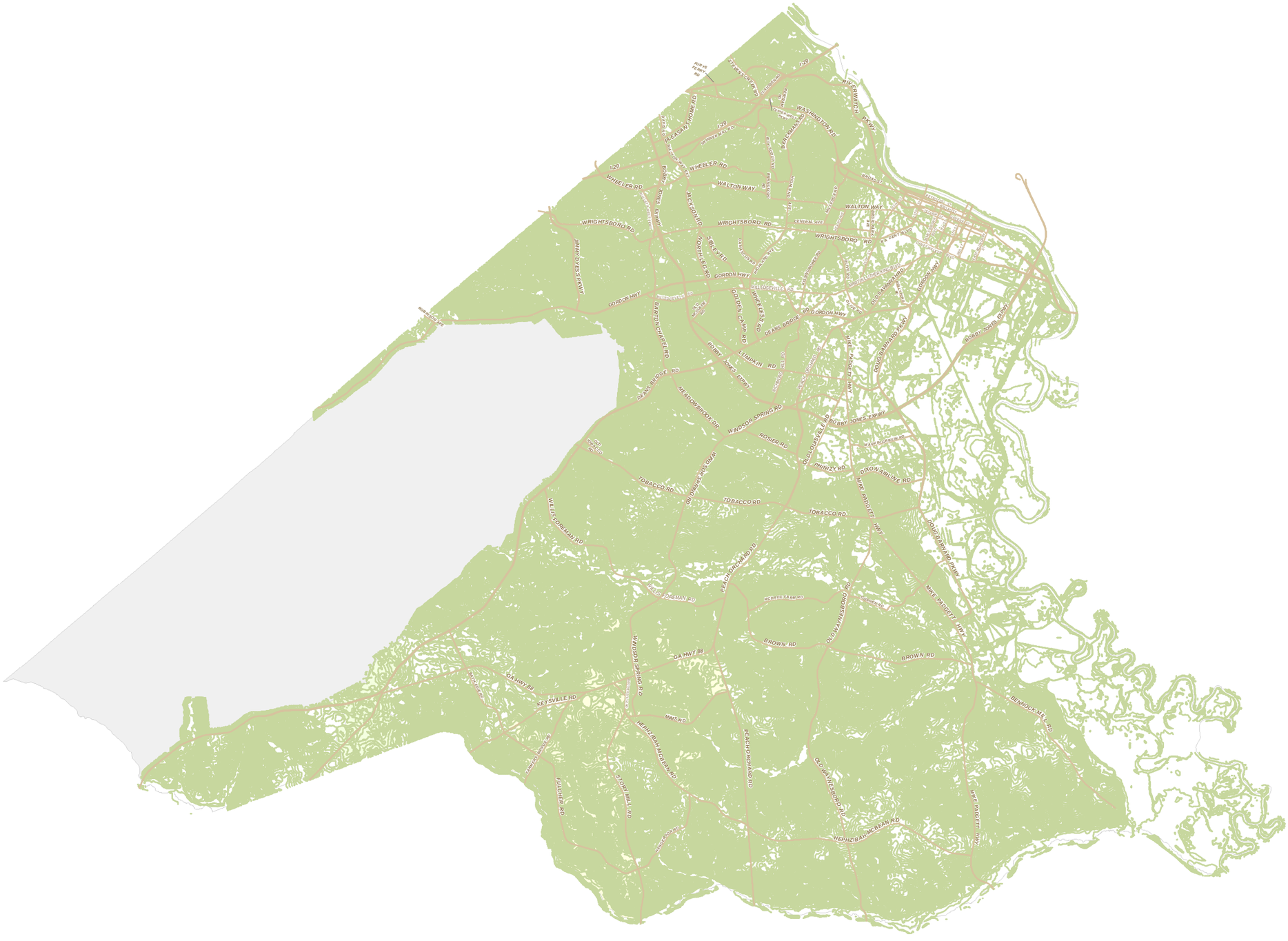
0 0.5 1 2 3 4 Miles

Augusta Richmond County GIS

Planning & Zoning Bldg
3rd Floor - GIS Division
525 Telfair St
Augusta, GA 30904

Projection	Stateplane
Zone	3651
Units	Feet

Augusta, GA Disclaimer: The data represented on this map has been compiled by the best methods available. Accuracy is contingent upon the source information as compiled by various agencies and departments both internal and external to the consolidated government of Augusta, GA. Augusta, GA and the companies contracted to develop these data assume no legal responsibilities for the information or accuracy contained on this map. It is strictly forbidden to sell or reproduce these maps or data for any reason without the written consent of the Augusta-Richmond County Commission.



Contours

- Major Roads
- Contours 5 Foot

Political Boundaries

- AUGUSTA
- BLYTHE
- FORT GORDON
- HEPHZIBAH

4

0 0.5 1 2 3 4 Miles

Augusta Richmond County GIS

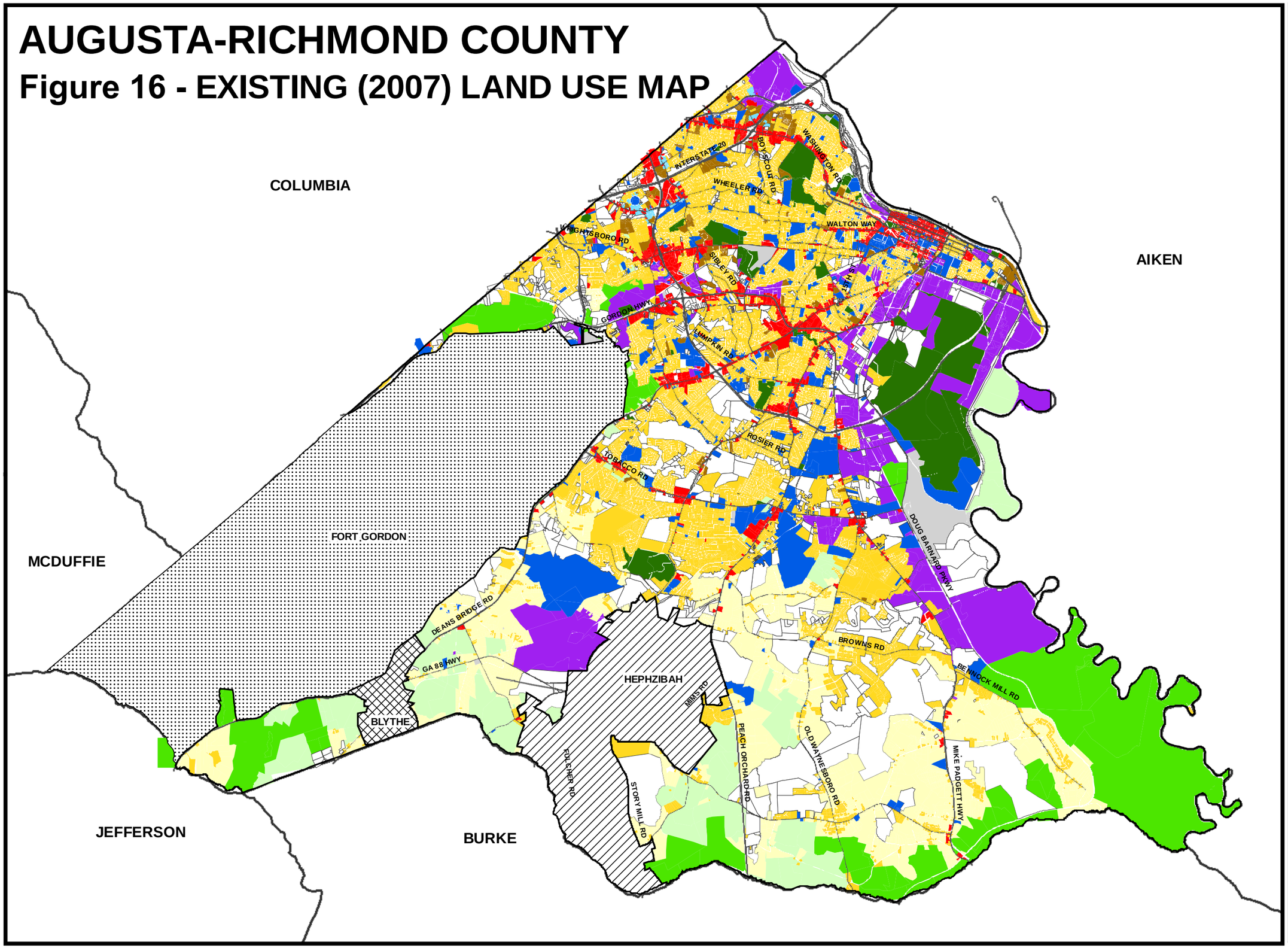
Planning & Zoning Bldg
3rd Floor - GIS Division
525 Telfair St
Augusta, GA 30904

Projection	Stateplane
Zone	3651
Units	Feet

Augusta, GA Disclaimer: The data represented on this map has been compiled by the best methods available. Accuracy is contingent upon the source information as compiled by various agencies and departments both internal and external to the consolidated government of Augusta, GA. Augusta, GA and the companies contracted to develop these data assume no legal responsibilities for the information or accuracy contained on this map. It is strictly forbidden to sell or reproduce these maps or data for any reason without the written consent of the Augusta-Richmond County Commission.

AUGUSTA-RICHMOND COUNTY

Figure 16 - EXISTING (2007) LAND USE MAP



EXISTING (2007) LAND USE MAP

N
W E
S

Projection Stateplane
Zone 3651
Units Feet

0 0.5 1 2 Miles

SCALE 1:146,275

Legend

- MAJOR ROADS
- AUGUSTA
- BLYTHE
- FORT GORDON
- HEPHZIBAH

LAND USE CLASSIFICATION

- LOW DENSITY RESIDENTIAL
- RURAL RESIDENTIAL
- HIGH DENSITY RESIDENTIAL
- COMMERCIAL
- OFFICE
- INDUSTRIAL
- PUBLIC/INSTITUTIONAL
- TRANSPORTATION, COMMUNICATION & UTILITIES
- PARKS, RECREATION, & CONSERVATION
- AGRICULTURAL
- FORESTRY
- UNDEVELOPED/UNUSED

Augusta, GA Disclaimer

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Augusta-Richmond County Planning Commission
525 Telfair Street
Augusta, GA 30901
www.augustaga.gov

June 2007

A.7 Technological Hazard A – Chemical Spill/Leak

GEMA Worksheet #3a Inventory of Assets

Jurisdiction: Richmond County

Hazard: Chemical Spill

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

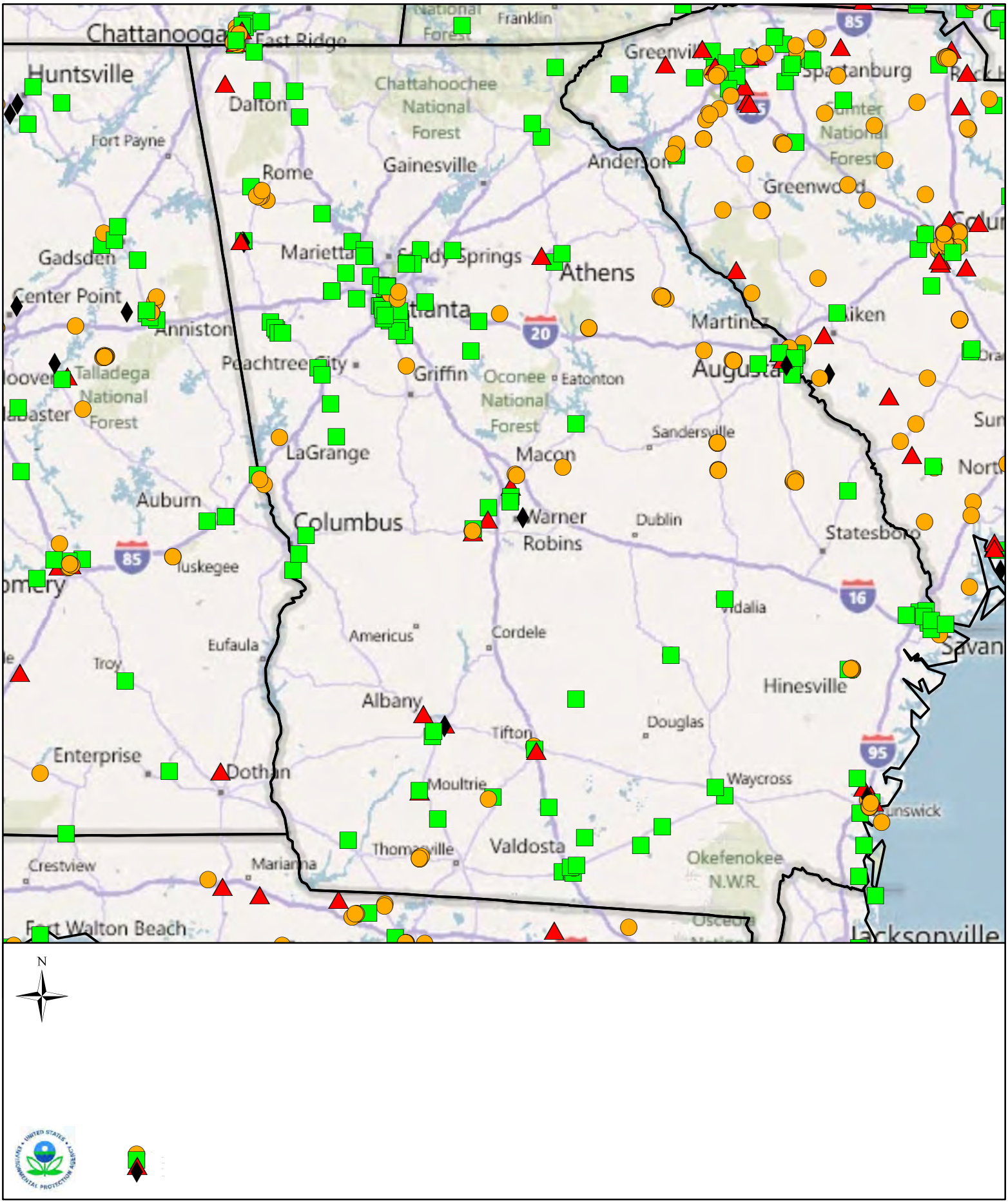
(Source: U.S. Census 2000, HAZUS-MR4 data)

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$,000's in Community or State	$,000's in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	71,769	71,769	100%	8,967,798	8,967,798	100%	199,775	199,775	100%
Commercial	4,202	4,202	100%	2,707,355	2,707,355	100%			N/A
Industrial	961	961	100%	495,189	495,189	100%			N/A
Agricultural	196	196	100%	26,011	26,011	100%			N/A
Religious/ Non-profit	515	515	100%	312,465	312,465	100%			N/A
Government	129	129	100%	96,570	96,570	100%			N/A
Education	145	145	100%	137,831	137,831	100%			N/A
Utilities			N/A	388,200	388,200	N/A			N/A
Total	77,917	77,917	100%	13,131,419	13,131,419	100%	199,775	199,775	100%

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

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

EPA CHEMICAL CLEANUP SITES IN GEORGIA



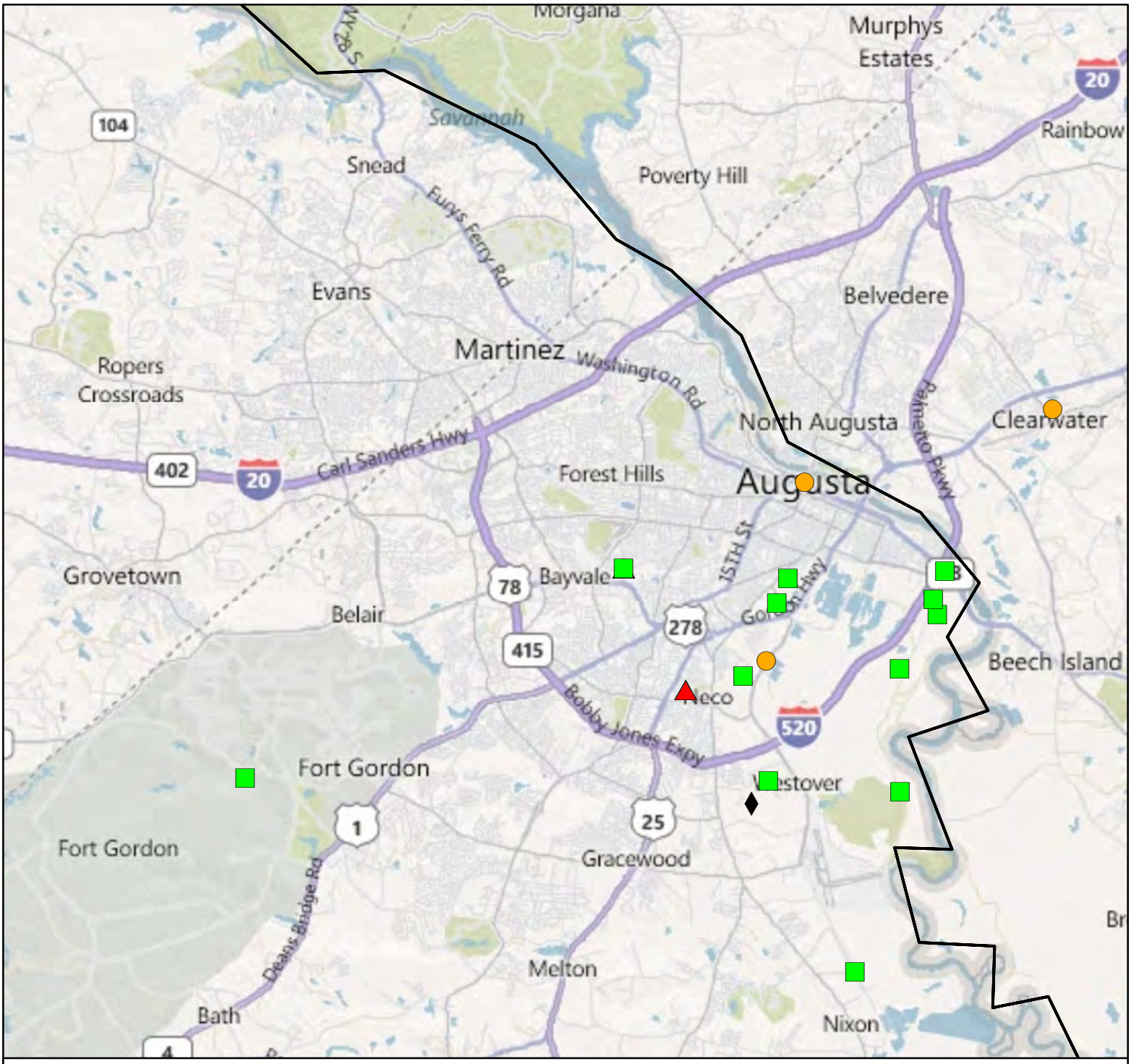
N

Description: EPA GENERATED MAP

0 50 100
Miles

Created on 7/20/2011

Chemical Cleanup Sites; Richmond Co., GA



N

Description: EPA SITES

0 3 6
Miles

Created on 7/20/2011

TRI On-site and Off-site Reported Disposed of or Otherwise Released (in pounds), for facilities in All Industries, for All Chemicals, zip code 30901 in Georgia, 2009

Row #	Facility	TRIF ID	Total On-site Disposal or Other Releases	Total Off-site Disposal or Other Releases	Total On- and Off-site Disposal or Other Releases
2	***AC INDUSTRIES. 727 LANEY WALKER BLVD EXTENSION, AUGUSTA, Georgia 30901 (RICHMOND)***	***30901CNDST727LA***	***15,834***	***0***	***15,834***
.	AMMONIA (325 Chemicals)	30901CNDST727LA	15,834	0	15,834
3	***AUGUSTA WOOD PRESERVING CO. 115 LANEY-WALKER BLVD, AUGUSTA, Georgia 30901 (RICHMOND)***	***30901GSTWD115LA***	***3***	***1,396***	***1,399***
.	ARSENIC COMPOUNDS (321 Wood Products)	30901GSTWD115LA	2	780	782
	CHROMIUM COMPOUNDS(EXCEPT CHROMITE ORE MINED IN THE TRANSVAAL REGION) (321 Wood Products)	30901GSTWD115LA	1	616	617
	COPPER COMPOUNDS (321 Wood Products)	30901GSTWD115LA	NA	NA	NA
4	***BORAL BRICKS INC- AUGUSTA PL ANTS 3 4 5. 1630 ARTHERN RD, AUGUSTA, Georgia 30901 (RICHMOND)***	***30913MRRYBARTHE***	***5,329***	***161***	***5,490***
.	HYDROGEN FLUORIDE (327 Stone/Clay/Glass)	30913MRRYBARTHE	4,467	0	4,467
	LEAD COMPOUNDS (327 Stone/Clay/Glass)	30913MRRYBARTHE	75	0	75
	MANGANESE COMPOUNDS (327 Stone/Clay/Glass)	30913MRRYBARTHE	787	161	948
5	***DSM CHEMICALS NORTH AMERICA INC. 1 COLUMBIA NITROGEN RD, AUGUSTA, Georgia 30901 (RICHMOND)***	***30903DSMCHNO1CO***	***2,855,368***	***39,991***	***2,895,359***
.	AMMONIA (325 Chemicals)	30903DSMCHNO1CO	34,398	12,975	47,373
	BENZENE (325 Chemicals)	30903DSMCHNO1CO	8,767	0	8,767
	BENZO(G,H,I)PERYLENE (325 Chemicals)	30903DSMCHNO1CO	0	0	0
	COPPER COMPOUNDS (325 Chemicals)	30903DSMCHNO1CO	41	126	167
	CYCLOHEXANE (325 Chemicals)	30903DSMCHNO1CO	447,618	0	447,618
	CYCLOHEXANOL (325 Chemicals)	30903DSMCHNO1CO	24,240	0	24,240
	ETHYLENE GLYCOL (325 Chemicals)	30903DSMCHNO1CO	842	4	846
	N-BUTYL ALCOHOL (325 Chemicals)	30903DSMCHNO1CO	6	0	6
	NITRATE COMPOUNDS (325 Chemicals)	30903DSMCHNO1CO	2,261,326	26,114	2,287,440
	NITRIC ACID (325 Chemicals)	30903DSMCHNO1CO	4	0	4
	PHENOL (325 Chemicals)	30903DSMCHNO1CO	75	0	75
	POLYCYCLIC AROMATIC COMPOUNDS (325 Chemicals)	30903DSMCHNO1CO	0	0	0
	TOLUENE (325 Chemicals)	30903DSMCHNO1CO	77,628	0	77,628
	ZINC COMPOUNDS (325 Chemicals)	30903DSMCHNO1CO	424	772	1,196
6	***GENERAL CHEMICAL LLC AUGUSTA PLANT. 1580 COLUMBIA NITROGEN RD, AUGUSTA, Georgia 30901 (RICHMOND)***	***30901PRDTCCOLUM***	***21,229***	***0***	***21,229***
	Total	**8**	**8,396,328**	**41,548**	**8,437,876**

(Note that if a facility name appears multiple times within each of the below tables, the facility is a multi-establishment and submitted multiple forms for Dioxin and Dioxin-like compounds.
Note that in the table above, asterisks are shown to indicate that data for Dioxin and Dioxin-like compounds in grams (as required by EPA) was reported by the facility. EPA has converted these data into pounds and included them in the table total (in pounds). Please refer to the Dioxin and Dioxin-like compounds table below for reported amounts of Dioxin and Dioxin-like compounds in grams. Grams can be converted to pounds by multiplying by 0.002205.)

TRI On-site and Off-site Reported Disposed of or Otherwise Released (in pounds), for facilities in All Industries, for All Chemicals, zip code 30901 in Georgia, 2009

Row #	Facility	TRIF ID	Total On-site Disposal or Other Releases	Total Off-site Disposal or Other Releases	Total On- and Off-site Disposal or Other Releases
.	SULFURIC ACID (1994 AND AFTER "ACID AEROSOLS" ONLY) (325 Chemicals)	30901PRDTCCOLUM	21,229	0	21,229
7	***MODERN WELDING CO OF GEORGIA,INC. 300 PREP PHILLIPS DR, AUGUSTA, Georgia 30901 (RICHMOND)***	***30903MDRNW300PR***	***7,014***	***0***	***7,014***
.	CHROMIUM (332 Fabricated Metals)	30903MDRNW300PR	52	.	52
	NICKEL (332 Fabricated Metals)	30903MDRNW300PR	28	.	28
	STYRENE (332 Fabricated Metals)	30903MDRNW300PR	6,935	0	6,935
8	***NUTRASWEET CO. 1762 LOVERS LN, AUGUSTA, Georgia 30901 (RICHMOND)***	***30903THNTR1750L***	***33,806***	***0***	***33,806***
.	AMMONIA (325 Chemicals)	30903THNTR1750L	436	.	436
	CHLOROMETHANE (325 Chemicals)	30903THNTR1750L	23,690	0	23,690
	DIOXIN AND DIOXIN-LIKE COMPOUNDS (325 Chemicals)	30903THNTR1750L	**	**	**
	FORMIC ACID (325 Chemicals)	30903THNTR1750L	879	0	879
	HYDROCHLORIC ACID (1995 AND AFTER "ACID AEROSOLS" ONLY) (325 Chemicals)	30903THNTR1750L	2,507	0	2,507
	METHANOL (325 Chemicals)	30903THNTR1750L	6,294	.	6,294
9	***PCS NITROGEN FERTILIZER LP. 733 1/2 LANEY WALKER BLVD EXT, AUGUSTA, Georgia 30901 (RICHMOND)***	***30903CLMBN23COL***	***5,457,745***	***0***	***5,457,745***
.	AMMONIA (325 Chemicals)	30903CLMBN23COL	4,221,109	0	4,221,109
	CHLORINE (325 Chemicals)	30903CLMBN23COL	NA	NA	NA
	COPPER COMPOUNDS (325 Chemicals)	30903CLMBN23COL	102	.	102
	DIOXIN AND DIOXIN-LIKE COMPOUNDS (325 Chemicals)	30903CLMBN23COL	**	**	**
	FORMALDEHYDE (325 Chemicals)	30903CLMBN23COL	468	0	468
	MERCURY (325 Chemicals)	30903CLMBN23COL	3	.	3
	METHANOL (325 Chemicals)	30903CLMBN23COL	126,164	0	126,164
	NITRATE COMPOUNDS (325 Chemicals)	30903CLMBN23COL	1,107,162	0	1,107,162
	NITRIC ACID (325 Chemicals)	30903CLMBN23COL	536	0	536
	VANADIUM COMPOUNDS (325 Chemicals)	30903CLMBN23COL	NA	NA	NA
	ZINC COMPOUNDS (325 Chemicals)	30903CLMBN23COL	2,201	.	2,201
	Total	**8**	**8,396,328**	**41,548**	**8,437,876**

(Note that if a facility name appears multiple times within each of the below tables, the facility is a multi-establishment and submitted multiple forms for Dioxin and Dioxin-like compounds.
Note that in the table above, asterisks are shown to indicate that data for Dioxin and Dioxin-like compounds in grams (as required by EPA) was reported by the facility. EPA has converted these data into pounds and included them in the table total (in pounds). Please refer to the Dioxin and Dioxin-like compounds table below for reported amounts of Dioxin and Dioxin-like compounds in grams. Grams can be converted to pounds by multiplying by 0.002205.)

TRI On-site and Off-site Reported Disposed of or Otherwise Released Dioxin and Dioxin-like Compounds (in grams), for facilities in All Industries, zip code 30901 in Georgia, 2009

Row #	Facility	TRIF ID	Total On-site Disposal or Other Releases	Total Off-site Disposal or Other Releases	Total On- and Off-site Disposal or Other Releases
1	NUTRASWEET CO. 1762 LOVERS LN , AUGUSTA Georgia 30901 (RICHMOND. 325 Chemicals)	30903THNTR1750L	0.0000062	0.0000000	0.0000062
2	PCS NITROGEN FERTILIZER LP. 733 1/2 LANEY WALKER BLVD EXT , AUGUSTA Georgia 30901 (RICHMOND. 325 Chemicals)	30903CLMBN23COL	0.2530000	0.0000000	0.2530000
	Total	**2**	**0.2530062**	**0.0000000**	**0.2530062**

Dioxin and Dioxin-like Compounds Toxicity Equivalent Weight (in grams), zip code 30901 in Georgia, 2009

Row #	Facility	TRIF ID	Total On-site Disposal or Other Releases	Total Off-site Disposal or Other Releases	Total On- and Off-site Disposal or Other Releases
1	NUTRASWEET CO. 1762 LOVERS LN , AUGUSTA Georgia 30901 (RICHMOND. 325 Chemicals)	30903THNTR1750L	0.0000002	.	0.0000002
2	PCS NITROGEN FERTILIZER LP. 733 1/2 LANEY WALKER BLVD EXT , AUGUSTA Georgia 30901 (RICHMOND. 325 Chemicals)	30903CLMBN23COL	0.0006626	.	0.0006626

Note: Reporting year (RY) 2009 is the most recent TRI data available. Facilities reporting to TRI were required to submit RY 2009 data to EPA by July 1, 2010. Facilities may submit revisions at any time. This is National Analysis dataset released to the public in December 2010 and includes updates for the years 1988 to 2009. Revisions submitted to EPA after this time are not reflected in TRI Explorer reports. TRI data may also be obtained through EPA Envirofacts.

Users of TRI information should be aware that TRI data reflect releases and other waste management activities of chemicals, not whether (or to what degree) the public has been exposedto those chemicals. Release estimates alone are not sufficient to determine exposure or to calculate potential adverse effects on human health and the environment. TRI data, in conjunction with other information, can be used as a starting point in evaluating exposures that may result from releases and other waste management activities which involve toxic chemicals. The determination of potential risk depends upon many factors, including the toxicity of the chemical, the fate of the chemical, and the amount and duration of human or other exposure to the chemical after it is released.

Off-site disposal or other releases include transfers sent to other TRI Facilities that reported the amount as on-site disposal or other release because not all states and/or not all industry sectors are included in this report.

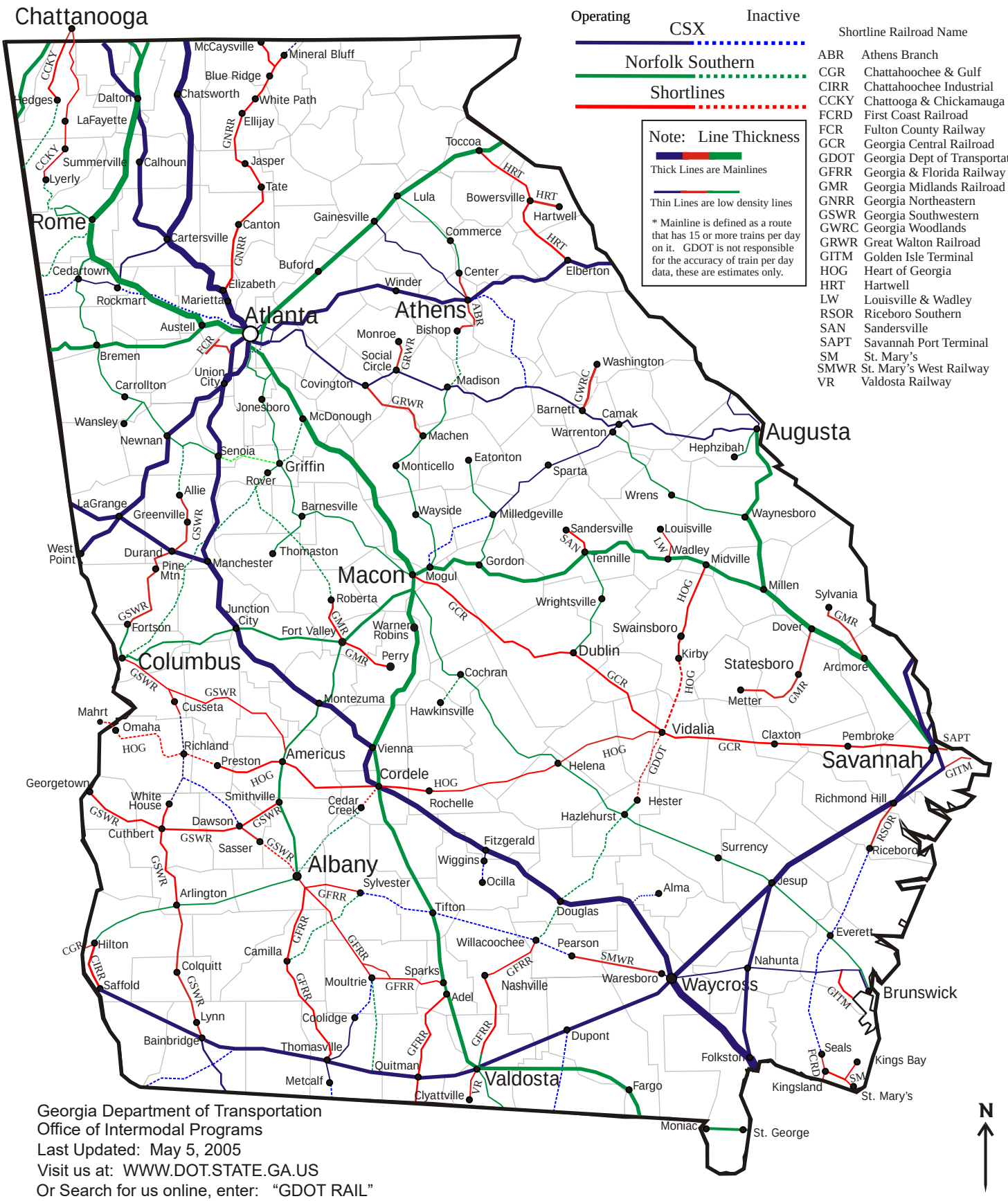
On-site Disposal or Other Releases include Underground Injection to Class I Wells (Section 5.4.1), RCRA Subtitle C Landfills (5.5.1A), Other Landfills (5.5.1B), Fugitive or Non-point Air Emissions (5.1), Stack or Point Air Emissions (5.2), Surface Water Discharges (5.3), Underground Injection to Class II-V Wells (5.4.2), Land Treatment/Application Farming (5.5.2), RCRA Subtitle C Surface Impoundments (5.5.3A), Other Surface Impoundments (5.5.3B), and Other Land Disposal (5.5.4). Off-site Disposal or Other Releases include from Section 6.2 Class I Underground Injection Wells (M81), Class II-V Underground Injection Wells (M82, M71), RCRA Subtitle C Landfills (M65), Other Landfills (M64, M72), Storage Only (M10), Solidification/Stabilization - Metals and Metal Category Compounds only (M41 or M40), Wastewater Treatment (excluding POTWs) - Metals and Metal Category Compounds only (M62 or M61), RCRA Subtitle C Surface Impoundments (M66), Other Surface Impoundments (M67, M63), Land Treatment (M73), Other Land Disposal (M79), Other Off-site Management (M90), Transfers to Waste Broker - Disposal (M94, M91), and Unknown (M99) and, from Section 6.1 Transfers to POTWs (metals and metal category compounds only).

For purposes of analysis, data reported as Range Code A is calculated using a value of 5 pounds, Range Code B is calculated using a value of 250 pounds and Range Code C is calculated using a value of 750 pounds.

The facility may have reported multiple NAICS codes to TRI in the current reporting year. See the facility profile report by clicking on the facility name to see a list of all NAICS codes submitted to TRI for the current reporting year.

A decimal point, or "." denotes that
the facility left that particular cell blank in its Form R submission (a zero in a cell denotes either that the facility reported "0" or "NA" in its Form R submission).
"NA" in a cell denotes that the facility has submitted only Form A and thus the data for release, waste transfers or quantities of TRI chemicals in waste are not applicable. By sub mitting a Form A the facility has certified that its total annual reportable amount is less than 500 pounds, and that the facility does not manufacture, process, or otherwise use more than 1 million pounds of the toxic chemical.

Georgia Rail System


Operating
Inactive
CSX
Norfolk Southern
Shortlines
Note: Line Thickness
Thick Lines are Mainlines
Thin Lines are low density lines
* Mainline is defined as a route that has 15 or more trains per day on it. GDOT is not responsible for the accuracy of train per day data, these are estimates only.
Shortline Railroad Name
ABR Athens Branch
CGR Chattahoochee & Gulf
CIRR Chattahoochee Industrial
CCKY Chattooga & Chickamauga
FCRD First Coast Railroad
FCR Fulton County Railway
GCR Georgia Central Railroad
GDOT Georgia Dept of Transportation
GFRR Georgia & Florida Railway
GMR Georgia Midlands Railroad
GNRR Georgia Northeastern
GSWR Georgia Southwestern
GWRC Georgia Woodlands
GRWR Great Walton Railroad
GITM Golden Isle Terminal
HOG Heart of Georgia
HRT Hartwell
LW Louisville & Wadley
RSOR Riceboro Southern
SAN Sandersville
SAPT Savannah Port Terminal
SM St. Mary's
SMWR St. Mary's West Railway
VR Valdosta Railway
Chattanooga
Rome
Atlanta
Athens
Augusta
Macon
Columbus
Savannah
Albany
Waycross
Brunswick
Valdosta
Griffin
Dublin
Statesboro
Vidalia
Cordele
Americus
Thomasville
Moultrie
Tifton
Douglas
Hazlehurst
Jesup
Folkston
Kingsland
Kings Bay
St. Mary's
St. George
Moniac
Fargo
Clyattville
Quitman
Metcalf
Bainbridge
Lynn
Colquitt
Saffold
Hilton
Cuthbert
Georgetown
Mahrt
Omaha
Cusseta
Fortson
Greenville
LaGrange
West Point
Durand
Pine Mtn
Manchester
Newnan
Senoia
Allie
Wansley
Carrollton
Bremen
Austell
Rockmart
Cedartown
Summerville
Lyerly
Calhoun
Dalton
Chatsworth
Ellijay
Jasper
Tate
Canton
Cartersville
Marietta
Elizabeth
Buford
Gainesville
Lula
Toccoa
Bowersville
Hartwell
Elberton
Commerce
Center
Winder
Bishop
Monroe
Social Circle
Covington
Madison
Washington
Barnett
Camak
Warrenton
Hephzibah
Sparta
Eatonton
Monticello
Machen
McDonough
Jonesboro
Union City
Fairburn
Hedges
LaFayette
McCaysville
Mineral Bluff
Blue Ridge
White Path
Rover
Barnesville
Thomaston
Junction City
Fort Valley
Roberta
Warner Robins
Perry
Montezuma
Cochran
Hawkinsville
Wayside
Milledgeville
Sandersville
Tennille
Gordon
Mogul
Wrightsville
Swainsboro
Kirby
Louisville
Wadley
Midville
Wrens
Waynesboro
Millen
Sylvania
Dover
Ardmore
Metter
Claxton
Pembroke
Richmond Hill
Riceboro
Everett
Nahunta
Surrency
Alma
Helena
Hester
Rochelle
Cedar Creek
Smithville
White House
Dawson
Sasser
Arlington
Sylvester
Wiggins
Ocilla
Fitzgerald
Willacoochee
Pearson
Waresboro
Nashville
Adel
Sparks
Camilla
Coolidge
Dupont
Richland
Preston
Vienna
Cordele
Perry
Fort Valley
Junction City
Thomaston
Manchester
Pine Mtn
Durand
Greenville
Allie
Senoia
Griffin
Rover
Jonesboro
McDonough
Covington
Social Circle
Monroe
Bishop
Madison
Machen
Eatonton
Monticello
Sparta
Barnett
Camak
Warrenton
Washington
Hephzibah
Augusta
Wrens
Waynesboro
Millen
Sylvania
Dover
Ardmore
Statesboro
Metter
Claxton
Pembroke
Savannah
Vidalia
Swainsboro
Dublin
Kirby
Wadley
Louisville
Sandersville
Tennille
Gordon
Mogul
Macon
Roberta
Barnesville
Wayside
Milledgeville
Sparta
Eatonton
Monticello
Machen
McDonough
Jonesboro
Union City
Fairburn
Covington
Madison
Social Circle
Monroe
Bishop
Winder
Elizabeth
Buford
Gainesville
Lula
Toccoa
Bowersville
Hartwell
Elberton
Commerce
Center
Canton
Cartersville
Jasper
Tate
Ellijay
Chatsworth
White Path
Blue Ridge
McCaysville
Mineral Bluff
Dalton
LaFayette
Hedges
Summerville
Lyerly
Calhoun
Rome
Cedartown
Rockmart
Marietta
Austell
Bremen
Carrollton
Wansley
Newnan
LaGrange
West Point
Fortson
Columbus
Cusseta
Mahrt
Omaha
Georgetown
Richland
Preston
Americus
Smithville
Dawson
Cuthbert
Sasser
Albany
Arlington
Hilton
Saffold
Colquitt
Lynn
Bainbridge
Thomasville
Metcalf
Camilla
Moultrie
Sylvester
Tifton
Douglas
Willacoochee
Pearson
Waresboro
Nashville
Adel
Sparks
Coolidge
Quitman
Clyattville
Valdosta
Fargo
Dupont
Folkston
Kingsland
Kings Bay
St. Mary's
St. George
Moniac
Seals
Everett
Nahunta
Waycross
Brunswick
Jesup
Riceboro
Richmond Hill
Savannah
Vidalia
Helena
Hazlehurst
Hester
Rochelle
Cordele
Vienna
Americus
Fort Valley
Perry
Warner Robins
Roberta
Junction City
Thomaston
Manchester
Pine Mtn
Durand
Greenville
Allie
Senoia
Griffin
Rover
Jonesboro
McDonough
Covington
Social Circle
Monroe
Bishop
Madison
Machen
Eatonton
Monticello
Sparta
Barnett
Camak
Warrenton
Washington
Hephzibah
Augusta
Wrens
Waynesboro
Millen
Sylvania
Dover
Ardmore
Statesboro
Metter
Claxton
Pembroke
Savannah
Vidalia
Swainsboro
Dublin
Kirby
Wadley
Louisville
Sandersville
Tennille
Gordon
Mogul
Macon
Wrightsville
Milledgeville
Wayside
Barnesville

A.8 Technological Hazard B – Terrorism

GEMA Worksheet #3a **Inventory of Assets**

Jurisdiction: Richmond County

Hazard: Terrorism

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

(Source: U.S. Census 2000, HAZUS-MR4 data)

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$,000's in Community or State	$,000's in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	71,769	71,769	100%	8,967,798	8,967,798	100%	199,775	199,775	100%
Commercial	4,202	4,202	100%	2,707,355	2,707,355	100%			N/A
Industrial	961	961	100%	495,189	495,189	100%			N/A
Agricultural	196	196	100%	26,011	26,011	100%			N/A
Religious/ Non-profit	515	515	100%	312,465	312,465	100%			N/A
Government	129	129	100%	96,570	96,570	100%			N/A
Education	145	145	100%	137,831	137,831	100%			N/A
Utilities			N/A	388,200	388,200	100%			N/A
Total	77,917	77,917	100%	13,131,419	13,131,419	100%	199,775	199,775	100%

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

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

A.9 Technological Hazard C – Nuclear Plant Incident

GEMA Worksheet #3a **Inventory of Assets**

Jurisdiction: Richmond County

Hazard: Nuclear Plant Incident

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

(Source: U.S. Census 2000, HAZUS-MR4 data)

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$,000's in Community or State	$,000's in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	71,769	71,769	100%	8,967,798	8,967,798	100%	199,775	199,775	100%
Commercial	4,202	4,202	100%	2,707,355	2,707,355	100%			N/A
Industrial	961	961	100%	495,189	495,189	100%			N/A
Agricultural	196	196	100%	26,011	26,011	100%			N/A
Religious/ Non-profit	515	515	100%	312,465	312,465	100%			N/A
Government	129	129	100%	96,570	96,570	100%			N/A
Education	145	145	100%	137,831	137,831	100%			N/A
Utilities			N/A			N/A			N/A
Total	77,917	77,917	100%	12,743,219	12,743,219	100%	199,775	199,775	100%

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

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

A.10 Technological Hazard D – Dam/Levee Failure

GEMA Worksheet #3a Inventory of Assets

Jurisdiction: Richmond County

Hazard: Dam/Levee Failure

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

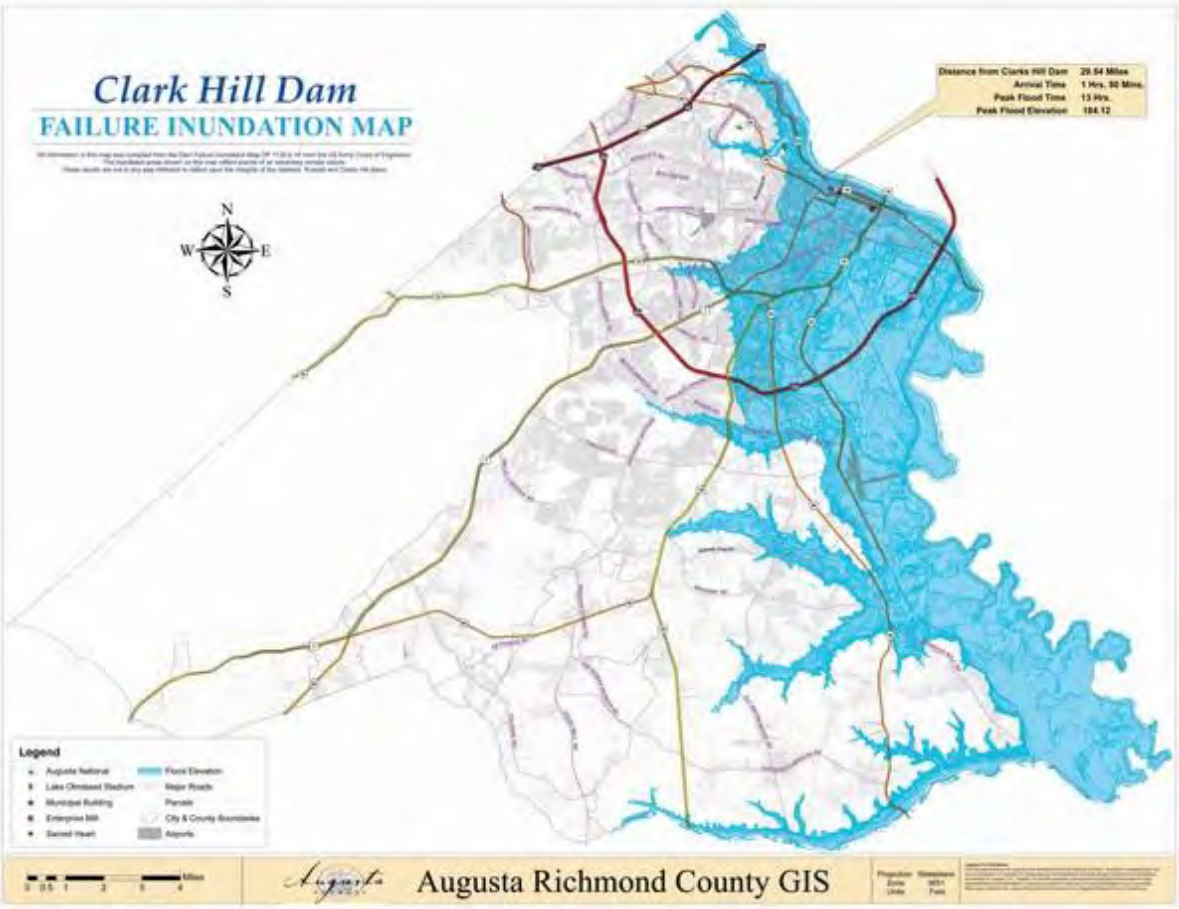
(Source: U.S. Census 2000, USACE, HAZUS-MR4 data)

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$,000's in Community or State	$,000's in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	71,769	20,794	29.0%	8,967,798	2,362,094	26.3%	199,775	56,994	28.5%
Commercial	4,202	1,719	40.9%	2,707,355	1,417,043	52.3%			N/A
Industrial	961	370	38.5%	495,189	358,114	72.3%			N/A
Agricultural	196	57	29.1%	26,011	6,638	25.5%			N/A
Religious/ Non-profit	515	217	42.1%	312,465	125,917	40.3%			N/A
Government	129	83	64.3%	96,570	63,728	66.0%			N/A
Education	145	62	42.8%	137,831	55,754	40.5%			N/A
Utilities			N/A			N/A			N/A
Total	77,917	23,302	29.9%	12,743,219	4,389,288	34.4%	199,775	56,994	28.5%

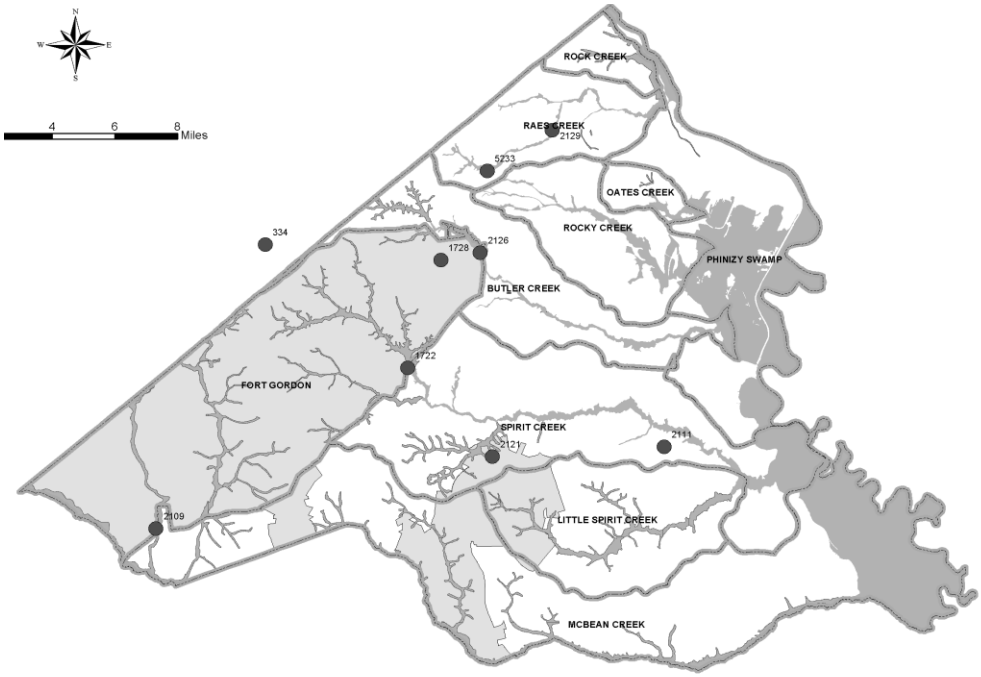
Task B. Determine whether (and where) you want to collect additional inventory data.

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

Map Series 1 – A : Clark Hill Dam Inundation Map



Map Series 1 – B:



Source: Census 2000

HAZARD: **Tornado / Wind storm / Hail**

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$,000's in Community or State	$,000's in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	71,769	71,769	100%	8,967,798	8,967,798	100%	199,775	199,775	100%
Commercial	4,202	4,202	100%	2,707,355	2,707,355	100%			N/A
Industrial	961	961	100%	495,189	495,189	100%			N/A
Agricultural	196	196	100%	26,011	26,011	100%			N/A
Religious/ Non-profit	515	515	100%	312,465	312,465	100%			N/A
Government	129	129	100%	96,570	96,570	100%			N/A
Education	145	145	100%	137,831	137,831	100%			N/A
Utilities			N/A			N/A			N/A
Total	77,917	77,917	100%	12,743,219	12,743,219	100%	199,775	199,775	100%

HAZARD: **Flooding - Depth Grid (HAZUS, AE Zone only); exposure, not damages**

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$,000's in Community or State	$,000's in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	71,769	16,452	22.9%	8,967,798	2,240,381	25.0%	199,775	46,870	23.5%
Commercial	4,202	810	19.3%	2,707,355	471,379	17.4%			N/A
Industrial	961	234	24.3%	495,189	194,528	39.3%			N/A
Agricultural	196	37	18.9%	26,011	4,560	17.5%			N/A
Religious/ Non-profit	515	95	18.4%	312,465	52,123	16.7%			N/A
Government	129	9	7.0%	96,570	5,614	5.8%			N/A
Education	145	32	22.1%	137,831	31,178	22.6%			N/A
Utilities			N/A			N/A			N/A
Total	77,917	17,669	22.7%	12,743,219	2,999,763	23.5%	199,775	46,870	23.5%

HAZARD: **Drought / Extreme Heat**

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$,000's in Community or State	$,000's in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	71,769	71,769	100%	8,967,798	8,967,798	100%	199,775	199,775	100%
Commercial	4,202	4,202	100%	2,707,355	2,707,355	100%			N/A
Industrial	961	961	100%	495,189	495,189	100%			N/A
Agricultural	196	196	100%	26,011	26,011	100%			N/A
Religious/ Non-profit	515	515	100%	312,465	312,465	100%			N/A
Government	129	129	100%	96,570	96,570	100%			N/A
Education	145	145	100%	137,831	137,831	100%			N/A
Utilities			N/A			N/A			N/A
Total	77,917	77,917	100%	12,743,219	12,743,219	100%	199,775	199,775	100%

HAZARD: **Winter Storm**

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$,000's in Community or State	$,000's in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	71,769	71,769	100%	8,967,798	8,967,798	100%	199,775	199,775	100%
Commercial	4,202	4,202	100%	2,707,355	2,707,355	100%			N/A
Industrial	961	961	100%	495,189	495,189	100%			N/A
Agricultural	196	196	100%	26,011	26,011	100%			N/A
Religious/ Non-profit	515	515	100%	312,465	312,465	100%			N/A
Government	129	129	100%	96,570	96,570	100%			N/A
Education	145	145	100%	137,831	137,831	100%			N/A
Utilities			N/A	388,200	388,200	N/A			N/A
Total	77,917	77,917	100%	13,131,419	13,131,419	100%	199,775	199,775	100%

HAZARD: **Wildfire**

	Number of Structures	Value of Structures	Number of People

Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$,000's in Community or State	$,000's in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	71,769	71,769	100%	8,967,798	8,967,798	100%	199,775	199,775	100%
Commercial	4,202	4,202	100%	2,707,355	2,707,355	100%			N/A
Industrial	961	961	100%	495,189	495,189	100%			N/A
Agricultural	196	196	100%	26,011	26,011	100%			N/A
Religious/ Non-profit	515	515	100%	312,465	312,465	100%			N/A
Government	129	129	100%	96,570	96,570	100%			N/A
Education	145	145	100%	137,831	137,831	100%			N/A
Utilities			N/A	388,200	388,200	N/A			N/A
Total	77,917	77,917	100%	13,131,419	13,131,419	100%	199,775	199,775	100%

HAZARD: **Earthquake**

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$,000's in Community or State	$,000's in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	71,769	71,769	100%	8,967,798	8,967,798	100%	199,775	199,775	100%
Commercial	4,202	4,202	100%	2,707,355	2,707,355	100%			N/A
Industrial	961	961	100%	495,189	495,189	100%			N/A
Agricultural	196	196	100%	26,011	26,011	100%			N/A
Religious/ Non-profit	515	515	100%	312,465	312,465	100%			N/A
Government	129	129	100%	96,570	96,570	100%			N/A
Education	145	145	100%	137,831	137,831	100%			N/A
Utilities			N/A	388,200	388,200	100%			N/A
Total	77,917	77,917	100%	13,131,419	13,131,419	100%	199,775	199,775	100%

HAZARD: **Chemical Spill**

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$,000's in Community or State	$,000's in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area

Residential	71,769	71,769	100%	8,967,798	8,967,798	100%	199,775	199,775	100%
Commercial	4,202	4,202	100%	2,707,355	2,707,355	100%			N/A
Industrial	961	961	100%	495,189	495,189	100%			N/A
Agricultural	196	196	100%	26,011	26,011	100%			N/A
Religious/ Non-profit	515	515	100%	312,465	312,465	100%			N/A
Government	129	129	100%	96,570	96,570	100%			N/A
Education	145	145	100%	137,831	137,831	100%			N/A
Utilities			N/A	388,200	388,200	N/A			N/A
Total	77,917	77,917	100%	13,131,419	13,131,419	100%	199,775	199,775	100%

HAZARD: **Terrorism**

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$,000's in Community or State	$,000's in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	71,769	71,769	100%	8,967,798	8,967,798	100%	199,775	199,775	100%
Commercial	4,202	4,202	100%	2,707,355	2,707,355	100%			N/A
Industrial	961	961	100%	495,189	495,189	100%			N/A
Agricultural	196	196	100%	26,011	26,011	100%			N/A
Religious/ Non-profit	515	515	100%	312,465	312,465	100%			N/A
Government	129	129	100%	96,570	96,570	100%			N/A
Education	145	145	100%	137,831	137,831	100%			N/A
Utilities			N/A	388,200	388,200	100%			N/A
Total	77,917	77,917	100%	13,131,419	13,131,419	100%	199,775	199,775	100%

HAZARD: **Nuclear Plant Incident**

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$,000's in Community or State	$,000's in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	71,769	71,769	100%	8,967,798	8,967,798	100%	199,775	199,775	100%
Commercial	4,202	4,202	100%	2,707,355	2,707,355	100%			N/A
Industrial	961	961	100%	495,189	495,189	100%			N/A

Agricultural	196	196	100%	26,011	26,011	100%			N/A
Religious/ Non-profit	515	515	100%	312,465	312,465	100%			N/A
Government	129	129	100%	96,570	96,570	100%			N/A
Education	145	145	100%	137,831	137,831	100%			N/A
Utilities			N/A	388,200	388,200	N/A			N/A
Total	77,917	77,917	100%	13,131,419	13,131,419	100%	199,775	199,775	100%

HAZARD: **Dam / Levee Failure**

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$,000's in Community or State	$,000's in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	71,769	20,794	29.0%	8,967,798	2,362,094	26.3%	199,775	56,994	28.5%
Commercial	4,202	1,719	40.9%	2,707,355	1,417,043	52.3%			N/A
Industrial	961	370	38.5%	495,189	358,114	72.3%			N/A
Agricultural	196	57	29.1%	26,011	6,638	25.5%			N/A
Religious/ Non-profit	515	217	42.1%	312,465	125,917	40.3%			N/A
Government	129	83	64.3%	96,570	63,728	66.0%			N/A
Education	145	62	42.8%	137,831	55,754	40.5%			N/A
Utilities			N/A			N/A			N/A
Total	77,917	23,302	29.9%	12,743,219	4,389,288	34.4%	199,775	56,994	28.5%

HAZARD:	Flooding - A and AE Zone exposure, not actual damages

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$,000's in Community or State	$,000's in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	71,769	21,317	29.7%	8,967,798	3,072,101	34.3%	199,775	65,143	32.6%
Commercial	4,202	1,009	24.0%	2,707,355	601,814	22.2%			N/A
Industrial	961	305	31.7%	495,189	225,815	45.6%			N/A
Agricultural	196	51	26.0%	26,011	6,339	24.4%			N/A
Religious/ Non-profit	515	120	23.3%	312,465	69,975	22.4%			N/A
Government	129	29	22.5%	96,570	24,002	24.9%			N/A
Education	145	40	27.6%	137,831	35,438	25.7%			N/A
Utilities			N/A			N/A			N/A
Total	77,917	22,871	29.4%	12,743,219	4,035,484	31.7%	199,775	65,143	32.6%

Appendix B: Growth and Development Trends

B.1 Augusta – Richmond County Comprehensive Plan Executive Summary

INTRODUCTION

The Comprehensive Plan is the official document that guides the future of Augusta-Richmond County. It spells out a coordinated, long-term planning program for the city. The plan, when completed, will lay out a desired future for the city and guide how that future will be achieved. The Comprehensive Plan is being updated in accordance with the Minimum Standards and Procedures for Local Comprehensive Planning effective on May 1, 2005 and administered by the Georgia Department of Community Affairs.

COMPREHENSIVE PLAN COMPONENTS

1. **Community Assessment** – consists of an objective and professional assessment of data and information about the community.
2. **Community Participation Program** – describes the city's strategy for ensuring adequate public and stakeholder involvement in the preparation of the Community Agenda.
3. **Community Agenda** – includes a community vision for the future development of the city, a list of issues and opportunities identified for future action and an implementation program for achieving the vision.

Source: Georgia Department of Community Affairs, *Standards and Procedures for Local Comprehensive Planning*, May 1, 2005

The Community Assessment is the starting point for the development of the entire Comprehensive Plan. The Community Assessment does this by answering the question, ―Where are we as a community?‖ The Community Assessment analyzes existing conditions and trends in the city and identifies the preliminary issues and opportunities to be considered in developing the Community Agenda component of the Comprehensive Plan. The Community Assessment includes separate chapters on existing conditions and trends in the areas of population, housing, economic development, transportation, community facilities and services, cultural resources, natural resources and greenspace, land use and intergovernmental coordination. The document also includes an assessment of the city's adherence to the State Quality Community Objectives.

B.2 Existing Land Use Table

Table L-1
Existing Land Use
Augusta and Richmond County, 2007

	Augusta		Richmond County	
LAND USE CATEGORY	Acres	Percent	Acres	Percent
RESIDENTIAL	55,240	36.4%	57,516	27.4%
Low - Density Urban Residential	33,675	22.2%	34,746	16.5%
High - Density Urban Residential	1,506	1.0%	1,506	0.7%
Rural Residential	20,059	13.2%	21,264	10.1%
COMMERCIAL	4,552	3.0%	4,573	2.2%
OFFICE / PROFESSIONAL	655	0.4%	657	0.3%
INDUSTRIAL	10,372	6.8%	10,571	5.0%
PUBLIC / INSTITUTIONAL	8,177	5.4%	8,314	4.0%
FORT GORDON (Other Public)			44,416	21.1%
TRANSPORTATION / COMM / UTILITIES	8,300	5.5%	8,673	4.1%
PARKS / RECREATION / CONSERVATION	6,789	4.5%	6,819	3.2%
AGRICULTURE	3,189	2.1%	10,592	5.0%
FORESTRY	26,595	17.5%	26,687	12.7%
UNDEVELOPED	23,524	15.5%	26,857	12.8%
UNUSED (Water)	4,371	2.9%	4,533	2.2%
TOTAL	151,731	100.0%	210,208	100.0%

SOURCE: Augusta-Richmond County Geographic Information System, Calculations by the Augusta-Richmond County Planning Commission

B.3 Land Use & Development Trends

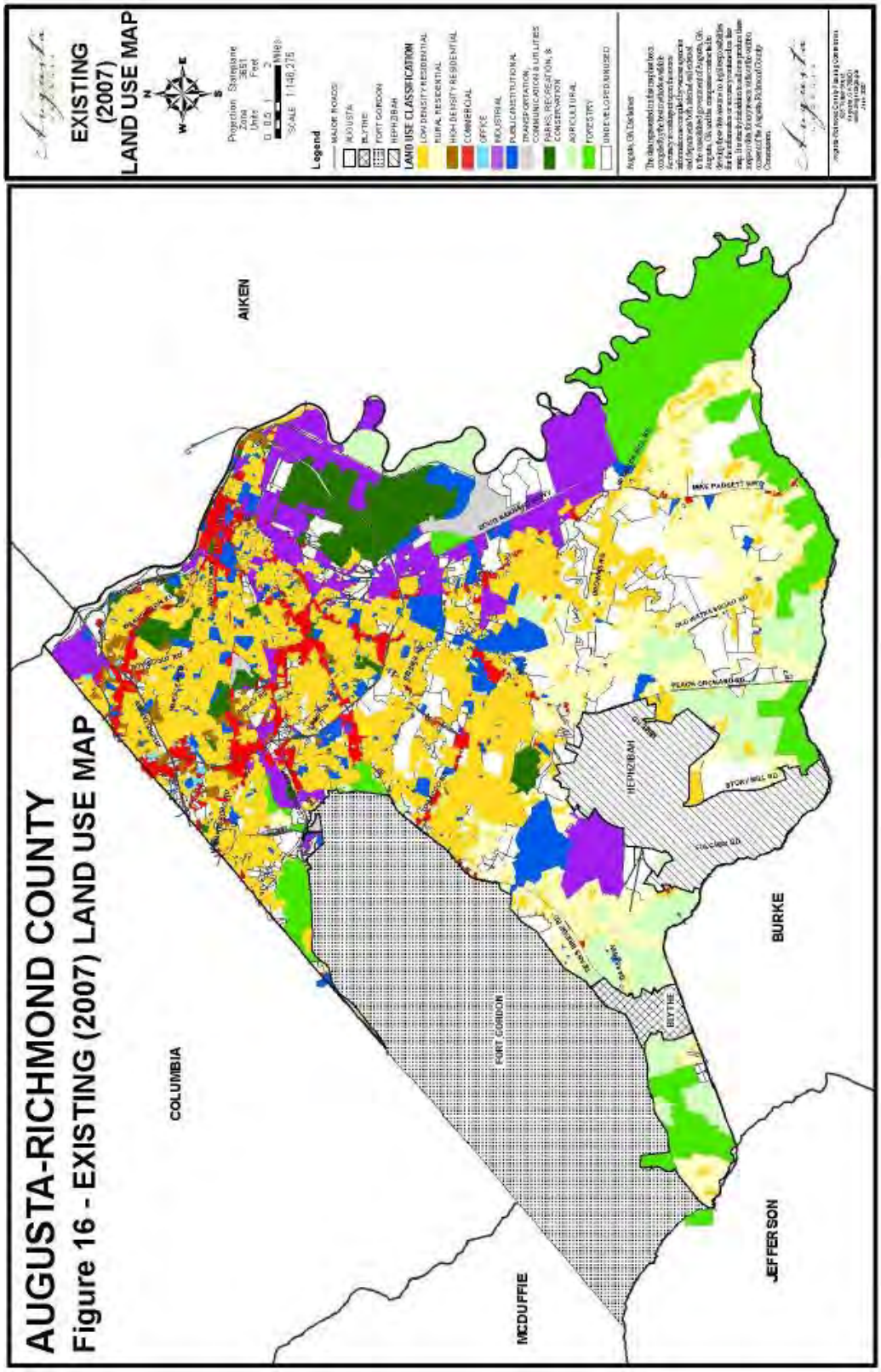
NEIGHBORHOOD (CHARACTER) AREA	DESCRIPTION	TRENDS / OPPORTUNITIES
Downtown Augusta	• Historic central business district • Mix of land uses • High level of access for vehicles, pedestrians and transit • Mix of architectural styles (residential, commercial, institutional, etc.) • Taller buildings with no front / side setbacks • Gateways to the city • Savannah Riverfront • Augusta Canal – Regionally Important Resource • Historic districts and properties	• Revitalization efforts have resulted in many significant public and private projects in last 20 years • Additional public and private investment ongoing and / or planned • Opportunities for infill development • Business Improvement District established and staffed • More people living downtown • Planning underway for next phase of revitalization
Old City Neighborhoods • Olde Town • May Park • Laney-Walker • Bethlehem • Turpin Hill • Harrisburg (incl. former West End) • Academy-Baker • Summerville • Sand Hills • Forest Hills • Pendleton-King • Highland Park • Albion Acres / Forest Acres • Uptown	• Includes neighborhoods within the old city limits of Augusta • Examples of the following neighborhood types: • Traditional – Stable • Traditional – Transitioning • Traditional – Redeveloping • Suburban – Built-Out • Neighborhood-scale businesses scattered throughout the area • Historic districts and properties • Augusta Canal – Regionally Important Resource • Civic and institutional uses scattered throughout the area • Regional Activity Centers (medical complex, colleges) • Daniel Village Shopping Center (first suburban-style shopping center in Augusta)	• Some neighborhoods are stable; others need or undergoing redevelopment; Uptown continues transition due to expansion of medical complex • Area largely built out, though there are opportunities for infill development in redeveloping neighborhoods and on sites near Forest Hills Golf Course • Neighborhood preservation • Balance growth of activity centers with neighborhood preservation
West Augusta	• Includes area northwest of the old city to the Columbia County line. Predominant characteristics include:	• Largely Built Out • Neighborhood preservation • Open space preservation • Preservation of natural

	• Suburban Areas - Built-Out • Suburban Commercial Corridors • Regional Activity Center – Augusta Exchange & environs • Gateways – I-20@Riverwatch, I-20@Washington Rd. • Augusta Canal – Regionally Important Resource • Environmentally sensitive areas – floodplains, wetlands and watersheds • Greenspace – Rae's Creek @ Ingleside Dr. • Augusta National Golf Course • Major Highway Corridors – I-20 & I-520 • Martin Marietta Quarry	resources • Attached townhouse and condominium developments, most developed within past 10-15 years • Commercial redevelopment ongoing (older shopping centers; motels and hotels) • Low-density light industrial and warehousing development in recent years • Expansion / upgrades of interstates and related interchanges ongoing • Future development on remaining parcels near interstate interchanges
South Augusta	• Includes area southwest of the old city between Mike Padgett Hwy. (SR 56), Spirit Creek and Fort Gordon. Predominant characteristics include: • Suburban Areas - Built-Out • Suburban Areas - Developing • Suburban Commercial Corridors • Light and Heavy Industrial • Major Highway Corridor – I-520 • Major Institutions – Webster Detention Center, YDC, Georgia Regional, Augusta Tech. • Regional Activity Centers – Augusta Mall, Augusta Tech., Diamond Lakes Park • Conservation Area and Greenspace – Butler Creek • Environmentally sensitive areas – floodplains, wetlands and watersheds	• Neighborhood preservation • Open space preservation • Preservation of natural resources • Opportunities for infill development • Some older "first ring" suburbs in need of rehabilitation / redevelopment • Redevelopment of Regency Mall property and environs • Redevelopment of older shopping centers • Attracting more retail, entertainment and service businesses to south Augusta • Pending road improvement projects to improve safety and access • Development of linear greenspace trail and bike and pedestrian network
East Augusta	• Includes area east and southeast of old city limits between the Savannah River, Mike Padgett Hwy. (SR 56) and Spirit Creek.	• Additional residential development limited by proximity to industry, contaminated industrial sites

	Predominant characteristics include: • Suburban-style residential subdivisions, apartment complexes and riverfront condominiums • Light and Heavy Industrial Areas • Major Highway Corridor – I-520 • Gateways – Sand Bar Ferry Rd., Palmetto Pkwy (I-520) from S.C., Augusta Regional Airport, Doug Barnard Pkwy @ Gordon Hwy. • Regional Activity Center – Augusta Regional Airport • Conservation Areas and Greenspace – Phinizy Swamp and Wildlife Management Area • Environmentally sensitive areas – floodplains, wetlands and watersheds	and the presence of natural resource / conservation areas • Some neighborhood revitalization is ongoing • Clean-up and stabilization of Hyde Park neighborhood and environs • Create opportunities for additional commercial development serving area residents • Additional industrial development likely in proximity to airport and major highways • Protection of natural resources and conservation areas
Belair	• Includes area bounded by I-520, Gordon Hwy. and the Columbia County line. Predominant characteristics include: • Suburban Areas – Developing • Rural Residential • Highway Commercial Corridor • Rural Residential • Regional Activity Center – Doctor's Hospital and environs • Gateways – Wheeler Road @ I-20, Gordon Highway (from Columbia Co., Wrightsboro Rd. (from Jimmie Dyess Pkwy.) • Environmentally sensitive areas – floodplains, wetlands and watersheds	• Neighborhood preservation • Open space preservation • Preservation of natural resources • Continued general transition of the area from rural residential to urban mixed-use • Continued expansion of low and medium density suburban residential • Road improvement projects influencing development and land speculation • Extension / expansion of sewer service • Added missions at Fort Gordon • Expansion of medical services and offices, facilities to serve the elderly, highway-oriented commercial and light-industry / warehousing uses
South Richmond	• Suburban Areas - Developing • Rural Residential	• Continued transition of areas to suburban

	• Agricultural Areas • Woodlands / Timberland • Environmentally sensitive areas – floodplains, wetlands and watersheds • Conservation Area – Spirit Creek • Limited commercial and industrial development • Albion Kaolin Mine • Gateways (Hwy 1, Hwy 25 and Hwy. 56)	development • Additional commercial on spot basis • Demand for more public services and facilities • Some current residents like the semi-rural atmosphere and oppose commercial development • Future use of the Augusta Corporate Park Industrial site
Fort Gordon	• 44,000+ acre federal military installation with a mix of land uses (residential, office, commercial, elementary school, training, medical, recreation, conservation and natural resources, woodlands, transportation, etc.	• Provision of water and sewer service by the City of Augusta • Continued positive impact of the Fort on Augusta and the metropolitan area • Construction of new housing • Construction of National Security Agency facility • Addition of new missions on-post • Implementation of recommendations in Joint Land Use Study
Hephzibah (Not a neighborhood area but an adjoining community in Richmond County)	• Small city characterized by older central core, newer subdivisions, agricultural and open space	• Continue intergovernmental coordination through the adopted Service Delivery Strategy and other initiatives
Blythe (Not a neighborhood area but an adjoining community in Richmond County)	• Small town located in southwest corner of Richmond County and characterized by a historic central core, some newer subdivisions, agricultural and limited institutional uses	• Continue intergovernmental coordination through the adopted Service Delivery Strategy and other initiatives

B.4 Existing Land Use Map



B.5 Chamber of Commerce Community Information

Welcome to Augusta, Georgia

There's no place like the Classic South. Antebellum mansions, hallowed historic sites and quiet, tree-lined avenues that are perfect for a late summer afternoon stroll. While there are certainly plenty of Southern cities that boast this inviting landscape, there's something special about Augusta, something that can't be replicated in any other place.

Nestled along the banks of the mighty Savannah River, Georgia's second largest city offers its visitors and nearly half-a-million residents traditional Southern charm plus the perks of big city life—arts, culture, shopping, education opportunities, fine cuisine, state-of-the-art healthcare, sports and a slew of recreational pursuits. Here you can literally soak up the best of all worlds.

What to Do

This weekend you might attend a performance by the Augusta Players and browse the racks of designer clothing at Surrey Center on The Hill. But next weekend can serve as a time to step away from the action, as a time to embrace life's simple beauties and quiet moments with a leisurely kayak ride down the Augusta Canal or a stroll along the Riverwalk. So you see, in Augusta, it's not all about tapping into the glitz and glamour of a metropolis or all about sitting in a whitewashed rocking chair with a glass of sweet tea. Rather, you can live all lifestyles whenever and however you want depending on your mood or inclination.

That said, you could argue that Augusta really understands people. As humans, we get bored easily, making cities that champion and value variety desirable places to settle. And speaking of people, expect to encounter plenty of old-fashioned Southern hospitality, a tradition that has not been diluted in the wake of development and a diversifying population. In fact, you might notice that Augusta's increased multiculturalism adds to the city's personality and brings us together. Here, the neighbors aren't just the people who live next door—they're friends who want to lend you a hand whenever possible and form a relationship that will add to your sense of community.

No matter your interests or needs, no matter your age or background, when you set out to explore the Garden City, you won't be disappointed. Within a few days you'll find your niche, make some friends and start feeling right at home. In no time at all you'll understand why Augusta is the best kept secret along the Savannah River.

Doing Business in Augusta

Augusta's diversified economic sectors and high growth continue to fuel robust job opportunity despite a sluggish national economy. Our city has received top honors in national rankings of housing markets, healthcare, tourism, workforce and

business environments. As a testament to this, in October 2009, Business Week ranked Augusta #23 out of the 40 Strongest Metro Economies in the U.S, and Newsgeography.com ranked Augusta #20 in its compilation of Best Mid-Sized Cities for Job Growth in 2010.

Recognition of Augusta's economic strength doesn't end there. Forbes Magazine's November, 2009 Best Bang for the Buck Cities places Augusta at 5th in the nation, and, on its list of 100 Cities Where Americans are Getting Richer, Forbes ranks Augusta 44th. Southern Business & Development magazine named Augusta one of the Top 10 Comeback Cities of the South in 2008. The publication also cited the 1,800-acre Augusta Corporate Park as a Top 10 MegaSite in the South in 2009. MSN/Money Magazine has also recognized Augusta, naming it the second Most Recession Proof City in the United States in 2010. Likewise, in 2010 the Brookings Institute named Augusta the second Strongest-Performing Metro area in the U.S. and the seventh Most Resilient Metro Economy in the nation. Augusta came in at #18 on the Brookings Institute's ranking of cities for Economic Performance. Contributing to the city's steady growth, stable economy and desirable quality of life are Augusta's strong base of manufacturers, large employers, world-class medical community and strategic military base.

Health Science

Home to 12 hospitals, 2 biotechnology business incubators, several life sciences companies and Georgia Health Sciences University, the medical industry alone is estimated to infuse Augusta's economy with $5 to $8 billion dollars yearly. In fact, Augusta has the highest concentration of healthcare in the Southeast and is widely recognized as a healthcare destination. Healthcare employment represents greater than 14% of the area's total workforce and is projected to grow 12% over the next ten years.

A source of strength for the local economy, the medical field currently employs approximately 19,867 people plus more than 2300 doctors and medical researchers. Augusta actively encourages the development of emerging research and health-related sciences. In particular, Georgia Health Sciences University's Interdisciplinary Research Building is opening the door to Augusta's future as a biotechnology corridor. Here laboratories and offices are breeding grounds for life sciences entrepreneurs and research. The Georgia Medical Center Authority is also dedicated to making Augusta a hub for research and development.

Nuclear Science

At the core of technology-based employers in the CSRA is the Savannah River Site (SRS). This U.S. Department of Energy facility develops and uses technologies to improve the environment and treat nuclear and hazardous waste left over from the Cold War. With a workforce of nearly 12,000 people, over 1000 of whom are research scientists with advanced degrees, and an annual budget of $2 billion, SRS is adjacent to the Center for Hydrogen Research, the only facility of its kind in the

world, and the Savannah River National Laboratory which is designated as a federal national laboratory research facility.

The Augusta region is leading the country in the renaissance of clean energy through commercial nuclear power and alternative fuel. With construction underway, the Augusta Region's Plant Vogtle facility will be home to the first two new reactors built in over 30 years, ensuring an abundant supply of power for a growing region. Additionally, Augusta's designation as the golf car capital of the world is driving world-class innovation in the development of electric cars.

Connectivity

In support of the rapidly changing world of communication, commerce and technology, Columbia County is poised to construct a 220-mile fiber optic network. As the recipient of a $13.5 million grant from the U.S. Department of Commerce, Columbia County's Information Technology Division plans to enhance broadband infrastructure which will connect 150 community institutions, such as public health and safety services, as well as serve the very high bandwidth needs of private sector enterprises.

Since 1941, Augusta Regional Airport has played a significant role in the economic development of this community. Three major airlines (U.S. Airways Express, American Airlines and Delta Connection) provide nonstop service to two hub cities, Atlanta and Charlotte, and from 2006 to 2010 airport traffic increased 55.5%. Waiting areas have free Internet connections and travelers can also take advantage of gourmet coffee and food bars. Augusta Regional Airport tenants and visitors contribute approximately $300 million in economic activity to the area each year. With the construction of a new airline terminal, the airport, conveniently located seven miles from downtown, continues to propel the community forward, embracing the vision of Augusta and the CSRA. Future plans for the 400+ acres of developable land adjacent to the airport's two cross-runways include an aviation-related industrial park.

Advance Manufacturing

The Augusta region also boasts an impressive list of world-renowned, advanced manufacturing companies including Proctor and Gamble, Nutra-Sweet, John Deere, E-Z-Go Textron, Club Car, Elanco, International Paper, Standard Aero, Tomberlin Electric Vehicles, Covidien and Kellogg, just to name a few. Augusta's rich history in manufacturing, going back to its roots in the milling of cotton, has created a strong foundation for the fabrication and movement of products and services for consumers around the world. Augusta-Richmond County is the 6th largest county in the State of Georgia for imports and exports through the Port of Savannah, which is now the 5th largest seaport in the U.S.
Augusta is also home to companies such as Convergent ERS, T-Mobile and Automatic Data Processing, which have made investments of nearly $100 million in new facility operations and brought 2500 new jobs to the area. And just across the river in Graniteville, S.C., Bridgestone/Firestone has the world's most

technologically-advanced tire factory. Only nine miles from Augusta, the facility has won numerous awards since its opening. Next door neighbor, Columbia County hosts top area employers, too, including Quad Graphics, Georgia Iron Works, Augusta Sportswear, Greenfield Industries, Serta Mattress and Pollard Lumber

Appendix C: Other Planning Documents

C.1: Stormwater Management Plan Executive Summary

MS4 Program Overview

As a requirement of Federal Clean Water Act, Georgia Environmental Protection Division (EPD) issued an MS4 NPDES Urban permit to the City of Augusta and an MS4 NPDES Suburban permit to Richmond County in 1995 for a five-year period. A consolidated permit, Permit Number GAS000200, was reissued to Augusta-Richmond County in April 2000.

The Permit primarily requires Augusta to establish a Stormwater Management Program (SWMP) and a Water Quality Monitoring Program (WQMP). SWMP objective is to reduce Nonpoint Source (NPS) Pollution. NPS Pollution, unlike pollution from industrial and sewage treatment plants, comes from many diffuse sources. NPS Pollution is caused by rainfall or snowmelt moving over and through the ground.

WQPM objective is to assess the health of various local watersheds and develop procedures to maintain water quality of Augusta's streams.

Augusta SWMP Major Components

- SWM activity within drainage basin of impacted water-body
- Monitor illicit discharge from highly visible pollutant source
- Monitor pollutant from industrial activity
- Outreach and public education

C.2 Community Greenspace Program

In November 2000 the city of Augusta adopted a Community Greenspace Program in accordance with regulations in the Official Code of Georgia Annotated, Section 36-22-2 et seq. The city's Greenspace Program was updated in the fall of 2002. The goal of the program is to permanently preserve twenty percent (20%) of Augusta's land area as greenspace. The Greenspace Program identifies areas for protection, including lands along the Savannah River, within Phinizy Swamp, and along the major creeks (Butler, Rae's, Rock, Rocky, Spirit and McBean). It lists the tools to preserve greenspace, including fee simple acquisition, conservation easement acquisition, restrictive covenants, and negotiated or privately-initiated easements or covenants. There are also a number of local ordinances that protect lands along the river and creeks.

The Greenspace Program serves as the basis for the expenditure of funds (local, donated, grants from the Georgia Greenspace Commission) for greenspace protection. Grants awarded by the Georgia Greenspace Commission have been used

to permanently protect land along the Savannah River and parts of Butler and Spirit Creeks. Property owners have also donated land to the program.

The objective of the program is to permanently protect land along the Savannah River and all major creeks in the county. Greenspace along the river will include multi-use trails along the Augusta Canal and the river levee from Columbia County to the New Savannah Bluff Lock and Dam Recreational Area and the Phinizy Swamp Nature Park, both located south of downtown. The Butler Creek Greenway will extend for nine miles along the creek from north of Deans Bridge Road to New Savannah Bluff. Connections to greenspace areas in Columbia County and North Augusta, South Carolina are envisioned as part of the trail network. In addition, local funds are being used by the Central Savannah River Land Trust to market the program and to conduct negotiations with property owners.
The Central Savannah River Land Trust administers the Greenspace Program on behalf of the city.

A Tree Commission is charged with reviewing and approving the Greenspace Plans submitted by private developers. Among other things, the ordinance is designed to prevent soil erosion, retard storm water runoff, and reduce the amount of impervious surfaces on development sites.

C.3 Augusta – Richmond County Multi-jurisdictional Emergency Operation Plan (EOP)

Executive Summary

This plan establishes a framework for emergency management planning and response to: prevent emergency situations; reduce vulnerability during disasters; establish capabilities to protect residents from effects of crisis; respond effectively and efficiently to actual emergencies; and provide for rapid recovery from any emergency or disaster affecting the local jurisdiction and Richmond County.

This Emergency Operations Plan (EOP) is predicated on the National Incident Management System (NIMS) which integrates the capabilities and resources of various municipal jurisdictions, incident management and emergency response disciplines, nongovernmental organizations (NGOs), and the private sector into a cohesive, coordinated, and seamless framework for incident management. The EOP, using the NIMS, is an all-hazards plan that provides the structure and mechanisms for policy and operational coordination for incident management. Consistent with the model provided in the NIMS, the EOP can be partially or fully implemented in the context of a threat, anticipation of a significant event, or the response to a significant event. Selective implementation through the activation of one or more of the systems components allows maximum flexibility in meeting the unique operational and information-sharing requirements of the situation at hand and enabling effective interaction between various entities.
The EOP, as the core operational plan for incident management, establishes county-level coordinating structures, processes, and protocols that will be incorporated into certain existing interagency incident- or hazard-specific plans (such as the

Hurricane Plan) that is designed to implement specific statutory authorities and responsibilities of various departments and agencies in particular contingency.

The purpose of the EOP is to establish a comprehensive, countywide, all-hazards approach to incident management across a spectrum of activities including prevention, preparedness, response, and recovery.

C.4 Augusta Regional Advanced Transportation Management System Master Plan

Executive Summary

The Augusta Regional Advanced Transportation Management System (ATMS) Master Plan, completed in 2002, outlines a phased, 20-year plan for implementing an Intelligent Transportation System (ITS) in the Augusta region.

Major ITS components include: Regional transportation control centers in Augusta and Aiken Field equipment (fiber optic cable, traffic signal controller upgrades, CCTV cameras, radar speed / volume detectors, and dynamic message signs)
Deployment of the Georgia Department of Transportation Highway Emergency Response Operators (HERO) and South Carolina Department of Transportation State Highway Emergency Program (SHEP) units on area freeways

A separate Technical Memorandum includes the specifications for the regional ITS architecture. The ATMS Plan was developed by P B Farradyne, Incorporated in cooperation with Gresham Smith and Partners and Manual Padron Associates. The plan was developed with input from many stakeholders, and adopted by the ARTS Policy Committee on March 7, 2002.

C.5 The Augusta/North Augusta 2009 Master Plan

The Augusta region and the encompassing counties and communities in both Georgia and South Carolina, are at a crossroads. Not since the early days of the 1840s, when city leaders decided to make this area into a major manufacturing center, the "Lowell of the South," has the potential for a dramatic repositioning of the region been as high as it is today. National trends are taking the nation in new directions and this five-county region has the assets and attributes to be in the vanguard of that movement. This series of documents lay out a Master Plan for perhaps the most important of these, the Augusta/North Augusta Urban Area.

This is a twenty-year plan, aimed at guiding both short and long range decision making. To this end, the planning effort has taken a 'fresh eyes' look at issues and opportunities within both the Urban Area and its broader region. This Master Plan is built on the solid foundation of a number of prior master planning efforts completed and largely implemented over the past twenty-five years.

The Plan was also charged with finding common themes upon which the two communities could develop "a shared vision." During the course of this work, a

unified logo was developed. The word "Westobou," the Native American word for the Savannah River, is used in the Plan to capture the regional, cross boundary nature of the area.

The Plan is designed to be inclusive and recognizes that the Urban Area is part of a larger five-county community, spanning two states, and that these two cities are tied to one another by the Savannah River.

The planning process has been marked by nearly one year of intense outreach effort, including five public meetings with an attendance of over 200 citizens, over 100 individual meetings, several input and briefing sessions with elected officials from both sides of the river, and various individual neighborhood meetings.

C.5.1 Master Plan Districts and Projects Map

Appendix D: Worksheets Used in Planning Process

DOCUMENTS IN THIS APPENDIX ARE THE WORKSHEETS, QUESTIONNAIRES, SURVEYS, AND OTHER DOCUMENTS USED IN THE PLANNING PROCESS FOR THE AUGUSTA – RICHMOND COUNTY MULTI-JURISDICTIONAL HMP UPDATE.

Vulnerability Questionnaire*

1. What are the hazards in your community?
   Natural - 1. Tornado - Windstorm-Hail; 2. Flooding; 3. Drought-Extreme Heat; 4. Winter Storm; 5. Wildfire; 6. Earthquake Technological- 1. Chemical; 2. Terrorism; 3. Nuclear Plant; 4. Dam Failure

2. Do you know the frequency and magnitude of possible future hazard events?
   YES. We researched relevant data, maps, sources, news articles, FEMA, GEMA, NOAA, EPA, USACE, NRCS, USDA, USGS, HAZUS, GMIS, SHELDUS and other sources of information.

3. Has the community ever been affected by any hazard events? If so, how?
   YES. Flooding, Nuclear Plant Incident, Tornodos, Wind Storm, Hail, Drought, Extreme Heat, Winter Storms, WildFires. Community Service interruption; death, injury, evacuation, shelter use.

4. Are some parts of the community particularly vulnerable to damages, or is the entire area vulnerable?
   All areas of the community are vulnerable to hazards. Low areas are vulnerable to floods; all areas are vulnerable to Nuclear Incidents; Dam Failure; Tornados; Drought/Heat; Fire, etc.

5. Are some buildings particularly vulnerable to damages? If so, how?
   Low areas structures vulnerable to flood, dam failure vulnerability in some area; all vulnerable to tornados, wind storm, winter storms, fires. Medical and EMA services may be overwhelmed.

6. What are the uses and occupancies of the vulnerable buildings?
   Residential, Commercial, Industrial, Government, Community, Religious, Recreational, Utility, Electrical power, and others.

7. What will the expected damages do—threaten life safety? Ruin buildings? Destroy equipment and computers? Disrupt work?
   All of the above.

8. Are your utilities vulnerable to damages? How?
   Water, Sewer, Wastewater, Electricity, Transportation, and Communications are vulnerable to Flooding,Winter Storm, Dam Failure, Fires.

9. What systems depend on either building functionality or utility functionality?
   Water, Sewer, Wastewater, Electricity, Communications, EMA, Government Operations, Medical Facilities, Transportation.

10. What could it cost to repair damages?
    Costs are relative to severity, spatial extent, duration of occurence, extent of damage, and type of hazard event.

*NOTE: This document compiles the information from all HI - RA Questionnaires. Results of individual Questionnaires are entered in the HI - RA Data Spreadsheet.

11. How long could it take?
    Recovery is relative to severity, spatial extent, duration of occurence, extent of damage, and type of hazard event. Some facilities or services, structures may not recover.

12. How will community services be affected?
    Community service impact is relative to severity, spatial extent, duration of occurence, extent of damage, impact to EMA and community personnel; transporation corridors, and communications.

13. How will emergency response be affected?
    EMA and their support personnel may experience manpower, equipment and communcations impact, loss of equipment, personal damage impact, injury, death, insufficient resources for response.

14. How will on duty government personnel be affected?
    Manpower shortage, insufficient equipment, supply, evacuation or shelter resources. Inability to report for duty, transportation issues, personal damage or injury.

15. How will off-duty personnel be affected?
    Called to duty, overtime, manpower, equipment, communication shortages. Inability to report for duty,

16. Will personnel who live in the area be able to get to work?
    Inability to report for duty if transporation blocked, injured, family emergency, communication system inoperable or compromised.

17. Will homes of personnel be affected by the hazard event(s)?
    Home damaged or destroyed, personal injury. Family emergencies.

18. Could the government operations close down for a significant period of time because of possible disaster losses?
    Government shutdown relative to severity, spatial extent, duration of occurence, extent of damage, and type of hazard event. EMA EOP details actions to avoid shutdown.

*NOTE: This document compiles the information from all HI - RA Questionnaires. Results of individual Questionnaires are entered in the HI - RA Data Spreadsheet.

Date: 19 JULY, 2011

What kinds of **Natural Hazards** *can affect you?*

1. List the hazards that may occur in your jurisdiction.

a. Research newspapers and other historical records. (Check GEMA & FEMA databases and library archives in.)
b. Review existing community plans and reports.
c. Talk to the experts in your community, state, or region.
d. Gather information on Internet Web sites.

In the hazard list below, put a check mark in the boxes on the left (Column I) beside all hazards that may occur in your community.

2. Focus on the most prevalent hazards in your community or state and your county.

a. Go to hazard Web sites.
b. Locate your community on the Web site map.
c. Determine whether you are in a high-risk area. Get more localized information if necessary.
d. In the hazard list below, put a check mark in the boxes on the right (Column II) beside all hazards that pose a significant threat to your community.

Use this space to record information you find for each of the hazards you will be researching. Attach additional pages as necessary.

	I	II
Avalanche	☐	☐
Coastal Erosion	☐	☐
Coastal Storm	☐	☐
Dam Failure	x	N/A
Drought	x	☐
Earthquake	x	☐
Expansive Soils	☐	☐
Extreme Heat	x	x
Flood	x	x
Hailstorm	x	x
Hurricane	x	☐
Land Subsidence	☐	☐
Landslide	☐	☐
Severe Winter Storm	x	x
Tornado	x	x
Tsunami	☐	☐
Volcano	☐	☐
Wildfire	x	☐
Windstorm	x	x
Other_____	☐	☐
Other_____	☐	☐
Other_____	☐	☐
Other_____	☐	☐

Hazard or Event Description (Type of hazard, date of event, number of injuries, cost and types of damage, etc.)	**Source of Information**	**Map Available for This Hazard?**	**Scale of Map**
1. Tornado - Windstorm - Hail Hazard Data entered in HI - RA Spreadsheet and Hazard Frequency Database	NOAA, NWS, FEMA, EPA, GA DNR, GMIS, GEMA, HVRI, USACE, News Articles, HAZUS - MH, Local Knowledge.	YES	
2. Flooding Hazard Data entered in HI - RA Spreadsheet and Hazard Frequency Database	NOAA, NWS, FEMA, EPA, GA DNR, GMIS, GEMA, HVRI, USACE, News Articles, HAZUS - MH, Local Knowledge.	YES	
3. Drought - Extreme Heat Hazard Data entered in HI - RA Spreadsheet and Hazard Frequency Database	NOAA, NWS, FEMA, EPA, GA DNR, GMIS, GEMA, HVRI, USACE, News Articles, HAZUS - MH, Local Knowledge.	YES	
4. Winter Storm Hazard Data entered in HI - RA Spreadsheet and Hazard Frequency Database	NOAA, NWS, FEMA, EPA, GA DNR, GMIS, GEMA, HVRI, USACE, News Articles, HAZUS - MH, Local Knowledge.	YES	
5. Wildfire Hazard Data entered in HI - RA Spreadsheet and Hazard Frequency Database	NOAA, NWS, FEMA, EPA, GA DNR, GMIS, GEMA, HVRI, USACE, News Articles, HAZUS - MH, Local Knowledge.	YES	
6. Earthquake Hazard Data entered in HI - RA Spreadsheet and Hazard Frequency Database	NOAA, NWS, FEMA, EPA, GA DNR, GMIS, GEMA, HVRI, USACE, News Articles, HAZUS - MH, Local Knowledge.	YES	

Date: 19 July, 2011

What kinds of **Technological Hazards** *can affect you?*

1. List the hazards that may occur in your jurisdiction.

e. Research newspapers and other historical records. (Check GEMA & FEMA databases and library archives in.)
f. Review existing community plans and reports.
g. Talk to the experts in your community, state, or region.
h. Gather information on Internet Web sites.

In the hazard list below, put a check mark in the boxes on the left (Column I) beside all hazards that may occur in your community.

2. Focus on the most prevalent hazards in your community or state and your county.

e. Go to hazard Web sites.
f. Locate your community on the Web site map.
g. Determine whether you are in a high-risk area. Get more localized information if necessary.
h. In the hazard list below, put a check mark in the boxes on the right (Column II) beside all hazards that pose a significant threat to your community.

Use this space to record information you find for each of the hazards you will be researching. Attach additional pages as necessary.

	I	II
Chemical	x	x
Terrorism	x	x
Nuclear Plant	x	
Dam Failure	x	x
Other_____		
Other_____		
Other_____		
Other_____		

Hazard or Event Description (Type of hazard, date of event, number of injuries, cost and types of damage, etc.)	Source of Information	Map Available for This Hazard?	Scale of Map
1. Chemical Spill/Leak Hazard Data entered in HI - RA Spreadsheet and Hazard Frequency Database	NOAA, NWS, FEMA, EPA, GA DNR, GMIS, GEMA, HVRI, USACE, News Articles, HAZUS - MH, Local Knowledge.	YES	
2.Terrorism Hazard Data entered in HI - RA Spreadsheet and Hazard Frequency Database	NOAA, NWS, FEMA, EPA, GA DNR, GMIS, GEMA, HVRI, USACE, News Articles, HAZUS - MH, Local Knowledge.	YES	
3.Nuclear Plant Incident. Hazard Data entered in HI - RA Spreadsheet and Hazard Frequency Database	NOAA, NWS, FEMA, EPA, GA DNR, GMIS, GEMA, HVRI, USACE, News Articles, HAZUS - MH, Local Knowledge.	YES	
4. Dam/Levee Failure Hazard Data entered in HI - RA Spreadsheet and Hazard Frequency Database	NOAA, NWS, FEMA, EPA, GA DNR, GMIS, GEMA, HVRI, USACE, News Articles, HAZUS - MH, Local Knowledge.	YES	

Report to Augusta HMPC - Hazard Identification Questionnaire Data

Hazard Identification and Risk Assessment are the first elements of the HMP and a critical process in determining community vulnerability, identifying critical facility hazard exposure, and in establishing a mitigation program to reduce vulnerability.

The Augusta HMPC distributed a Hazard Identification – Risk Assessment Questionnaire (GEMA Worksheet #1) to its members, community stakeholders, and the general public to gather hazard data for the HMP. Prior to distribution of the questionnaire the HMPC conducted a training presentation on Hazard Identification and Risk Assessment to familiarize respondents with the process.

After collection of the initial responses, the HMPC created a Hazard Ranking Survey for distribution to HMPC Hazard Identification – Risk Assessment Subcommittee to determine the ranking order of identified hazards to inform the risk assessment element of the plan. The HMPC divided the Hazard Ranking Survey into two hazard categories, Natural Hazards and Manmade/Technological Hazards following the FEMA HMP template and guidance documents.

Data collected was entered into the Hazard Identification Data Spreadsheet in three categories to capture the quantitative and qualitative responses. The first sheet captures the broad hazard responses, the second sheet captures the Hazard Ranking Survey responses, and the third captures the qualitative comments from the respondents.

Results of the Hazard Identification - Risk Assessment activities are displayed in the Figure 1 below:

Figure 1: HAZARD IDENTIFICATION RANKING SURVEY RESULTS

NATURAL HAZARD RANKING

Where 1 = Highest Risk and 6 = Lowest Risk)
1 TORNADO WIND STORM HAIL
2 FLOODING
3 DROUGHT EXTREME HEAT
4 WINTER STORM
5 WILDFIRE
6 EARTHQUAKE

MANMADE/TECHNOLOGICAL HAZARD RANKING

Where 1 = Highest Risk and 4 = Lowest Risk
1 CHEMICAL LEAK/SPILL CHEMICAL RELEASE (AIRBORNE)
2 TERRORISM
3 NUCLEAR PLANT INCIDENT
4 DAM/LEVEE FAILURE

The raw numeric data for the Hazard Identification Ranking Survey is reported below in Table 1:

TABLE 1: HAZARD IDENTIFICATION RANKING SURVEY			
RANK	**NATURAL HAZARDS**	**RAW NUMBER**	**# RESPONDENTS**
1	**Tornado/Windstorm/Hail**	**50**	**31**
2	**Flood**	**75**	**31**
3	**Drought/Extreme Heat**	**105**	**31**
4	**Winter Storm**	**111**	**31**
5	**Wildfire**	**135**	**31**
6	**Earthquake**	**175**	**31**
RANK	**MANMADE/TECHNOLOGICAL HAZARDS**		**31**
1	**Chemical Leak/Spill**	**44**	**31**
2	**Terrorism**	**82**	**31**
3	**Nuclear Incident**	**94**	**31**
4	**Dam/Levee Failure**	**95**	**31**
Notes: Respondent numeric results are assigned value with the Hazards in each category ranked where the raw lowest score = the highest risk.			

In the Natural Hazards category respondents ranked Tornado/Windstorm Hail as the highest community risk, followed by Flooding, Drought/Extreme Heat, Winter Storms, Wildfires, and Earthquakes.

In the Manmade/Technological Hazards category respondents ranked Chemical Leak/Spill as the highest community risk, followed by Terrorism, Nuclear Incident, and Dam/Levee Failure.

The HMPC Risk Assessment element of the plan is predicated on a Risk Factor (RF) formula where the HMPC Hazard Identification Questionnaire, Hazard Identification Ranking Survey, and HMPC Qualitative Commentary Report are assigned a 30% (.30) RF weighted value. The Risk Assessment RF formula for the HMP Update is:

RF = HMPC Risk Assessment (.30) + Historic Hazard Event/Declarations (.30) + FEMA HAZUS® - MH Risk Analysis (.40), NOAA Historical Records, FEMA DR(s) and EM(s), GMIS, and other sources of independent data.

The results were forwarded to the HMPC for review, input, and adoption on 14 July, 2011 at the HMPC – Stakeholders Meeting, 9:00 AM – Noon, Augusta Municipal Building.

The HMPC Hazard Identification – Risk Assessment Subcommittee Members are:

Chief Howard Willis	City of Augusta HMPC Chairman
Terri Turner	City of Augusta HMPC Vice - chair
Sharon Bennett	City of Augusta HMPC Secretary
Fred Russell	City of Augusta, City Administrator
George Patty	Augusta - Richmond County Planning Commission Executive Director
Scott Gay	City of Augusta Sheriff's Department
Patricia Cole	City of Blythe

Loriann H. Chancey	City of Blythe
Bill Shanahan	City of Augusta, Deputy Administrator
Jonathan Adriano	GA Health - District 6 Director of Emergency Preparedness
Dominick Nutter	City of Augusta E-911 Director
Jack Womack	City of Augusta Fire Department Fire Marshall
Hameed Malik	City of Augusta City Engineer
Tom Wiedmeier	City of Augusta Director Utilities
Abie Ladson	City of Augusta Public Works Director
Rob Sherman	City of Augusta Director License/Inspections
Scott Hyatt	USCOE Operations Project Manager - J. Strom Thurmond Dam & Lake
Steve Abbott	GA Forestry Commission Chief Ranger
Steve Willard	US Army - Fort Gordon Chief of Environment & Natural Resources
Susan James	University Hospital Emergency Mgmt. Coordinator
David Jones	MCG Health, Inc.
David Brown	VA Medical Center Emergency Preparedness Coordinator
Tom Knight	South Star Special Projects Coordinator
Chief Patrick Clayton	Richmond County BOE Dept. Safety & Security
Mie Lucas	American Red Cross, Augusta Chapter Emergency Services Director
Evan Joseph	GA Department of Corrections Warden
Tom Beck, Jr.	City of Augusta Recreation, Parks & Facilities - Director
Martha Allen	City of Hephzibah City Clerk
Jasper A. Cooke	Augusta State University Public Safety Director

	Augusta Richmond County EMA
SURVEY	
Date: 6/20/2011	
CHIEF HOWARD WILLIS, DIRECTOR **EMERGENCY MANAGEMENT**	
706-821-2855 **Have a wonderful day!**	

Vulnerability Questionnaire

1. What are the hazards in your community?
   1) Strong Thunder Storm with Wind, Hail, Lighting
   2) Ice Storms and Snow 3) Chemical Spill or Release 4) Flooding
   5) Drough 6) Fire
2. Do you know the frequency and magnitude of possible future hazard events?
   Annually
3. Has the community ever been affected by any hazard events? If so, how?
   Yes, All in the Above
4. Are some parts of the community particularly vulnerable to damages, or is the entire area vulnerable?
   Entire Area
5. Are some buildings particularly vulnerable to damages? If so, how?
   Downtown with Flooding and the East Augusta Area.
6. What are the uses and occupancies of the vulnerable buildings?
   Business and Homes
7. What will the expected damages do—threaten life safety? Ruin buildings? Destroy equipment and computers? Disrupt work?
   All of the Above
8. Are your utilities vulnerable to damages? How?
   Yes, Down Power lines Also water and Sewage pump stations may flood on Canal
9. What systems depend on either building functionality or utility functionality?
   911 Center, Law Enforcement Center, Court House could flood
10. What could it cost to repair damages?
    Millions of dollars

11. How long could it take?
Months or years

12. How will community services be affected?
Very heavely for entire City

13. How will emergency response be affected?
Could slow response time

14. How will on duty government personnel be affected?
Man Power shortage and Overtime

15. How will off-duty personnel be affected?
Not be able to get to work

16. Will personnel who live in the area be able to get to work?
No all people

17. Will homes of personnel be affected by the hazard event(s)?
Yes, Relocation of personnel

18. Could the government operations close down for a significant period of time because of possible disaster losses?
No, We would need help from outside of the city

Date: *What kinds of natural hazards can affect you?*

1. List the hazards that may occur in your jurisdiction.

a. Research newspapers and other historical records. (Check GEMA & FEMA databases and library archives in.)
b. Review existing community plans and reports.
c. Talk to the experts in your community, state, or region.
d. Gather information on Internet Web sites.

In the hazard list below, put a check mark in the boxes on the left (Column I) beside all hazards that may occur in your community.

2. Focus on the most prevalent hazards in your community or state and your county.

a. Go to hazard Web sites.
b. Locate your community on the Web site map.
c. Determine whether you are in a high-risk area. Get more localized information if necessary.
d. In the hazard list below, put a check mark in the boxes on the right (Column II) beside all hazards that pose a significant threat to your community.

Use this space to record information you find for each of the hazards you will be researching. Attach additional pages as necessary.

	I	II
Avalanche	☐	☐
Coastal Erosion	☐	☐
Coastal Storm	☑	☐
Dam Failure	☑	☐
Drought	☑	☐
Earthquake	☐	☐
Expansive Soils	☐	☐
Extreme Heat	☑	☐
Flood	☑	☐
Hailstorm	☑	☐
Hurricane	☐	☐
Land Subsidence	☐	☐
Landslide	☐	☐
Severe Winter Storm	☑	☐
Tornado	☑	☐
Tsunami	☐	☐
Volcano	☐	☐
Wildfire	☑	☐
Windstorm	☑	☐
Other Chemical	☑	☐
Other Accident	☐	☐
Other_____	☐	☐
Other_____	☐	☐

Hazard or Event Description (Type of hazard, date of event, number of injuries, cost and types of damage, etc.)	Source of Information	Map Available for This Hazard?	Scale of Map
Flooding	Local Paper FMA		
Tornado	"		
Winter Storm	"		
Wild Fire	"		
Chemical Accident	"		

Vulnerability Questionnaire

1. What are the hazards in your community?
   Storms, Fire, Snow/Ice, Drought, Extreme Heat

2. Do you know the frequency and magnitude of possible future hazard events?
   No

3. Has the community ever been affected by any hazard events? If so, how?
   No

4. Are some parts of the community particularly vulnerable to damages, or is the entire area vulnerable?
   Entire

5. Are some buildings particularly vulnerable to damages? If so, how?
   No

6. What are the uses and occupancies of the vulnerable buildings?
   No

7. What will the expected damages do—threaten life safety? Ruin buildings? Destroy equipment and computers? Disrupt work?
   All of the above...

8. Are your utilities vulnerable to damages? How?
   Water – Power outage – & possible terrorism, Chemical Spills – Water & Sewerage

9. What systems depend on either building functionality or utility functionality?
   Water – Sewer

10. What could it cost to repair damages?
    ↑ 20,000 –

11. How long could it take? Up to months

12. How will community services be affected? possible lack of services

13. How will emergency response be affected? called into action

14. How will on duty government personnel be affected? expected to work long + hard

15. How will off-duty personnel be affected? possible call back

16. Will personnel who live in the area be able to get to work? more than likely

17. Will homes of personnel be affected by the hazard event(s)? possible

18. Could the government operations close down for a significant period of time because of possible disaster losses? Portions only

Date: *What kinds of natural hazards can affect you?*

1. List the hazards that may occur in your jurisdiction.

a. Research newspapers and other historical records. (Check GEMA & FEMA databases and library archives in.)
b. Review existing community plans and reports.
c. Talk to the experts in your community, state, or region.
d. Gather information on Internet Web sites.

In the hazard list below, put a check mark in the boxes on the left (Column I) beside all hazards that may occur in your community.

2. Focus on the most prevalent hazards in your community or state and your county.

a. Go to hazard Web sites.
b. Locate your community on the Web site map.
c. Determine whether you are in a high-risk area. Get more localized information if necessary.
d. In the hazard list below, put a check mark in the boxes on the right (Column II) beside all hazards that pose a significant threat to your community.

Use this space to record information you find for each of the hazards you will be researching. Attach additional pages as necessary.

	I	II
Avalanche	☐	☐
Coastal Erosion	☐	☐
Coastal Storm	☐	☐
Dam Failure	☑	—
Drought	☑	☑
Earthquake	☐	☐
Expansive Soils	☐	☐
Extreme Heat	☑	☑
Flood	☑	☐
Hailstorm	☑	☐
Hurricane	☐	☐
Land Subsidence	☐	☐
Landslide	☐	☐
Severe Winter Storm	☑	☑
Tornado	☐	☐
Tsunami	☐	☐
Volcano	☐	☐
Wildfire	☑	☑
Windstorm	☐	☐
Other_____	☐	☐
Other_____	☐	☐
Other_____	☐	☐
Other_____	☐	☐

Hazard or Event Description (Type of hazard, date of event, number of injuries, cost and types of damage, etc.)	**Source of Information**	**Map Available for This Hazard?**	**Scale of Map**
Dam Failure 1990 no injuries			
Drought			
Extreme Heat			
Flood 1990 No injuries			
Hailstorms			
Severe Winter Storms			
Wild Fire			

Vulnerability Questionnaire

1. What are the hazards in your community?
   Natural Hazards: 1) Flood; 2) Tornado/Wind/Hail/Lightening; 3) Fire / Wildfire; 4) Winter Storm/Snow/IceStorm; 5) Drought / Extreme Heat; 6) Earthquake
   Man-Made Hazards: 1) Chemical Leak/Spill; Chemical Release; 2) Terrorism; 3) Dam Failure; 4) Nuclear Plant Incident

2. Do you know the frequency and magnitude of possible future hazard events?
   Annual events/multiple annual events possible for all natural hazards with the exception of earthquake. Annual events for chemical spills/release possible for man-made hazards; others less often

3. Has the community ever been affected by any hazard events? If so, how?
   All natural hazards listed above and chemical leak/spill; chemical release_in man-made hazards.

4. Are some parts of the community particularly vulnerable to damages, or is the entire area vulnerable?
   All areas of community are equally susceptible to all natural hazards listed above and chemical leak/spill; chemical release.(4 main pockets (areas) for chemical plants)
   Low lying areas in all parts of the City and older parts of the City extremely susceptible to flood events.

5. Are some buildings particularly vulnerable to damages? If so, how?
   Low lying areas and older parts of the City extremely susceptible to flood events.

6. What are the uses and occupancies of the vulnerable buildings?
   Residential and commercial buildings/ industrial facilities equally at risk for damage from all hazards listed above.

7. What will the expected damages do—threaten life safety? Ruin buildings? Destroy equipment and computers? Disrupt work?
   Destroy buildings and damage/destroy equipment; disrupt work/disrupt living; threaten life safety; impede services

8. Are your utilities vulnerable to damages? How?
   Yes, water supply, water and wastewater treatment pumping stations strongly affected by flooding; power affected by high winds, snow and ice

9. What systems depend on either building functionality or utility functionality?
   All government buildings – fire stations, police stations, Municipal Bldg, EOC, 9-1-1- Center, as examples

10. What could it cost to repair damages?
    Millions to billions depending on the severity of event

11. How long could it take?
    Days/weeks/years depending on the severity of event

12. How will community services be affected?
    Serious impact to community services depending on severity of event

13. How will emergency response be affected?
    Possible manpower shortages depending on severity of event; transportation routes may be closed off or impassible due to severity of event

14. How will on duty government personnel be affected?
    Possible manpower shortages; possible equipment shortages depending on severity of event

15. How will off-duty personnel be affected?
    Off-duty personnel may be called in to assist in emergency situations (may or may not be able to respond depending on severity of event)

16. Will personnel who live in the area be able to get to work?
    Functionality of transportation routes dependent on severity of event

17. Will homes of personnel be affected by the hazard event(s)?
    Homes of personnel can quite possibly be effected by event

18. Could the government operations close down for a significant period of time because of possible disaster losses?
    Possibility of government office closure, although all attempts would be made to restore government services as soon as possible

Date: *What kinds of natural hazards can affect you?*

1. List the hazards that may occur in your jurisdiction.

a. Research newspapers and other historical records. (Check GEMA & FEMA databases and library archives in.)
b. Review existing community plans and reports.
c. Talk to the experts in your community, state, or region.
d. Gather information on Internet Web sites.

In the hazard list below, put a check mark in the boxes on the left (Column I) beside all hazards that may occur in your community.

2. Focus on the most prevalent hazards in your community or state and your county.

a. Go to hazard Web sites.
b. Locate your community on the Web site map.
c. Determine whether you are in a high-risk area. Get more localized information if necessary.
d. In the hazard list below, put a check mark in the boxes on the right (Column II) beside all hazards that pose a significant threat to your community.

	I	II
Avalanche	☐	☐
Coastal Erosion	☐	☐
Coastal Storm	X	☐
Dam Failure	X	X
Drought	X	X
Earthquake	X	X
Expansive Soils	☐	☐
Extreme Heat	X	X
Flood	X	X
Hailstorm	X	X
Hurricane	X	☐
Land Subsidence	☐	☐
Landslide	☐	☐
Severe Winter Storm	X	X
Tornado	X	X
Tsunami	☐	☐
Volcano	☐	☐
Wildfire	X	X
Windstorm	X	X
Other__Chemical_____	X	X
Other_____	☐	☐
Other_____	☐	☐
Other_____	☐	☐

Use this space to record information you find for each of the hazards you will be researching. Attach additional pages as necessary.

Hazard or Event Description (Type of hazard, date of event, number of injuries, cost and types of damage, etc.)	**Source of Information**	**Map Available for This Hazard?**	**Scale of Map**
Tornado/Wind Storm/Hail/Lightening	**Augusta Chronicle Local EMA Library/City Records (Historical data)**		
Flooding	**Augusta Chronicle Local EMA Library/City Records (Historical data)**	**Yes**	**FIRM**
Drought / Extreme Heat	**Augusta Chronicle Local EMA Library/City Records (Historical data)**		
Winter Storm	**Augusta Chronicle Local EMA Library/City Records (Historical data)**		
Wildfire	**Augusta Chronicle Local EMA Library/City Records (Historical data)**		
Earthquake	**Augusta Chronicle Local EMA Library/City Records (Historical data)**		
Chemical spills/releases	**Same as above**		

Vulnerability Questionnaire

1. What are the hazards in your community?
   Natural Hazards: 1) Tornado/Wind/Hail/Lightening; 2) Flood; 3) Drought / Extreme Heat; 4) Winter Storm; 5) Wildfire; 6) Earthquake
   Man-Made Hazards: 1) Chemical Leak/Spill; Chemical Release; 2) Terrorism; 3) Dam Failure; 4) Nuclear Plant Incident

2. Do you know the frequency and magnitude of possible future hazard events?
   Potential for annual events/multiple annual events for all natural hazards with the exception of earthquake
   Potential annual events for chemical spills/release in man-made hazards; others less likely

3. Has the community ever been affected by any hazard events? If so, how?
   All natural hazards listed above and chemical leak/spill; chemical release
4. Are some parts of the community particularly vulnerable to damages, or is the entire area vulnerable?
   All areas of community are equally susceptible to all natural hazards listed above and chemical leak/spill; chemical release. Low lying areas and older parts of the City extremely susceptible to flood events.

5. Are some buildings particularly vulnerable to damages? If so, how?
   Low lying areas and older parts of the City extremely susceptible to flood events.

6. What are the uses and occupancies of the vulnerable buildings?
   Residential and commercial structures equally at risk for damage from all hazards listed above.

7. What will the expected damages do—threaten life safety? Ruin buildings? Destroy equipment and computers? Disrupt work?
   Destroy buildings and damage/destroy equipment, threaten life safety; disrupt work/disrupt living; impede services

8. Are your utilities vulnerable to damages? How?
   Yes, water supply, water and wastewater treatment strongly affected by flooding; power affected by high winds, snow and ice; pumping stations affected by flooding

9. What systems depend on either building functionality or utility functionality?
   All government buildings – fire stations, police stations, Municipal Bldg, EOC, 9-1-1- Center, as examples

10. What could it cost to repair damages?
    Millions to billions depending on the magnitude of the event

11. How long could it take?
    Days to years depending on the magnitude of the event

12. How will community services be affected?
    Serious impact to community services

13. How will emergency response be affected?

14. How will on duty government personnel be affected?
    Manpower shortages; equipment shortages depending on magnitude of event

15. How will off-duty personnel be affected?
    Called in to assist in emergency situations (may or may not be able to respond depending on severity of event

16. Will personnel who live in the area be able to get to work?
    Dependent on condition of roads post-event

17. Will homes of personnel be affected by the hazard event(s)?
    Quite possibly

18. Could the government operations close down for a significant period of time because of possible disaster losses?
    There is a possibility of that, although all attempts would be made to restore services as soon as possible

Date: *What kinds of natural hazards can affect you?*

1. List the hazards that may occur in your jurisdiction.

a. Research newspapers and other historical records. (Check GEMA & FEMA databases and library archives in.)
b. Review existing community plans and reports.
c. Talk to the experts in your community, state, or region.
d. Gather information on Internet Web sites.

In the hazard list below, put a check mark in the boxes on the left (Column I) beside all hazards that may occur in your community.

2. Focus on the most prevalent hazards in your community or state and your county.

a. Go to hazard Web sites.
b. Locate your community on the Web site map.
c. Determine whether you are in a high-risk area. Get more localized information if necessary.
d. In the hazard list below, put a check mark in the boxes on the right (Column II) beside all hazards that pose a significant threat to your community.

Use this space to record information you find for each of the hazards you will be researching. Attach additional pages as necessary.

	I	II
Avalanche		
Coastal Erosion		
Coastal Storm	X	
Dam Failure	X	X
Drought	X	X
Earthquake	X	X
Expansive Soils		
Extreme Heat	X	X
Flood	X	X
Hailstorm	X	X
Hurricane	X	
Land Subsidence		
Landslide		
Severe Winter Storm	X	X
Tornado	X	X
Tsunami		
Volcano		
Wildfire	X	X
Windstorm	X	X
Other__Chemical_____	X	X
Other_____		
Other_____		
Other_____		

Hazard or Event Description (Type of hazard, date of event, number of injuries, cost and types of damage, etc.)	Source of Information	Map Available for This Hazard?	Scale of Map
Tornado/Wind Storm/Hail/Lightening	**Augusta Chronicle Local EMA Library/City Records (Historical data)**		
Flooding	**Augusta Chronicle**	**Yes**	**FIRM**
Drought / Extreme Heat	**Local EMA Library/City Records (Historical data) Augusta Chronicle**		
Winter Storm	**Local EMA Library/City Records (Historical data) Augusta Chronicle**		
Wildfire	**Local EMA Library/City Records (Historical data) Augusta Chronicle**		
Earthquake	**Local EMA Library/City Records (Historical data) Augusta Chronicle**		
Chemical spills/releases	**Local EMA Library/City Records (Historical data) Same as above**		

Vulnerability Questionnaire

1. What are the hazards in your community?
   Natural Disasters – Tornadoes, Ice Storm, Hurricane, flooding downtown
   Manmade – Chemical Plants, Radiological waste (railway and highway)

2. Do you know the frequency and magnitude of possible future hazard events?
   Unsure of historical record

3. Has the community ever been affected by any hazard events? If so, how?
   2009 Tornado in Richmond County

4. Are some parts of the community particularly vulnerable to damages, or is the entire area vulnerable?
   Flooding in Downtown area if Dam failure or levee breach – hospitals in downtown area would be vulnerable. Railway throughout the area makes many areas vulnerable for a train derailment with hazardous chemicals on board.

5. Are some buildings particularly vulnerable to damages? If so, how?
   Public Health Buildings – on North Leg Rd – Vulnerable to power outages, Health Department clinics as vulnerable as other buildings in those areas. Limited, if no back-up generators.

6. What are the uses and occupancies of the vulnerable buildings?
   Public Health Buildings – Administrative buildings @ North Leg Rd. Clinic sites on Laney Walker Blvd and Windsor Spring Rd

7. What will the expected damages do—threaten life safety? Ruin buildings? Destroy equipment and computers? Disrupt work?
   Flooding damage would ruin buildings, destroy equipment and disrupt work.

8. Are your utilities vulnerable to damages? How?
   Electricity was vulnerable to windstorms and fallen tree limbs – bad storms in June 2011 illustrated that.

9. What systems depend on either building functionality or utility functionality?
   Unknown

10. What could it cost to repair damages?
    Unknown

11. How long could it take?
    Unknown

12. How will community services be affected?
    Health Department would have to relocate clinic services to other locations.

13. How will emergency response be affected?
    Unknown – Public Health is not a first responder entity. We will support shelter operations in a disaster situation.

14. How will on duty government personnel be affected?
    Unknown

15. How will off-duty personnel be affected?
    Unknown

16. Will personnel who live in the area be able to get to work?
    Unknown

17. Will homes of personnel be affected by the hazard event(s)?
    Unknown

18. Could the government operations close down for a significant period of time because of possible disaster losses?
    Unknown

Vulnerability Questionnaire

1. What are the hazards in your community?
1) Flooding 2) Drought/extreme heat 3) Strong thunder storms with associated high winds, hail, lightening 4) Ice storm and snow events 5) Fire 6) Chemical spills / Chemical releases 7) Hurricane / Coastal Storm 8) Dam Failure

2. Do you know the frequency and magnitude of possible future hazard events?
Potential for annual events for all (1-8)
Potential for multiple annual events for all (1-8)

3. Has the community ever been affected by any hazard events? If so, how?
Yes, all of the above with the exception of #8

4. Are some parts of the community particularly vulnerable to damages, or is the entire area vulnerable?
Flood - low lying areas & areas near creeks & streams
In reality, all areas of the County are subject to all hazards listed in question 1

5. Are some buildings particularly vulnerable to damages? If so, how?
Older areas designed & built before the adoption of the Flood Ordinance

6. What are the uses and occupancies of the vulnerable buildings?
Residential and commercial uses are equally vulnerable
Water treatment & wastewater treatment highly vulnerable

7. What will the expected damages do—threaten life safety? Ruin buildings? Destroy equipment and computers? Disrupt work?
Threaten life safety; destroy buildings; destroy equipment; disrupt work; disrupt living; disrupt schools, put emergency responders at risk; Impede services (see below)

8. Are your utilities vulnerable to damages? How?
Power - ice and wind / downed trees
Pump stations - flood
Water supply / Water & wastewater treatment

9. What systems depend on either building functionality or utility functionality?
Response - for example if the 9-1-1 Center were to go down or if the EOC was affected

10. What could it cost to repair damages?
Potentially, millions of dollars up to billions depending on the severity of the event

#7 (cont) Disrupt water supply / water intake; High potential for loss of life!!

11. How long could it take?
Depending on the severity of the damages - days / weeks / months / years
Possibly never in some cases

12. How will community services be affected?
Very serious impact to community services

13. How will emergency response be affected?
Severely impacted

14. How will on duty government personnel be affected?
Possible manpower shortage if roads are effected; Increased overtime

15. How will off-duty personnel be affected?
Off duty personnel may not be able to get to their job assignments

16. Will personnel who live in the area be able to get to work?
Possibly not - roads could be impassable or their own personal property could be affected

17. Will homes of personnel be affected by the hazard event(s)?
Possibly yes - both professionally & personally

18. Could the government operations close down for a significant period of time because of possible disaster losses?
Possibly, but every effort would be made to get back up and running as soon as possible; Mutual aide may have to be sought from other communities

Date: *What kinds of natural hazards can affect you?*

1. List the hazards that may occur in your jurisdiction.

a. Research newspapers and other historical records. (Check GEMA & FEMA databases and library archives in.)
b. Review existing community plans and reports.
c. Talk to the experts in your community, state, or region.
d. Gather information on Internet Web sites.

In the hazard list below, put a check mark in the boxes on the left (Column I) beside all hazards that may occur in your community.

2. Focus on the most prevalent hazards in your community or state and your county.

a. Go to hazard Web sites.
b. Locate your community on the Web site map.
c. Determine whether you are in a high-risk area. Get more localized information if necessary.
d. In the hazard list below, put a check mark in the boxes on the right (Column II) beside all hazards that pose a significant threat to your community.

Use this space to record information you find for each of the hazards you will be researching. Attach additional pages as necessary.

	I	II
Avalanche	☐	☐
Coastal Erosion	☐	☐
Coastal Storm	☑	☐
Dam Failure	☑	☑
Drought	☑	☑
Earthquake	☑	☑
Expansive Soils	☐	☐
Extreme Heat	☑	☑
Flood	☑	☑
Hailstorm	☑	☑
Hurricane	☑	☐
Land Subsidence	☐	☐
Landslide	☐	☐
Severe Winter Storm	☑	☑
Tornado	☑	☑
Tsunami	☐	☐
Volcano	☐	☐
Wildfire	☑	☑
Windstorm	☑	☑
Other Manmade-chemical accident	☑	☑
Other	☐	☐
Other	☐	☐
Other	☐	☐

Hazard or Event Description (Type of hazard, date of event, number of injuries, cost and types of damage, etc.)	Source of Information	Map Available for This Hazard?	Scale of Map
Flooding	① Augusta Chronicle ② Local EMA	Yes, FIRM and GIS	
Drought / Extreme heat	③ Past Hazard Mitigation Plan		
Strong thunder storm → wind + hail	④ Past Flood Hazard Mitigation Plan		
Ice storm / Snow event	⑤ Library (Historical Books)		
Fire	⑥ Historical accounts from older residents		
Chemical spills / Chemical releases	⑦ Historical Society		

Hurricane / Coastal Storm — for all ↓ Yes

Dam Failure

Vulnerability Questionnaire

1. What are the hazards in your community?
   EMA to response

2. Do you know the frequency and magnitude of possible future hazard events?
   EMA to response

3. Has the community ever been affected by any hazard events? If so, how?
   EMA to response

4. Are some parts of the community particularly vulnerable to damages, or is the entire area vulnerable?
   EMA to response

5. Are some buildings particularly vulnerable to damages? If so, how?
   EMA & L&I to response

6. What are the uses and occupancies of the vulnerable buildings?
   EMA & L&I to response

7. What will the expected damages do—threaten life safety? Ruin buildings? Destroy equipment and computers? Disrupt work?
   EMA & L&I to response

8. Are your utilities vulnerable to damages? How?
   EMA & AUD and Private Utilities to response

9. What systems depend on either building functionality or utility functionality?
   EMA & AUD and Private Utilities to response

10. What could it cost to repair damages?
    EMA & AUD and Private Utilities to response

11. How long could it take?
    EMA & AUD and Private Utilities to response

12. How will community services be affected?
    Roads closure causing limited access to critical areas/facilities

13. How will emergency response be affected?
    Roads closure causing limited access to critical areas/facilities

14. How will on duty government personnel be affected?
    Limited mobility & communication (2)Roads closure causing limited access to critical areas/facilities

15. How will off-duty personnel be affected?
    Roads closure causing limited access to critical areas/facilities

16. Will personnel who live in the area be able to get to work?
    Non essential personnel most likely will stay at home

17. Will homes of personnel be affected by the hazard event(s)?
    Most likely if within hazard radius of impact

18. Could the government operations close down for a significant period of time because of possible disaster losses?
    Probably not for extended time

Date: *What kinds of natural hazards can affect you?*

1. List the hazards that may occur in your jurisdiction.

a. Research newspapers and other historical records. (Check GEMA & FEMA databases and library archives in.)
b. Review existing community plans and reports.
c. Talk to the experts in your community, state, or region.
d. Gather information on Internet Web sites.

In the hazard list below, put a check mark in the boxes on the left (Column I) beside all hazards that may occur in your community.

2. Focus on the most prevalent hazards in your community or state and your county.

a. Go to hazard Web sites.
b. Locate your community on the Web site map.
c. Determine whether you are in a high-risk area. Get more localized information if necessary.
d. In the hazard list below, put a check mark in the boxes on the right (Column II) beside all hazards that pose a significant threat to your community.

Use this space to record information you find for each of the hazards you will be researching. Attach additional pages as necessary.

	I	II
Avalanche	☐	☐
Coastal Erosion	☐	☐
Coastal Storm	☐	☐
Dam Failure	☐	☒
Drought	☐	☐
Earthquake	☐	☐
Expansive Soils	☐	☐
Extreme Heat	☐	☐
Flood	☐	☒
Hailstorm	☐	☐
Hurricane	☐	☐
Land Subsidence	☐	☐
Landslide	☐	☐
Severe Winter Storm	☒	☐
Tornado	☒	☐
Tsunami	☐	☐
Volcano	☐	☐
Wildfire	☐	☐
Windstorm	☐	☐
Other___Levee ____	☐	☒
Other_____	☐	☐
Other_____	☐	☐
Other_____	☐	☐

Hazard or Event Description (Type of hazard, date of event, number of injuries, cost and types of damage, etc.)	**Source of Information**	**Map Available for This Hazard?**	**Scale of Map**
No dam failure incident so far			
1990 Floods			
Probability of Levee failure is very low			

Vulnerability Questionnaire

1. What are the hazards in your community?
   Flash Floods, urban drainage floods, hazardous spills, chemical plant releases or incidents, Nuclear Power Plant incidents

2. Do you know the frequency and magnitude of possible future hazard events?
   Flash floods occur mostly in the spring during heavy rain fall, roadway hazardous spills occur small in size quarterly on average, no large chemical plant releases in several years, no nuclear power incidents for 15 years plus

3. Has the community ever been affected by any hazard events? If so, how?
   Yes, small amount of releases from chemical plants, and again roadway spills mostly from trucking

4. Are some parts of the community particularly vulnerable to damages, or is the entire area vulnerable?
   Locations around the chemical plants and the railways throughout the county

5. Are some buildings particularly vulnerable to damages? If so, how?
   9-1-1 center, university hospital and law enforcement due to railways

6. What are the uses and occupancies of the vulnerable buildings?
   Communications, public health, inmate facility

7. What will the expected damages do—threaten life safety? Ruin buildings? Destroy equipment and computers? Disrupt work?
   All the above the railways transports large amount of chemical from local plants

8. Are your utilities vulnerable to damages? How?

9. What systems depend on either building functionality or utility functionality?
   Public safety

10. What could it cost to repair damages?

11. How long could it take?
    Depending on the size of the hazard could take months or years

12. How will community services be affected?
    Will stop or slow down the response of equipment and man power

13. How will emergency response be affected?
    Response time due to roadway possibly closed or impassable

14. How will on duty government personnel be affected?
    Both in coming and be relieved from duty, possibly unable to do either

15. How will off-duty personnel be affected?
    Again may not be able to get to work or department not public safety closed and the non payment of days off could affect the economy

16. Will personnel who live in the area be able to get to work?
    Possibly no

17. Will homes of personnel be affected by the hazard event(s)?
    Yes the county has a large amount of personnel that lives within this county

18. Could the government operations close down for a significant period of time because of possible disaster losses?
    Yes a lot of government buildings are in the downtown area and that is where a large amount of hazardous incident could occur

Date: *What kinds of natural hazards can affect you?*

1. List the hazards that may occur in your jurisdiction.

a. Research newspapers and other historical records. (Check GEMA & FEMA databases and library archives in.)
b. Review existing community plans and reports.
c. Talk to the experts in your community, state, or region.
d. Gather information on Internet Web sites.

In the hazard list below, put a check mark in the boxes on the left (Column I) beside all hazards that may occur in your community.

2. Focus on the most prevalent hazards in your community or state and your county.

a. Go to hazard Web sites.
b. Locate your community on the Web site map.
c. Determine whether you are in a high-risk area. Get more localized information if necessary.
d. In the hazard list below, put a check mark in the boxes on the right (Column II) beside all hazards that pose a significant threat to your community.

Use this space to record information you find for each of the hazards you will be researching. Attach additional pages as necessary.

	I	II
Avalanche	☐	☐
Coastal Erosion	☐	☐
Coastal Storm	☐	☐
Dam Failure	x☐	x☐
Drought	x☐	x☐
Earthquake	☐	x☐
Expansive Soils	☐	☐
Extreme Heat	x☐	x☐
Flood	x☐	x☐
Hailstorm	x☐	x☐
Hurricane	☐	☐
Land Subsidence	☐	☐
Landslide	☐	☐
Severe Winter Storm	x☐	x☐
Tornado	x☐	x☐
Tsunami	☐	☐
Volcano	☐	☐
Wildfire	x☐	x☐
Windstorm	x☐	x☐
Other___Floods	x☐	x☐
Other_____	☐	☐
Other_____	☐	☐
Other_____	☐	☐

Hazard or Event Description (Type of hazard, date of event, number of injuries, cost and types of damage, etc.)	**Source of Information**	**Map Available for This Hazard?**	**Scale of Map**

HAZARD MITIGATION PLAN RESPONSE FROM MARGARET WOODARD

Terry,

We have no Hazard Mitigation Plan for the same reasons Walter mentions below and we are quasi-governmental as well. We receive $154,000 from the Augusta-Richmond County Government and work with them on a project-need basis as well. Our organizational structure consists of two employees and seven board members appointed by the commission. Our board meets monthly on the second Thursday at 8:30 am at our offices in the JB Whites Bldg. A nominating committee slates a chairman, vice-chairman, secretary and treasurer for full board approval in January of each. The only equipment we own are computers, phone systems and office furniture. I will have Roxanne Walls, our office manager, send under separate email our 2010 audit which lists properties we own. In addition she will send you a map with our district boundaries for the DDA and Business Improvement District. If you need anything else, do not hesitate to contact me.

Best,
Margaret Woodard

Vulnerability Questionnaire

1. What are the hazards in your community?
   Chemical spills or release, Severe weather with rain, high winds , lighting, and hail. Winter weather events. Concerns with acts of terrorisms at, or near chemical plants.

2. Do you know the frequency and magnitude of possible future hazard events?
   Annual

3. Has the community ever been affected by any hazard events? If so, how?
   Yes, winter weather, severe weather with rain, high winds, lighting, and hail.

4. Are some parts of the community particularly vulnerable to damages, or is the entire area vulnerable?
   Entire Area

5. Are some buildings particularly vulnerable to damages? If so, how?
   Downtown and East Augusta with flooding

6. What are the uses and occupancies of the vulnerable buildings?
   Businesses and homes.

7. What will the expected damages do—threaten life safety? Ruin buildings? Destroy equipment and computers? Disrupt work?
   All the above.

8. Are your utilities vulnerable to damages? How?
   Yes, down power lines.

9. What systems depend on either building functionality or utility functionality?
   Law enforcement Center, Court House (Federal and State), and 911 Center could flood.

10. What could it cost to repair damages?
    Unknown.

11. How long could it take?
    Unknown

12. How will community services be affected?
    Yes, Catastrophic for the entire City.

13. How will emergency response be affected?
    Could slow response times.

14. How will on duty government personnel be affected?
    Man power shortage. Overtime issues.

15. How will off-duty personnel be affected?
    They will not be able to get to work unless special transportation is provided,

16. Will personnel who live in the area be able to get to work?
    No, unless special transportation is provided

17. Will homes of personnel be affected by the hazard event(s)?
    Yes, relocation of personnel.

18. Could the government operations close down for a significant period of time because of possible disaster losses?
    No.

Date: *What kinds of natural hazards can affect you?*

1. List the hazards that may occur in your jurisdiction.

a. Research newspapers and other historical records. (Check GEMA & FEMA databases and library archives in.)
b. Review existing community plans and reports.
c. Talk to the experts in your community, state, or region.
d. Gather information on Internet Web sites.

In the hazard list below, put a check mark in the boxes on the left (Column I) beside all hazards that may occur in your community.

2. Focus on the most prevalent hazards in your community or state and your county.

a. Go to hazard Web sites.
b. Locate your community on the Web site map.
c. Determine whether you are in a high-risk area. Get more localized information if necessary.
d. In the hazard list below, put a check mark in the boxes on the right (Column II) beside all hazards that pose a significant threat to your community.

Use this space to record information you find for each of the hazards you will be researching. Attach additional pages as necessary.

	I	II
Avalanche	☐	☐
Coastal Erosion	☐	☐
Coastal Storm	X	☐
Dam Failure	X	☐
Drought	X	☐
Earthquake	☐	☐
Expansive Soils	☐	☐
Extreme Heat	X	☐
Flood	X	☐
Hailstorm	X	☐
Hurricane	☐	☐
Land Subsidence	☐	☐
Landslide	☐	☐
Severe Winter Storm	X	☐
Tornado	☐	☐
Tsunami	☐	☐
Volcano	☐	☐
Wildfire	☐	☐
Windstorm	X	☐
Other Chemical	X	☐
Other Accidental	X	☐
Other_____	☐	☐
Other_____	☐	☐

Hazard or Event Description (Type of hazard, date of event, number of injuries, cost and types of damage, etc.)	**Source of Information**	**Map Available for This Hazard?**	**Scale of Map**
Flooding	**Local Newspaper**		
Tornado	**Local Newspaper**		
Winter Storm	**Local Newspaper**		
Wild Fires	**Local Newspaper**		
Chemical accident	**Local Newspaper**		

Vulnerability Questionnaire

1. What are the hazards in your community?
   (1) Drought (2) Flood (3) Hailstorm (4) Hurricane (5) Extreme Heat (6) Tornado (7) Dam Failure (8) Wildfire

2. Do you know the frequency and magnitude of possible future hazard events?
   I have listed the potential events in question 1 in the order of frequency, but the last three, tornados, dam failure and wildfire have the greatest potential for loss of life and property.

3. Has the community ever been affected by any hazard events? If so, how?
   In the 31 years that I have lived here Augusta has been affected by droughts, floods, hailstorms, and hurricanes. In the past ten years ironically droughts and floods have been a recurring problem. Hailstorms have occurred in the community occasionally and hurricanes and tropical depressions have twice flooded the area.

4. Are some parts of the community particularly vulnerable to damages, or is the entire area vulnerable?
   The entire community is vulnerable to drought, hailstorm, hurricane, extreme heat, tornado, and wildfire, but the low lying areas are particularly vulnerable to floods and dam failure.

5. Are some buildings particularly vulnerable to damages? If so, how?
   I do not have the technical knowledge to answer this question.

6. What are the uses and occupancies of the vulnerable buildings?
   I do not have the technical knowledge to answer this question.

7. What will the expected damages do—threaten life safety? Ruin buildings? Destroy equipment and computers? Disrupt work?
   I do not have the technical knowledge to answer this question.

8. Are your utilities vulnerable to damages? How?
   The only utility I have knowledge of is the water system. It is vulnerable to drought, hurricane and tornado. Extreme drought could lower the level in Thurmond Reservoir to a level below the turbine intakes creating the need to pump low quality water from the reservoir to supply the downstream. And of course the infrastructure for water distribution (water towers and buildings) are vulnerable to high winds.

9. What systems depend on either building functionality or utility functionality? See question 8.

10. What could it cost to repair damages?
    I do not have the technical knowledge to answer this question.

11. How long could it take?
    I do not have the technical knowledge to answer this question.

12. How will community services be affected?
    Water is essential to life. Citizens would have to retrieve it from any source available. It would become a priority item for emergency responders.

13. How will emergency response be affected? See question 12.

14. How will on duty government personnel be affected?
    I do not have the technical knowledge to answer this question.

15. How will off-duty personnel be affected?
    I do not have the technical knowledge to answer this question.

16. Will personnel who live in the area be able to get to work?
    Hurricanes, tornados, and floods might inhibit transportation.

17. Will homes of personnel be affected by the hazard event(s)?
    I do not have the technical knowledge to answer this question.

18. Could the government operations close down for a significant period of time because of possible disaster losses?
    It is possible.

Date: *What kinds of natural hazards can affect you?*

1. List the hazards that may occur in your jurisdiction.

a. Research newspapers and other historical records. (Check GEMA & FEMA databases and library archives in.)
b. Review existing community plans and reports.
c. Talk to the experts in your community, state, or region.
d. Gather information on Internet Web sites.

In the hazard list below, put a check mark in the boxes on the left (Column I) beside all hazards that may occur in your community.

2. Focus on the most prevalent hazards in your community or state and your county.

a. Go to hazard Web sites.
b. Locate your community on the Web site map.
c. Determine whether you are in a high-risk area. Get more localized information if necessary.
d. In the hazard list below, put a check mark in the boxes on the right (Column II) beside all hazards that pose a significant threat to your community.

	I	II
Avalanche	☐	☐
Coastal Erosion	☐	☐
Coastal Storm	☐	☐
Dam Failure	x☐	☐
Drought	x☐	☐
Earthquake	☐	☐
Expansive Soils	☐	☐
Extreme Heat	x☐	☐
Flood	x☐	☐
Hailstorm	x☐	☐
Hurricane	x☐	☐
Land Subsidence	☐	☐
Landslide	☐	☐
Severe Winter Storm	☐	☐
Tornado	x☐	☐
Tsunami	☐	☐
Volcano	☐	☐
Wildfire	x☐	☐
Windstorm	☐	☐
Other_____	x☐	☐
Other_____	☐	☐
Other_____	☐	☐

Use this space to record information you find for each of the hazards you will be researching. Attach additional pages as necessary.

Hazard or Event Description (Type of hazard, date of event, number of injuries, cost and types of damage, etc.)	**Source of Information**	**Map Available for This Hazard?**	**Scale of Map**
Dam Failure		**Yes**	**?**
Hurricane – Augusta is a destination for residents fleeing from the coast		**yes**	**?**
Huge amounts of sulfuric acid, nitric acid, caustic soda and chlorine are made in or transported through Augusta. Could exacerbate natural disaster.	**Personal knowledge**	**Ask Emergency Management**	**?**

Vulnerability Questionnaire

1. What are the hazards in your community?
   __The main hazards are active shooter in school or other facility, catastrophic flood due to dam and river and catastrophic chemical release

2. Do you know the frequency and magnitude of possible future hazard events?
   Last major flood in early 1980's, major chemical release at Graniteville

3. Has the community ever been affected by any hazard events? If so, how?
   Flood

4. Are some parts of the community particularly vulnerable to damages, or is the entire area vulnerable?
   Downtown vulnerable to all of the hazards listed in #1

5. Are some buildings particularly vulnerable to damages? If so, how?
   Unknown, but all of the downtown schools east of Laney Walker are extremely vulnerable

6. What are the uses and occupancies of the vulnerable buildings?
   Schools and Central BOE Headquarters building

7. What will the expected damages do—threaten life safety? Ruin buildings? Destroy equipment and computers? Disrupt work?
   Life threatening with active shooter and chemical release. Flooding would pose lest of a risk, but would seriously disrupt work, school openings and normal operations

8. Are your utilities vulnerable to damages? How?
   Yes, severe water damage from flooding

9. What systems depend on either building functionality or utility functionality?
   All major systems would be effected in major flooding

10. What could it cost to repair damages?
    In flooding, it would probably result in building renovation in the hundreds of thousands if not millions of dollars

_____

11. How long could it take?
    Six months to a year at best_____

    _____

12. How will community services be affected?
    Severely if a flood, chemical release or flood occurs_____

    _____

13. How will emergency response be affected?
    Severely hamper operations especially if a flood and later looting_____

    _____

14. How will on duty government personnel be affected?
    Severely as all are government employees_____

    _____

15. How will off-duty personnel be affected?
    This will require additional hours for part time employees_____

    _____

16. Will personnel who live in the area be able to get to work?
    Yes, but school operations will be moved and severely hampered_____

    _____

17. Will homes of personnel be affected by the hazard event(s)?
    Approximately 25% of personnel live in the possibly effected area. The remaining employees live in outlying areas._____

    _____

18. Could the government operations close down for a significant period of time because of possible disaster losses?
    Yes_____

    _____

Vulnerability Questionnaire

1. What are the hazards in your community?

   Severe Weather/Tornado/Winter Storm/Heat and Drought; Hazardous Materials Release/Spill; Localized Flooding; Pandemic/Disease Outbreak; water system failure; communications systems failure; sewage system failure; pipeline/gas explosion. Fires, smoke and smog also have become an increasing occurrence.

2. Do you know the frequency and magnitude of possible future hazard events?

Severe Weather, particularly extreme heat, thunderstorms/tornadoes, winter storms occur annually. Hazardous chemical spills, sewage releases, and localized flooding also occur regularly.

3. Has the community ever been affected by any hazard events? If so, how?

Localized flooding has caused roads to be impassible and entered homes in low lying areas and floodplains. Fires and smoke have affected businesses and air quality. Tornadoes have occurred to damage homes, businesses, etc.

4. Are some parts of the community particularly vulnerable to damages, or is the entire area vulnerable?
   Low-lying areas and roads are prone to flooding along creeks, rivers, and downstream from built-up commercial areas. Communities near chemical plants and railroads are more likely to be affected by chemical events. Any chemical spills, fire, or releases potentially can affect the medical community.

5. Are some buildings particularly vulnerable to damages? If so, how?

Hospitals are particularly dependent upon power, sewage, water, and traffic accessibility. Government building and hospitals are also potentially targets for human caused disasters.

6. What are the uses and occupancies of the vulnerable buildings?

Hospitals, nursing homes, schools, daycare, high-rise housing and government buildings.

7. What will the expected damages do—threaten life safety? Ruin buildings? Destroy equipment and computers? Disrupt work?

Threaten life safety of vulnerable populations (hospitals, nursing homes, daycares, schools)

8. Are your utilities vulnerable to damages? How?

The hospitals have no back-up sources of potable water other than the municipal water system. Also, energy plant buildings supporting these key structures are at ground level and not protected from

floods. Deliveries of critical supplies and equipment to hospitals are subject to disruption should the roads and streets become impassible. Most critical facilities do not maintain resources to allow for extended disruptions of utilities or deliveries.

9. What systems depend on either building functionality or utility functionality?
Medical gas delivery systems; potable water/ice delivery; emergency medical services, emergency surgical capabilities, life-support equipment such as ventilators, infusion pumps, etc.

10. What could it cost to repair damages?

Multi-millions of dollars.

11. How long could it take? Weeks, months, years depending upon the degree of damages.

12. How will community services be affected? Vulnerable populations requiring emergency medical care could be compromised.

13. How will emergency response be affected? Extended disruption of patient care services for the hospitals might result in the need to evacuate outside the community.

14. How will on duty government personnel be affected? Extended duty to care for the sick and injured over an undetermined amount of time.

15. How will off-duty personnel be affected? Yes. Loss of jobs

16. Will personnel who live in the area be able to get to work? Not without the facilities in place.

17. Will homes of personnel be affected by the hazard event(s)? Yes.

18. Could the government operations close down for a significant period of time because of possible disaster losses? Yes, either for an undetermined amount of time or it could result in permanent closure.

Date: *What kinds of natural hazards can affect you?*

1. List the hazards that may occur in your jurisdiction.

a. Research newspapers and other historical records. (Check GEMA & FEMA databases and library archives in.)
b. Review existing community plans and reports.
c. Talk to the experts in your community, state, or region.
d. Gather information on Internet Web sites.

In the hazard list below, put a check mark in the boxes on the left (Column I) beside all hazards that may occur in your community.

2. Focus on the most prevalent hazards in your community or state and your county.

a. Go to hazard Web sites.
b. Locate your community on the Web site map.
c. Determine whether you are in a high-risk area. Get more localized information if necessary.
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Coastal Storm	☐	☐
Dam Failure	☒	☒
Drought	☒	☒
Earthquake	☐	☐
Expansive Soils	☐	☐
Extreme Heat	☒	☒
Flood	☒	☒
Hailstorm	☒	☐
Hurricane	☒	☐
Land Subsidence	☐	☐
Landslide	☐	☐
Severe Winter Storm	☒	☐
Tornado	☒	☒
Tsunami	☐	☐
Volcano	☐	☐
Wildfire	☒	☐
Windstorm	☒	☐
Other_HAZMAT	☒	☒
Other_____	☐	☐
Other_____	☐	☐
Other_____	☐	☐

Hazard or Event Description (Type of hazard, date of event, number of injuries, cost and types of damage, etc.)	**Source of Information**	**Map Available for This Hazard?**	**Scale of Map**
Evacuation from Hurr Floyd			

Vulnerability Questionnaire

1. What are the hazards in your community?

   Severe Weather/Tornado/Winter Storm/Heat and Drought; Hazardous Materials Release/Spill; Localized Flooding; Pandemic/Disease Outbreak; water system failure; communications systems failure; sewage system failure; pipeline/gas explosion. Fires, smoke and smog also have become an increasing occurrence.

2. Do you know the frequency and magnitude of possible future hazard events?

Severe Weather, particularly extreme heat, thunderstorms/tornadoes, winter storms occur annually. Hazardous chemical spills, sewage releases, and localized flooding also occur regularly.

3. Has the community ever been affected by any hazard events? If so, how?

Localized flooding has caused roads to be impassible and entered homes in low lying areas and floodplains. Fires and smoke have affected businesses and air quality. Tornadoes have occurred to damage homes, businesses, etc.

4. Are some parts of the community particularly vulnerable to damages, or is the entire area vulnerable?
   Low-lying areas and roads are prone to flooding along creeks, rivers, and downstream from built-up commercial areas. Communities near chemical plants and railroads are more likely to be affected by chemical events. Any chemical spills, fire, or releases potentially can affect the medical community.

5. Are some buildings particularly vulnerable to damages? If so, how?

Hospitals are particularly dependent upon power, sewage, water, and traffic accessibility. Government building and hospitals are also potentially targets for human caused disasters.

6. What are the uses and occupancies of the vulnerable buildings?

Hospitals, nursing homes, schools, daycare, high-rise housing and government buildings.

7. What will the expected damages do—threaten life safety? Ruin buildings? Destroy equipment and computers? Disrupt work?

Threaten life safety of vulnerable populations (hospitals, nursing homes, daycares, schools)

8. Are your utilities vulnerable to damages? How?

The hospitals have no back-up sources of potable water other than the municipal water system. Also, energy plant buildings supporting these key structures are at ground level and not protected from

floods. Deliveries of critical supplies and equipment to hospitals are subject to disruption should the roads and streets become impassible. Most critical facilities do not maintain resources to allow for extended disruptions of utilities or deliveries.

9. What systems depend on either building functionality or utility functionality?
Medical gas delivery systems; potable water/ice delivery; emergency medical services, emergency surgical capabilities, life-support equipment such as ventilators, infusion pumps, etc.

10. What could it cost to repair damages?

Multi-millions of dollars.

11. How long could it take? Weeks, months, years depending upon the degree of damages.

12. How will community services be affected? Vulnerable populations requiring emergency medical care could be compromised.

13. How will emergency response be affected? Extended disruption of patient care services for the hospitals might result in the need to evacuate outside the community.

14. How will on duty government personnel be affected? Extended duty to care for the sick and injured over an undetermined amount of time.

15. How will off-duty personnel be affected? Yes. Loss of jobs

16. Will personnel who live in the area be able to get to work? Not without the facilities in place.

17. Will homes of personnel be affected by the hazard event(s)? Yes.

18. Could the government operations close down for a significant period of time because of possible disaster losses? Yes, either for an undetermined amount of time or it could result in permanent closure.

Date: *What kinds of natural hazards can affect you?*

1. List the hazards that may occur in your jurisdiction.

a. Research newspapers and other historical records. (Check GEMA & FEMA databases and library archives in.)
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Drought	☒	☒
Earthquake	☐	☐
Expansive Soils	☐	☐
Extreme Heat	☒	☒
Flood	☒	☒
Hailstorm	☒	☐
Hurricane	☒	☐
Land Subsidence	☐	☐
Landslide	☐	☐
Severe Winter Storm	☒	☐
Tornado	☒	☒
Tsunami	☐	☐
Volcano	☐	☐
Wildfire	☒	☐
Windstorm	☒	☐
Other_HAZMAT	☒	☒
Other_____	☐	☐
Other_____	☐	☐
Other_____	☐	☐

Hazard or Event Description (Type of hazard, date of event, number of injuries, cost and types of damage, etc.)	**Source of Information**	**Map Available for This Hazard?**	**Scale of Map**
Evacuation from Hurr Floyd			

Vulnerability Questionnaire

1. What are the hazards in your community?

   Severe Weather/Tornado/Winter Storm/Heat and Drought; Hazardous Materials Release/Spill; Localized Flooding; Pandemic/Disease Outbreak; water system failure; communications systems failure; sewage system failure; pipeline/gas explosion. Fires, smoke and smog also have become an increasing occurrence.

2. Do you know the frequency and magnitude of possible future hazard events?

Severe Weather, particularly extreme heat, thunderstorms/tornadoes, winter storms occur annually. Hazardous chemical spills, sewage releases, and localized flooding also occur regularly.

3. Has the community ever been affected by any hazard events? If so, how?

Localized flooding has caused roads to be impassible and entered homes in low lying areas and floodplains. Fires and smoke have affected businesses and air quality. Tornadoes have occurred to damage homes, businesses, etc.

4. Are some parts of the community particularly vulnerable to damages, or is the entire area vulnerable?
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7. What will the expected damages do—threaten life safety? Ruin buildings? Destroy equipment and computers? Disrupt work?

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11. How long could it take? Weeks, months, years depending upon the degree of damages.

12. How will community services be affected? Vulnerable populations requiring emergency medical care could be compromised.

13. How will emergency response be affected? Extended disruption of patient care services for the hospitals might result in the need to evacuate outside the community.

14. How will on duty government personnel be affected? Extended duty to care for the sick and injured over an undetermined amount of time.

15. How will off-duty personnel be affected? Yes. Loss of jobs

16. Will personnel who live in the area be able to get to work? Not without the facilities in place.

17. Will homes of personnel be affected by the hazard event(s)? Yes.

18. Could the government operations close down for a significant period of time because of possible disaster losses? Yes, either for an undetermined amount of time or it could result in permanent closure.

Date: *What kinds of natural hazards can affect you?*

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Coastal Erosion	☐	☐
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Dam Failure	☒	☒
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Earthquake	☐	☐
Expansive Soils	☐	☐
Extreme Heat	☒	☒
Flood	☒	☒
Hailstorm	☒	☐
Hurricane	☒	☐
Land Subsidence	☐	☐
Landslide	☐	☐
Severe Winter Storm	☒	☐
Tornado	☒	☒
Tsunami	☐	☐
Volcano	☐	☐
Wildfire	☒	☐
Windstorm	☒	☐
Other_HAZMAT	☒	☒
Other_____	☐	☐
Other_____	☐	☐
Other_____	☐	☐

Hazard or Event Description (Type of hazard, date of event, number of injuries, cost and types of damage, etc.)	**Source of Information**	**Map Available for This Hazard?**	**Scale of Map**
Evacuation from Hurr Floyd			

Vulnerability Questionnaire

1. What are the hazards in your community?
   Outside of natural disasters we foresee not hazards in our community.

2. Do you know the frequency and magnitude of possible future hazard events?
   No

3. Has the community ever been affected by any hazard events? If so, how?
   No

4. Are some parts of the community particularly vulnerable to damages, or is the entire area vulnerable?
   We would presume that the entire area would be vulnerable.

5. Are some buildings particularly vulnerable to damages? If so, how?
   Not to our knowledge.

6. What are the uses and occupancies of the vulnerable buildings?
   N/A

7. What will the expected damages do—threaten life safety? Ruin buildings? Destroy equipment and computers? Disrupt work?
   In the event of a natural disaster all of the above could occur.

8. Are your utilities vulnerable to damages? How?
   Yes, tornado's or strong winds could possibly damage elevated water storage tanks.

9. What systems depend on either building functionality or utility functionality?
   Public drinking water system.

10. What could it cost to repair damages?
    The cost would depend upon the extent of the damages. In the event an elevated water storage tank is completely destroyed it could cost between $500,000. & $900,000. to replace.

11. How long could it take?
    6 months

12. How will community services be affected?
    Community services would not be affected. The City has a tie in with the Augusta-Richmond County Water System that allows for the City of Blythe to draw water in emergency situations.

13. How will emergency response be affected?
    If the event was a natural disaster I foresee no way that emergency response would be effected.

14. How will on duty government personnel be affected?
    Again this would depend on the extent and location of damage.

15. How will off-duty personnel be affected?
    Again this would depend on the extent and location of damage.

16. Will personnel who live in the area be able to get to work?
    Yes

17. Will homes of personnel be affected by the hazard event(s)?
    Possibly

18. Could the government operations close down for a significant period of time because of possible disaster losses?
    No

Vulnerability Questionnaire

1. What are the hazards in your community?
   Erosion associated with Strom Thurmond Dam; CSRA Chemical plants: Savannah River Plant, Columbia Nitrogen, all pose possible spills, leaks and explosions.
   Hurricane damage due to proximity to the coast; flooding, resulting from heavy, prolonged rain.

2. Do you know the frequency and magnitude of possible future hazard events?
   The possibility/probability of Hurricanes affecting our area increases every season. Loss of life associated with extreme heat, occurs every summer. Daily possibilities of accidents associated with area factories, railway spills of toxic chemicals.

3. Has the community ever been affected by any hazard events? If so, how?
   Graniteville, SC train crash released toxic chlorine gas in January 2005; March 2001, BP Amoco Polymers vessel explosion.

4. Are some parts of the community particularly vulnerable to damages, or is the entire area vulnerable?
   The entire area is vulnerable to hazards from nuclear incident at SRP; chemical spills and/or explosions from local industrial facilities. Areas throughout Augusta are susceptible to flooding: Walton Way Ext., Hyde Park, East Boundary, San Bar Ferry, Laney Walker area.

5. Are some buildings particularly vulnerable to damages? If so, how?
   Some buildings are more susceptible to damage, due to location. (Ex: close to Savannah River) Low-lying areas, at risk of flooding. Old abandoned buildings, because of being listed as historical they require special approval before changes, updates can be made; also outdated apartments and hotels. Dependent on location and availability of funding.

6. What are the uses and occupancies of the vulnerable buildings?
   Some outdated buildings house elderly and low income families, Ex: Bon Air Hotel

7. What will the expected damages do—threaten life safety? Ruin buildings? Destroy equipment and computers? Disrupt work?
   All of the above

8. Are your utilities vulnerable to damages? How?
   Extensive flooding could affect all utilities, sewerage overflow.

9. What systems depend on either building functionality or utility functionality?
   All

10. What could it cost to repair damages?

Millions

11. How long could it take?
    Depending on the hazard, it could take days, weeks, months, years.

12. How will community services be affected?
    Some services will be interrupted for an undetermined period

13. How will emergency response be affected?
    Slowed, but functional.

14. How will on duty government personnel be affected?
    On duty government personnel will be required to work.

15. How will off-duty personnel be affected?
    Off duty government personnel will be expected to report to work as soon as possible.

16. Will personnel who live in the area be able to get to work?
    It depends on the hazard

17. Will homes of personnel be affected by the hazard event(s)?
    It depends on the hazard

18. Could the government operations close down for a significant period of time because of possible disaster losses?
    It depends on the mission of the specific department; emergency services will continue to operate, non-essential operations could be suspended or staff re-routed to vital areas.

Date: *What kinds of natural hazards can affect you?*

1. List the hazards that may occur in your jurisdiction.

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b. Review existing community plans and reports.
c. Talk to the experts in your community, state, or region.
d. Gather information on Internet Web sites.

In the hazard list below, put a check mark in the boxes on the left (Column I) beside all hazards that may occur in your community.

2. Focus on the most prevalent hazards in your community or state and your county.

a. Go to hazard Web sites.
b. Locate your community on the Web site map.
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d. In the hazard list below, put a check mark in the boxes on the right (Column II) beside all hazards that pose a significant threat to your community.

Use this space to record information you find for each of the hazards you will be researching. Attach additional pages as necessary.

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Volcano	☐	☐
Wildfire	☐	☐
Windstorm	☐	☐
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Other_____	☐	☐
Other_____	☐	☐
Other_____	☐	☐

Hazard or Event Description (Type of hazard, date of event, number of injuries, cost and types of damage, etc.)	**Source of Information**	**Map Available for This Hazard?**	**Scale of Map**

Vulnerability Questionnaire

1. What are the hazards in your community?
   ____Flood, Fire (structural & wild), Severe Weather, Winter Storm, Dorught, Hazardous material incident, _____

2. Do you know the frequency and magnitude of possible future hazard events?
   Not really have plans in place with mitigation teams to include mutual agreements for support.____

3. Has the community ever been affected by any hazard events? If so, how?
   Yes, all listed as hazards._____

4. Are some parts of the community particularly vulnerable to damages, or is the entire area vulnerable?
   Entire area is vulnerable to one or all hazardous condition_____

5. Are some buildings particularly vulnerable to damages? If so, how?
   Yes, HQ buildings, Housing, Hospital and clinics, emergency managent and security functions.___

6. What are the uses and occupancies of the vulnerable buildings?
   See above_____

7. What will the expected damages do—threaten life safety? Ruin buildings? Destroy equipment and computers? Disrupt work?
   All the above but in addition National Security, Natural Resources impacts, community Operation._____

8. Are your utilities vulnerable to damages? How?
   Yes, Terist threat, storm damage, access, loss / disruption of communication, and more_____

9. What systems depend on either building functionality or utility functionality?
   All_____

10. What could it cost to repair damages?
    Billions_____

11. How long could it take?
    Months_____

    _____

12. How will community services be affected?
    Loss of service (really don't understand the question._____

    _____

13. How will emergency response be affected?
    We have back up plan and communication._____

    _____

14. How will on duty government personnel be affected?
    Emergency plan will coordinate staffing._____

    _____

15. How will off-duty personnel be affected?
    Impact to local community will be obvious._____

    _____

16. Will personnel who live in the area be able to get to work?
    Notmally._____

    _____

17. Will homes of personnel be affected by the hazard event(s)?
    Yes_____

    _____

18. Could the government operations close down for a significant period of time because of possible disaster losses?
    No, not totally will go to emergency action management._____

    _____

    _____

Date: *What kinds of natural hazards can affect you?*

1. List the hazards that may occur in your jurisdiction.

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Dam Failure	☐	☐
Drought	☐	☐
Earthquake	☐	☐
Expansive Soils	☐	☐
Extreme Heat	☐	☐
Flood	☐	☐
Hailstorm	☐	☐
Hurricane	☐	☐
Land Subsidence	☐	☐
Landslide	☐	☐
Severe Winter Storm	☐	☐
Tornado	☐	☐
Tsunami	☐	☐
Volcano	☐	☐
Wildfire	☐	☐
Windstorm	☐	☐
Other_____	☐	☐
Other_____	☐	☐
Other_____	☐	☐
Other_____	☐	☐

Hazard or Event Description (Type of hazard, date of event, number of injuries, cost and types of damage, etc.)	**Source of Information**	**Map Available for This Hazard?**	**Scale of Map**

Vulnerability Questionnaire

1. What are the hazards in your community?
   Specifically for New Savannah Bluff Lock and Dam would include a flood or earthquake

2. Do you know the frequency and magnitude of possible future hazard events?
   A flood would have to exceed a 500 year event, unknown for an earthquake

3. Has the community ever been affected by any hazard events? If so, how?
   N/A

4. Are some parts of the community particularly vulnerable to damages, or is the entire area vulnerable?
   N/A

5. Are some buildings particularly vulnerable to damages? If so, how?

6. What are the uses and occupancies of the vulnerable buildings?

7. What will the expected damages do—threaten life safety? Ruin buildings? Destroy equipment and computers? Disrupt work?
   An exceptional event that damages the lock and dam structure would cause downstream flooding and upstream the loss of the pool between the dam and approximately 13th Street. Loss of the pool would affect municipal and industrial water intakes in the area.

8. Are your utilities vulnerable to damages? How?
   No

9. What systems depend on either building functionality or utility functionality?
   Gate operations, for water flow control, are the most critical, but have local backup systems.

10. What could it cost to repair damages?

11. How long could it take?

_____

_____

12. How will community services be affected?
N/A_____

_____

13. How will emergency response be affected?
N/A_____

_____

14. How will on duty government personnel be affected?
N/A_____

_____

15. How will off-duty personnel be affected?
N/A_____

_____

16. Will personnel who live in the area be able to get to work?
Yes_____

_____

17. Will homes of personnel be affected by the hazard event(s)?
No_____

_____

18. Could the government operations close down for a significant period of time because of possible disaster losses?
No_____

_____

Date: *What kinds of natural hazards can affect you?*

1. List the hazards that may occur in your jurisdiction.

a. Research newspapers and other historical records. (Check GEMA & FEMA databases and library archives in.)
b. Review existing community plans and reports.
c. Talk to the experts in your community, state, or region.
d. Gather information on Internet Web sites.

In the hazard list below, put a check mark in the boxes on the left (Column I) beside all hazards that may occur in your community.

2. Focus on the most prevalent hazards in your community or state and your county.

a. Go to hazard Web sites.
b. Locate your community on the Web site map.
c. Determine whether you are in a high-risk area. Get more localized information if necessary.
d. In the hazard list below, put a check mark in the boxes on the right (Column II) beside all hazards that pose a significant threat to your community.

Use this space to record information you find for each of the hazards you will be researching. Attach additional pages as necessary.

	I	II
Avalanche	☐	☐
Coastal Erosion	☐	☐
Coastal Storm	☐	☐
Dam Failure	X	X
Drought	X	☐
Earthquake	X	☐
Expansive Soils	☐	☐
Extreme Heat	☐	☐
Flood	X	☐
Hailstorm	☐	☐
Hurricane	X	☐
Land Subsidence	☐	☐
Landslide	☐	☐
Severe Winter Storm	☐	☐
Tornado	X	☐
Tsunami	☐	☐
Volcano	☐	☐
Wildfire	☐	☐
Windstorm	☐	☐
Other_____	☐	☐
Other_____	☐	☐
Other_____	☐	☐
Other_____	☐	☐

Hazard or Event Description (Type of hazard, date of event, number of injuries, cost and types of damage, etc.)	**Source of Information**	**Map Available for This Hazard?**	**Scale of Map**

Vulnerability Questionnaire

1. What are the hazards in your community?
   Flash flooding, Levee failure, Tropical storms, Extreme heat and brush fires

2. Do you know the frequency and magnitude of possible future hazard events?
   The flash floods can happen anytime and without warning causing traffic hazards, flooding of private property, trees to fall, erosion and even the cutting of new ditches.

3. Has the community ever been affected by any hazard events? If so, how?
   Flash floods causes a lot of standing water in the MLK area, intersections where the pipes simply cannot take the water fast enough. 8th and Walton Way is an example.

4. Are some parts of the community particularly vulnerable to damages, or is the entire area vulnerable?
   District 2 and District 8 are both prone to damages due to flooding. The East view area is virtually flat and the water drains very slowly in this area, District 8 south side suffers from some very old and small pipes that simply cannot handle the volume runoff after a flash flood. Good dale Landing and Waters edge are both communities that are in very close proximity to the river. Many trailer parks or modular homes can also be affected by flash floods. Homes on McNutt Way and other unpaved roads will be dramatically affected.

5. Are some buildings particularly vulnerable to damages? If so, how?
   Structures that is located behind the levee gate near Prep Phillips, Traffic Engineering, Boathouse, and The welding Shop. Julian Smith Casino and the Maintenance Shop on Tobacco Road appear to be vulnerable to flooding.

6. What are the uses and occupancies of the vulnerable buildings?
   Commercial business and County owned facilities.

7. What will the expected damages do—threaten life safety? Ruin buildings? Destroy equipment and computers? Disrupt work?
   Expected damages most likely would result in a total lost for everything behind the breach.

8. Are your utilities vulnerable to damages? How?
   Storm water traps, sewer man holes, and possibly the waste water treatment plant

9. What systems depend on either building functionality or utility functionality?
   Water Treatment, Roads and Bridges (utility)_____

10. What could it cost to repair damages?
    Repairs to a bridge or roadway system depending on severity could be in the hundreds of thousands. _____

11. How long could it take?
    Research in the mid 90's concluded that to construct 15 miles of highway from start to finish weather permitting would take approximately 75 weeks or 20 months._____

12. How will community services be affected?
    Services could be severely crippled, without proper infrastructure to support schools, business or the medical community; virtually no economic recovery could exist._____

13. How will emergency response be affected?
    Response time for first responders would most likely double._____

14. How will on duty government personnel be affected?
    Law enforcement, 911 and recovery operations would be dramatically affected by response time.__

15. How will off-duty personnel be affected?
    Pose the potential to hamper personnel from arriving at critical work stations in a timely manner.__

16. Will personnel who live in the area be able to get to work?
    Perhaps by boat, jet ski or other water craft. Speed could be an option due to debris being in water._

17. Will homes of personnel be affected by the hazard event(s)?
    Yes_____

18. Could the government operations close down for a significant period of time because of possible disaster losses?
    Total shut down would not be an option however services may be limited to emergencies and recovery operations.

Date: *What kinds of natural hazards can affect you?*

1. List the hazards that may occur in your jurisdiction.

a. Research newspapers and other historical records. (Check GEMA & FEMA databases and library archives in.)
b. Review existing community plans and reports.
c. Talk to the experts in your community, state, or region.
d. Gather information on Internet Web sites.

In the hazard list below, put a check mark in the boxes on the left (Column I) beside all hazards that may occur in your community.

2. Focus on the most prevalent hazards in your community or state and your county.

a. Go to hazard Web sites.
b. Locate your community on the Web site map.
c. Determine whether you are in a high-risk area. Get more localized information if necessary.
d. In the hazard list below, put a check mark in the boxes on the right (Column II) beside all hazards that pose a significant threat to your community.

Use this space to record information you find for each of the hazards you will be researching. Attach additional pages as necessary.

	I	II
Avalanche	☐	☐
Coastal Erosion	☐	☐
Coastal Storm	☐	☐
Dam Failure	☐	☐
Drought	☐	☐
Earthquake	☐	☐
Expansive Soils	☐	☐
Extreme Heat	☒	☒
Flood	☒	☒
Hailstorm	☐	☐
Hurricane	☐	☐
Land Subsidence	☐	☐
Landslide	☐	☐
Severe Winter Storm	☐	☐
Tornado	☐	☐
Tsunami	☐	☐
Volcano	☐	☐
Wildfire	☒	☐
Windstorm	☐	☐
Other_____	☐	☐
Other_____	☐	☐
Other_____	☐	☐
Other_____	☐	☐

Hazard or Event Description (Type of hazard, date of event, number of injuries, cost and types of damage, etc.)	**Source of Information**	**Map Available for This Hazard?**	**Scale of Map**
Temperature range from mid to upper 90's in mid June 2011, Oct 12, 1990 15" of rain, the 100 year flood	**www.Augustaga.gov**		
June 2011 burned several acres on I520 W	**Observation**		

Date: *What kinds of natural hazards can affect you?*

1. List the hazards that may occur in your jurisdiction.

e. Research newspapers and other historical records. (Check GEMA & FEMA databases and library archives in.)
f. Review existing community plans and reports.
g. Talk to the experts in your community, state, or region.
h. Gather information on Internet Web sites.

In the hazard list below, put a check mark in the boxes on the left (Column I) beside all hazards that may occur in your community.

2. Focus on the most prevalent hazards in your community or state and your county.

e. Go to hazard Web sites.
f. Locate your community on the Web site map.
g. Determine whether you are in a high-risk area. Get more localized information if necessary.
h. In the hazard list below, put a check mark in the boxes on the right (Column II) beside all hazards that pose a significant threat to your community.

Use this space to record information you find for each of the hazards you will be researching. Attach additional pages as necessary.

	I	II
Avalanche	☐	☐
Coastal Erosion	☐	☐
Coastal Storm	☐	☐
Dam Failure	☒	☒
Drought	☐	☐
Earthquake	☐	☐
Expansive Soils	☐	☐
Extreme Heat	☒	☐
Flood	☒	☐
Hailstorm	☐	☐
Hurricane	☐	☐
Land Subsidence	☐	☐
Landslide	☐	☐
Severe Winter Storm	☐	☐
Tornado	☐	☐
Tsunami	☐	☐
Volcano	☐	☐
Wildfire	☒	☐
Windstorm	☐	☐
Other_____	☐	☐
Other_____	☐	☐
Other_____	☐	☐
Other_____	☐	☐

Hazard or Event Description (Type of hazard, date of event, number of injuries, cost and types of damage, etc.)	**Source of Information**	**Map Available for This Hazard?**	**Scale of Map**

Vulnerability Questionnaire

1. What are the hazards in your community?
    - Chemical plant incident/release or terroristic event
    - Railway/trucks transporting haz mat
    - Local flooding to include inland affects from hurricane activity
    - Severe thunderstorms/tornado and/or microburst
    - Catastrophic flood from Clarks Hill Dam breaking
    - Ice/snow storms
    - Nuclear incident/release or terroristic event at Savannah River Site and/or Plant Vogtle

2. Do you know the frequency and magnitude of possible future hazard events?
    - Local flooding from thunderstorm activity happens frequently. Tornado activity has hit various parts of the surrounding areas for years now during the birthing of Spring and the hurricane season spawning its fury.
    - Local flooding from hurricane activity happens on the low end of the scale but when it does occur or a storm system stalls, the Savannah River and Augusta Canal flood. The last flood of this nature occurred October 12, 1990.
    - Chemical releases/accidents (do "near misses count"?) occur possibly one a year
    - Railway/trucks transporting haz mat don't happen that often but is a credible and powerful threat
    - Ice/snow storms occur every other year – typically – that are significant enough to cripple us. December 2010 – February 2011 was a very cold, bitter winter for Augusta with it sleeting/snowing at least 3 different times – which is unusual for us and cripples us greatly!!!

3. Has the community ever been affected by any hazard events? If so, how?
    - Graniteville train incident
    - Floods are marked on Riverwalk through the years – last major flood was October 12, 1990
    - Ice/snow storm – see above
    - Tornado activity/severe thunderstorm – see above

4. Are some parts of the community particularly vulnerable to damages, or is the entire area vulnerable?
    - For flooding, the East side of Augusta is in a low lying/flood zone area. There are three major hospitals that could be taken out with a water surge of 5 to 10 feet deep (1st floor flooding) let alone chemical plants, residents, other businesses in the downtown Augusta area.
    - East Augusta has a large amount of potential chemical exposures which would affect the same as stated for flooding.
    - Tornado activity/severe thunderstorms take unpredictable paths…however, storm systems are attracted to the Savannah River.

5. Are some buildings particularly vulnerable to damages? If so, how?
    - As already stated, flooding and chemical incidents would affect thousands of residents, wildlife, swamps/wetlands, water sources, businesses, hospitals, ie. Recovery efforts take a long time – even years.

6. What are the uses and occupancies of the vulnerable buildings?
    - Residential, businesses, airport, waste water system, sick patients, nursing home patients….

7. What will the expected damages do—threaten life safety? Ruin buildings? Destroy equipment and computers? Disrupt work?
    - The type, duration and span of an incident dictates life safety issues, collateral damages, disruption of time spent away from work, recovery timelines, i.e.

8. Are your utilities vulnerable to damages? How?
    - Based on location of the event – maybe yes, maybe no. A 1st floor flood would take out our water, sewage, vacuum lines, medical gases, phone and computer services, normal power – even the emergency generators could be lost if the waters rose to a certain level….pretty devastating.

9. What systems depend on either building functionality or utility functionality?
    - Who came up with this question??? We may have a building but if we don't have any source of electrical power, food or safe water to use, the building is just a holding area…..and if we have electrical power, medical gases, water, phones, equipment but don't have a building to function in, we would have to shut down the business.

10. What could it cost to repair damages?
    - Billions in building repairs and replacing equipment – and who's worthy enough to put a price tag on losing lives????

11. How long could it take?
    - Years – sometimes never.

12. How will community services be affected?
    - Depends on the event. In a 1st floor flood or the dam breaks in the Augusta area, there will still be two functional hospitals – which would become overwhelmed very quickly with evacuees, misplaced residents, real emergencies and hospitals requiring evacuations, i.e., however – there would still be some medical assistance/resources that would be available/made available.

    - In a chemical or nuclear incident, all the hospitals could be affected and not be able to offer medical attention to anyone.

    - If it's a tornado – the affects would be based on the swath the storm system destroyed.

13. How will emergency response be affected?
    - The scenario drives the course of action to be taken. The availability or lack of resources and assets, communication links (ham operators, phones, emails, i.e.), utilities, safety/security issues, manpower, i.e., will either excel or delay recovery efforts. It could be days to weeks before victims were rescued.

14. How will on duty government personnel be affected?

Depends on who it is….the military?? Local, state or federal government??? I guess it depends on what they do in the first place. I can't imagine anyone "not" being affected.

15. How will off-duty personnel be affected?
    - Hopefully, some training has occurred by employers with their employees to cover responses expected of them during an emergency.
    - If communications are available, employers usually notify employees if they are/are not to report to work.
    - They may not be able to get to work due to hazards that prevent them from traveling.
    - Their workplace may be totally destroyed due to the incident.

16. Will personnel who live in the area be able to get to work?
    - Depends on the scenario…but probably NOT.

17. Will homes of personnel be affected by the hazard event(s)?
    - More than not.

18. Could the government operations close down for a significant period of time because of possible disaster losses?
    - Definitely

Vulnerability Questionnaire

1. What are the hazards in your community?
   No particular hazards are an issue in the vicinity of our operation

2. Do you know the frequency and magnitude of possible future hazard events?
   NO

3. Has the community ever been affected by any hazard events? If so, how?
   The CSRA has had numerous events that has impacted the area.

4. Are some parts of the community particularly vulnerable to damages, or is the entire area vulnerable?
   There are a number of areas in the CSRA that are particularly vulnerable to damage and flooding .

5. Are some buildings particularly vulnerable to damages? If so, how?
   Buildings in low lying areas and those in flood plains.

6. What are the uses and occupancies of the vulnerable buildings?

7. What will the expected damages do—threaten life safety? Ruin buildings? Destroy equipment and computers? Disrupt work?

8. Are your utilities vulnerable to damages? How?
   Depending on the severity of the disaster utilities could be in jeopardy to some degree.

9. What systems depend on either building functionality or utility functionality?
   Computer and communications

10. What could it cost to repair damages?
    Damage from a significant natural disaster could run into the millions of dollars depending on how significant and widespread the damage might be.

11. How long could it take?
    Widespread damage whether it is caused by downed trees from ice, flooding, or wind could takes weeks to repair. In the aftermath of Hurricane Hugo Charlotte, NC was without power and water in some areas for over two weeks. Charlotte is further away from the coast than the CSRA.

12. How will community services be affected?
    Community services in the past have been heavily impacted from disasters including floods, and storms and winter storms depending of the extent of the damage caused by the storm.

13. How will emergency response be affected?
    Emergency response could be significantly affected. If you consider the floods of the early 90s that resulted from two tropical storms and heavy rains. Roads were washed out, flooding blocked other roads and cave ins caused significant problems. Other events could have a similar impact.

14. How will on duty government personnel be affected?
    On duty government personnel could be significantly affected if the disaster is wide spread, significant, and disrupts utilities and limits travel.

15. How will off-duty personnel be affected?
    It is difficult to accurately say how off-duty personnel will be affected. It would depend on the actual disaster, the severity, and how wide spread the damage would be.

16. Will personnel who live in the area be able to get to work?
    In most situation personnel should be able to reach work if the roadways are clear and no other conditions exist that would impair travel.

17. Will homes of personnel be affected by the hazard event(s)?
    The impact would depend on the location and severity of the event. Severe ice storms, floods, impact from tropical events, and other disasters could have either sporadic or wide spread impact.

18. Could the government operations close down for a significant period of time because of possible disaster losses?
    Yes. Depending on the severity of the disaster

Date: *What kinds of natural hazards can affect you?*

1. List the hazards that may occur in your jurisdiction.

a. Research newspapers and other historical records. (Check GEMA & FEMA databases and library archives in.)
b. Review existing community plans and reports.
c. Talk to the experts in your community, state, or region.
d. Gather information on Internet Web sites.

In the hazard list below, put a check mark in the boxes on the left (Column I) beside all hazards that may occur in your community.

2. Focus on the most prevalent hazards in your community or state and your county.

a. Go to hazard Web sites.
b. Locate your community on the Web site map.
c. Determine whether you are in a high-risk area. Get more localized information if necessary.
d. In the hazard list below, put a check mark in the boxes on the right (Column II) beside all hazards that pose a significant threat to your community.

Use this space to record information you find for each of the hazards you will be researching. Attach additional pages as necessary.

	I	II
Avalanche	☐	☐
Coastal Erosion	☐	☐
Coastal Storm	☐	☐
Dam Failure	X	☐
Drought	X	☐
Earthquake	X	☐
Expansive Soils	X	☐
Extreme Heat	X	☐
Flood	X	☐
Hailstorm	X	☐
Hurricane	X	☐
Land Subsidence	☐	☐
Landslide	☐	☐
Severe Winter Storm	X	☐
Tornado	X	☐
Tsunami	☐	☐
Volcano	☐	☐
Wildfire	X	☐
Windstorm	☐	☐
Other_____	☐	☐
Other_____	☐	☐
Other_____	☐	☐
Other_____	☐	☐

Hazard or Event Description (Type of hazard, date of event, number of injuries, cost and types of damage, etc.)	**Source of Information**	**Map Available for This Hazard?**	**Scale of Map**

Vulnerability Questionnaire

1. What are the hazards in your community?
   All areas of the county that has natural fuels to burn.

2. Do you know the frequency and magnitude of possible future hazard events?
   The size, magnitude and location will determine the hazards on all wild land incidents.

3. Has the community ever been affected by any hazard events? If so, how?
   To date there has been no significant wild land fires in this area. Rural parts of the county has more potential for wild land hazards verses a downtown populated area.

4. Are some parts of the community particularly vulnerable to damages, or is the entire area vulnerable?
   Yes, Rural parts of the county are more vulnerable to wild land fires verses the downtown area.

5. Are some buildings particularly vulnerable to damages? If so, how?
   Yes, homes and buildings in the rural area are more vulnerable to fire damage . Where as homes and buildings downtown are not.

6. What are the uses and occupancies of the vulnerable buildings?
   Homes, businesses, storage, out buildings, schools, etc….

7. What will the expected damages do—threaten life safety? Ruin buildings? Destroy equipment and computers? Disrupt work?
   All of the above.

8. Are your utilities vulnerable to damages? How?
   Yes, Power lines- the larger/bigger the line the less vulnerable do to the size and hight. The smaller, are closer to the ground utilities are more vulnerable to damages. All utilities are vunerable.

9. What systems depend on either building functionality or utility functionality?
   N/A

10. What could it cost to repair damages?

Could be complete replacement cost._____

_____

11. How long could it take?
    Time all depends on size, weather, location, resources,etc…_____

    _____

12. How will community services be affected?
    Loss of jobs, buildings, resources, inconveniences. Overtime, exhausted personnel and resources._

    _____

13. How will emergency response be affected?
    Weather, location, size of incident, and number of resources_____

    _____

14. How will on duty government personnel be affected?
    Streached to the limit, stressed, exhausted, confussion,_____

    _____

15. How will off-duty personnel be affected?
    N/A_____

    _____

16. Will personnel who live in the area be able to get to work?
    Depends on size, location, weather, road closing_____

    _____

17. Will homes of personnel be affected by the hazard event(s)?
    Yes, _____

    _____

18. Could the government operations close down for a significant period of time because of possible disaster losses?
    No, The government operation location is at a low risk area in the county. Operations can go on._____

    _____

Vulnerability Questionnaire

1. What are the hazards in your community?
   (1) Drought (2) Flood (3) Hailstorm (4) Hurricane (5) Extreme Heat (6) Tornado (7) Dam Failure (8) Wildfire

2. Do you know the frequency and magnitude of possible future hazard events?
   I have listed the potential events in question 1 in the order of frequency, but the last three, tornados, dam failure and wildfire have the greatest potential for loss of life and property.

3. Has the community ever been affected by any hazard events? If so, how?
   In the 31 years that I have lived here Augusta has been affected by droughts, floods, hailstorms, and hurricanes. In the past ten years ironically droughts and floods have been a recurring problem. Hailstorms have occurred in the community occasionally and hurricanes and tropical depressions have twice flooded the area.

4. Are some parts of the community particularly vulnerable to damages, or is the entire area vulnerable?
   The entire community is vulnerable to drought, hailstorm, hurricane, extreme heat, tornado, and wildfire, but the low lying areas are particularly vulnerable to floods and dam failure.

5. Are some buildings particularly vulnerable to damages? If so, how?
   I do not have the technical knowledge to answer this question.

6. What are the uses and occupancies of the vulnerable buildings?
   I do not have the technical knowledge to answer this question.

7. What will the expected damages do—threaten life safety? Ruin buildings? Destroy equipment and computers? Disrupt work?
   I do not have the technical knowledge to answer this question.

8. Are your utilities vulnerable to damages? How?
   The only utility I have knowledge of is the water system. It is vulnerable to drought, hurricane and tornado. Extreme drought could lower the level in Thurmond Reservoir to a level below the turbine intakes creating the need to pump low quality water from the reservoir to supply the downstream. And of course the infrastructure for water distribution (water towers and buildings) are vulnerable to high winds.

9. What systems depend on either building functionality or utility functionality? See question 8.

10. What could it cost to repair damages?
    I do not have the technical knowledge to answer this question.

11. How long could it take?
    I do not have the technical knowledge to answer this question.

12. How will community services be affected?
    Water is essential to life. Citizens would have to retrieve it from any source available. It would become a priority item for emergency responders.

13. How will emergency response be affected? See question 12.

14. How will on duty government personnel be affected?
    I do not have the technical knowledge to answer this question.

15. How will off-duty personnel be affected?
    I do not have the technical knowledge to answer this question.

16. Will personnel who live in the area be able to get to work?
    Hurricanes, tornados, and floods might inhibit transportation.

17. Will homes of personnel be affected by the hazard event(s)?
    I do not have the technical knowledge to answer this question.

18. Could the government operations close down for a significant period of time because of possible disaster losses?
    It is possible.

Date: *What kinds of natural hazards can affect you?*

1. List the hazards that may occur in your jurisdiction.

a. Research newspapers and other historical records. (Check GEMA & FEMA databases and library archives in.)
b. Review existing community plans and reports.
c. Talk to the experts in your community, state, or region.
d. Gather information on Internet Web sites.

In the hazard list below, put a check mark in the boxes on the left (Column I) beside all hazards that may occur in your community.

2. Focus on the most prevalent hazards in your community or state and your county.

a. Go to hazard Web sites.
b. Locate your community on the Web site map.
c. Determine whether you are in a high-risk area. Get more localized information if necessary.
d. In the hazard list below, put a check mark in the boxes on the right (Column II) beside all hazards that pose a significant threat to your community.

	I	II
Avalanche	☐	☐
Coastal Erosion	☐	☐
Coastal Storm	☐	☐
Dam Failure	x☐	☐
Drought	x☐	☐
Earthquake	☐	☐
Expansive Soils	☐	☐
Extreme Heat	x☐	☐
Flood	x☐	☐
Hailstorm	x☐	☐
Hurricane	x☐	☐
Land Subsidence	☐	☐
Landslide	☐	☐
Severe Winter Storm	☐	☐
Tornado	x☐	☐
Tsunami	☐	☐
Volcano	☐	☐
Wildfire	x☐	☐
Windstorm	☐	☐
Other_____	x☐	☐
Other_____	☐	☐
Other_____	☐	☐

Use this space to record information you find for each of the hazards you will be researching. Attach additional pages as necessary.

Hazard or Event Description (Type of hazard, date of event, number of injuries, cost and types of damage, etc.)	**Source of Information**	**Map Available for This Hazard?**	**Scale of Map**
Dam Failure		**Yes**	**?**
Hurricane – Augusta is a destination for residents fleeing from the coast		**yes**	**?**
Huge amounts of sulfuric acid, nitric acid, caustic soda and chlorine are made in or transported through Augusta. Could exacerbate natural disaster.	**Personal knowledge**	**Ask Emergency Management**	**?**

Vulnerability Questionnaire

1. What are the hazards in your community?
   EMA to response

2. Do you know the frequency and magnitude of possible future hazard events?
   EMA to response

3. Has the community ever been affected by any hazard events? If so, how?
   EMA to response

4. Are some parts of the community particularly vulnerable to damages, or is the entire area vulnerable?
   EMA to response

5. Are some buildings particularly vulnerable to damages? If so, how?
   EMA & L&I to response

6. What are the uses and occupancies of the vulnerable buildings?
   EMA & L&I to response

7. What will the expected damages do—threaten life safety? Ruin buildings? Destroy equipment and computers? Disrupt work?
   EMA & L&I to response

8. Are your utilities vulnerable to damages? How?
   EMA & AUD and Private Utilities to response

9. What systems depend on either building functionality or utility functionality?
   EMA & AUD and Private Utilities to response

10. What could it cost to repair damages?
    EMA & AUD and Private Utilities to response

11. How long could it take?
    EMA & AUD and Private Utilities to response

12. How will community services be affected?
    Roads closure causing limited access to critical areas/facilities

13. How will emergency response be affected?
    Roads closure causing limited access to critical areas/facilities

14. How will on duty government personnel be affected?
    Limited mobility & communication (2)Roads closure causing limited access to critical areas/facilities

15. How will off-duty personnel be affected?
    Roads closure causing limited access to critical areas/facilities

16. Will personnel who live in the area be able to get to work?
    Non essential personnel most likely will stay at home

17. Will homes of personnel be affected by the hazard event(s)?
    Most likely if within hazard radius of impact

18. Could the government operations close down for a significant period of time because of possible disaster losses?
    Probably not for extended time

Date: *What kinds of natural hazards can affect you?*

1. List the hazards that may occur in your jurisdiction.

a. Research newspapers and other historical records. (Check GEMA & FEMA databases and library archives in.)
b. Review existing community plans and reports.
c. Talk to the experts in your community, state, or region.
d. Gather information on Internet Web sites.

In the hazard list below, put a check mark in the boxes on the left (Column I) beside all hazards that may occur in your community.

2. Focus on the most prevalent hazards in your community or state and your county.

a. Go to hazard Web sites.
b. Locate your community on the Web site map.
c. Determine whether you are in a high-risk area. Get more localized information if necessary.
d. In the hazard list below, put a check mark in the boxes on the right (Column II) beside all hazards that pose a significant threat to your community.

Use this space to record information you find for each of the hazards you will be researching. Attach additional pages as necessary.

	I	II
Avalanche	☐	☐
Coastal Erosion	☐	☐
Coastal Storm	☐	☐
Dam Failure	☐	☒
Drought	☐	☐
Earthquake	☐	☐
Expansive Soils	☐	☐
Extreme Heat	☐	☐
Flood	☐	☒
Hailstorm	☐	☐
Hurricane	☐	☐
Land Subsidence	☐	☐
Landslide	☐	☐
Severe Winter Storm	☒	☐
Tornado	☒	☐
Tsunami	☐	☐
Volcano	☐	☐
Wildfire	☐	☐
Windstorm	☐	☐
Other___Levee ____	☐	☒
Other_____	☐	☐
Other_____	☐	☐
Other_____	☐	☐

Hazard or Event Description (Type of hazard, date of event, number of injuries, cost and types of damage, etc.)	**Source of Information**	**Map Available for This Hazard?**	**Scale of Map**
No dam failure incident so far			
1990 Floods			
Probability of Levee failure is very low			

Vulnerability Questionnaire

1. What are the hazards in your community?
   EMA to response

2. Do you know the frequency and magnitude of possible future hazard events?
   EMA to response

3. Has the community ever been affected by any hazard events? If so, how?
   EMA to response

4. Are some parts of the community particularly vulnerable to damages, or is the entire area vulnerable?
   EMA to response

5. Are some buildings particularly vulnerable to damages? If so, how?
   EMA & L&I to response

6. What are the uses and occupancies of the vulnerable buildings?
   EMA & L&I to response

7. What will the expected damages do—threaten life safety? Ruin buildings? Destroy equipment and computers? Disrupt work?
   EMA & L&I to response

8. Are your utilities vulnerable to damages? How?
   EMA & AUD and Private Utilities to response

9. What systems depend on either building functionality or utility functionality?
   EMA & AUD and Private Utilities to response

10. What could it cost to repair damages?
    EMA & AUD and Private Utilities to response

11. How long could it take?
    EMA & AUD and Private Utilities to response

12. How will community services be affected?
    Roads closure causing limited access to critical areas/facilities

13. How will emergency response be affected?
    Roads closure causing limited access to critical areas/facilities

14. How will on duty government personnel be affected?
    Limited mobility & communication (2)Roads closure causing limited access to critical areas/facilities

15. How will off-duty personnel be affected?
    Roads closure causing limited access to critical areas/facilities

16. Will personnel who live in the area be able to get to work?
    Non essential personnel most likely will stay at home

17. Will homes of personnel be affected by the hazard event(s)?
    Most likely if within hazard radius of impact

18. Could the government operations close down for a significant period of time because of possible disaster losses?
    Probably not for extended time

Date: *What kinds of natural hazards can affect you?*

1. List the hazards that may occur in your jurisdiction.

a. Research newspapers and other historical records. (Check GEMA & FEMA databases and library archives in.)
b. Review existing community plans and reports.
c. Talk to the experts in your community, state, or region.
d. Gather information on Internet Web sites.

In the hazard list below, put a check mark in the boxes on the left (Column I) beside all hazards that may occur in your community.

2. Focus on the most prevalent hazards in your community or state and your county.

a. Go to hazard Web sites.
b. Locate your community on the Web site map.
c. Determine whether you are in a high-risk area. Get more localized information if necessary.
d. In the hazard list below, put a check mark in the boxes on the right (Column II) beside all hazards that pose a significant threat to your community.

Use this space to record information you find for each of the hazards you will be researching. Attach additional pages as necessary.

	I	II
Avalanche	☐	☐
Coastal Erosion	☐	☐
Coastal Storm	☐	☐
Dam Failure	☐	☒
Drought	☐	☐
Earthquake	☐	☐
Expansive Soils	☐	☐
Extreme Heat	☐	☐
Flood	☐	☒
Hailstorm	☐	☐
Hurricane	☐	☐
Land Subsidence	☐	☐
Landslide	☐	☐
Severe Winter Storm	☒	☐
Tornado	☒	☐
Tsunami	☐	☐
Volcano	☐	☐
Wildfire	☐	☐
Windstorm	☐	☐
Other___Levee ____	☐	☒
Other_____	☐	☐
Other_____	☐	☐
Other_____	☐	☐

Hazard or Event Description (Type of hazard, date of event, number of injuries, cost and types of damage, etc.)	**Source of Information**	**Map Available for This Hazard?**	**Scale of Map**
No dam failure incident so far			
1990 Floods			
Probability of Levee failure is very low			

TOM WIEDMEIER twiedmeier@augustaga.gov
AUGUSTA UTILITIES (706) 312-4160

Worksheet 3 **Identify the Hazards**

Date: *What kinds of natural hazards can affect you?*

1. List the hazards that may occur in your jurisdiction.

a. Research newspapers and other historical records. (Check GEMA & FEMA databases and library archives in.)
b. Review existing community plans and reports.
c. Talk to the experts in your community, state, or region.
d. Gather information on Internet Web sites.

In the hazard list below, put a check mark in the boxes on the left (Column I) beside all hazards that may occur in your community.

2. Focus on the most prevalent hazards in your community or state and your county.

a. Go to hazard Web sites.
b. Locate your community on the Web site map.
c. Determine whether you are in a high-risk area. Get more localized information if necessary.
d. In the hazard list below, put a check mark in the boxes on the right (Column II) beside all hazards that pose a significant threat to your community.

Use this space to record information you find for each of the hazards you will be researching. Attach additional pages as necessary.

	I	II
Avalanche	☐	☐
Coastal Erosion	☐	☐
Coastal Storm	☐	☐
Dam Failure	☐	☑
Drought	☐	☑
Earthquake	☑	☐
Expansive Soils	☐	☐
Extreme Heat	☑	☐
Flood	☐	☑
Hailstorm	☑	☐
Hurricane	☐	☑
Land Subsidence	☐	☐
Landslide	☐	☐
Severe Winter Storm	☐	☑
Tornado	☐	☑
Tsunami	☐	☐
Volcano	☐	☐
Wildfire	☐	☐
Windstorm	☐	☑
Other_____	☐	☐
Other_____	☐	☐
Other_____	☐	☐
Other_____	☐	☐

Hazard or Event Description (Type of hazard, date of event, number of injuries, cost and types of damage, etc.)	**Source of Information**	**Map Available for This Hazard?**	**Scale of Map**

Vulnerability Questionnaire

1. What are the hazards in your community?
   Dam failure, drought, earthquake, extreme heat, flood, hailstorm, hurricane, winter storm, tornado, windstorm

2. Do you know the frequency and magnitude of possible future hazard events?
   No

3. Has the community ever been affected by any hazard events? If so, how?
   Flood (1990), impacted WWTP and numerous lift stations
   Windstorm (2011) – Knocked out power to water supply wells

4. Are some parts of the community particularly vulnerable to damages, or is the entire area vulnerable?
   Floods could impact canal and wastewater facilities
   Loss of power (windstorm, hurricane, winter storm) could affect facilities not equipped with emergency generators.

5. Are some buildings particularly vulnerable to damages? If so, how?
   Treatment plants are particularly vulnerable, although all have emergency power generation (water & wastewater treatment)

6. What are the uses and occupancies of the vulnerable buildings?
   Water and wastewater treatment,

7. What will the expected damages do—threaten life safety? Ruin buildings? Destroy equipment and computers? Disrupt work?
   Life safety issues with treatment plants

8. Are your utilities vulnerable to damages? How?
   Lift stations and water and sewer line crossings at streams are particularly vulnerable during floods.

9. What systems depend on either building functionality or utility functionality?
   Water treatment and delivery
   Wastewater collection and treatment

10. What could it cost to repair damages?
    unknown

11. How long could it take?
Depending on damage, could be weeks or months

12. How will community services be affected?
Disruption of water supply, human health issues and firefighting implications

13. How will emergency response be affected?
See #12

14. How will on duty government personnel be affected?
Possible problems in getting staff in to relieve those on duty. Concerns about welfare of family and home

15. How will off-duty personnel be affected?
May have trouble getting to work. May need to attend to their homes and families

16. Will personnel who live in the area be able to get to work?
Probably not

17. Will homes of personnel be affected by the hazard event(s)?
Probably

18. Could the government operations close down for a significant period of time because of possible disaster losses?
No

Vulnerability Questionnaire

1. What are the hazards in your community?
   Chemical/Manufacturing Plants within several miles radius of institution

2. Do you know the frequency and magnitude of possible future hazard events?
   No

3. Has the community ever been affected by any hazard events? If so, how?
   No.

4. Are some parts of the community particularly vulnerable to damages, or is the entire area vulnerable?
   No.

5. Are some buildings particularly vulnerable to damages? If so, how?
   N/A

6. What are the uses and occupancies of the vulnerable buildings?
   N/A

7. What will the expected damages do—threaten life safety? Ruin buildings? Destroy equipment and computers? Disrupt work?
   N/A

8. Are your utilities vulnerable to damages? How?
   N/A

9. What systems depend on either building functionality or utility functionality?
   N/A

10. What could it cost to repair damages?
    N/A

11. How long could it take?
    N/A

12. How will community services be affected?
    N/A

13. How will emergency response be affected?
    N/A

14. How will on duty government personnel be affected?
    N/A

15. How will off-duty personnel be affected?
    N/A

16. Will personnel who live in the area be able to get to work?
    N/A

17. Will homes of personnel be affected by the hazard event(s)?
    N/A

18. Could the government operations close down for a significant period of time because of possible disaster losses?
    N/A

Date: *What kinds of natural hazards can affect you?*

1. List the hazards that may occur in your jurisdiction.

a. Research newspapers and other historical records. (Check GEMA & FEMA databases and library archives in.)
b. Review existing community plans and reports.
c. Talk to the experts in your community, state, or region.
d. Gather information on Internet Web sites.

In the hazard list below, put a check mark in the boxes on the left (Column I) beside all hazards that may occur in your community.

2. Focus on the most prevalent hazards in your community or state and your county.

a. Go to hazard Web sites.
b. Locate your community on the Web site map.
c. Determine whether you are in a high-risk area. Get more localized information if necessary.
d. In the hazard list below, put a check mark in the boxes on the right (Column II) beside all hazards that pose a significant threat to your community.

Use this space to record information you find for each of the hazards you will be researching. Attach additional pages as necessary.

	I	II
Avalanche	☐	☐
Coastal Erosion	☐	☐
Coastal Storm	☐	☐
Dam Failure	☐	☐
Drought	☐	☐
Earthquake	☐	☐
Expansive Soils	☐	☐
Extreme Heat	☐	☐
Flood	☐	☐
Hailstorm	☐	☐
Hurricane	☐	☐
Land Subsidence	☐	☐
Landslide	☐	☐
Severe Winter Storm	☐	☐
Tornado	☐	☐
Tsunami	☐	☐
Volcano	☐	☐
Wildfire	☐	☐
Windstorm	☐	☐
Other N/A	☒	☒
Other	☐	☐
Other	☐	☐
Other	☐	☐

Hazard or Event Description (Type of hazard, date of event, number of injuries, cost and types of damage, etc.)	**Source of Information**	**Map Available for This Hazard?**	**Scale of Map**
None			

HVA Summary

LIVEPROCESS

Section: Natural

Hazard	Likelihood	Impact: Human	Impact: Property	Impact: Business	Preparedness: Preparedness	Preparedness: Internal	Preparedness: External	Risk
Dam break/flood (Custom Hazard)	Low	High	High	High	Medium	Low	Low	31.5 %
Flood, External	Medium	Medium	High	Medium	Medium	Low	Medium	51.9 %
HazMat	Medium	High	Medium	Medium	High	High	Medium	40.7 %
Hurricane	Low	Medium	Medium	Medium	Medium	Medium	Medium	22.2 %
Severe Weather	High	Medium	Medium	Medium	High	Medium	Medium	61.1 %
Tornado	Medium	High	High	High	High	Low	Medium	55.6 %

Section: Infrastructure

Hazard	Likelihood	Impact: Human	Impact: Property	Impact: Business	Preparedness: Preparedness	Preparedness: Internal	Preparedness: External	Risk
Communications Failure	Medium	Low	Medium	Medium	High	Medium	Medium	37.0 %
Elevator Failure	Medium	High	Low	Low	High	High	High	29.6 %
Fire Alarm Failure	Medium	Low	Low	Low	High	High	High	22.2 %
Fire, Internal	Low	Low	High	Low	High	High	High	14.8 %
Flood, Internal	Low	Low	Medium	Medium	High	High	High	14.8 %
Fuel Shortage	Low	Low	Low	Medium	Medium	Medium	High	16.7 %
Hazardous Materials Spill	High	Medium	Medium	Low	High	High	High	44.4 %
Helicopter Crash (Custom Hazard)	Low	Low	Medium	Low	High	High	Medium	14.8 %
HVAC Failure	Low	Low	Low	Low	High	High	High	11.1 %
Information Systems Failure	Medium	Low	Medium	Low	High	High	High	25.9 %
Medical Gas Failure	Low	Low	Low	Low	Medium	High	High	13.0 %
Medical Transportation Failure	Low	Medium	Low	Medium	High	High	High	14.8 %
Medical Vacuum Failure	Low	Low	Medium	Low	Medium	High	High	14.8 %
PBX Failure	Low	Low	Low	Low	High	High	High	11.1 %
Power Failure	High	Low	High	Medium	Medium	Medium	Medium	66.7 %
Sewer Failure	Low	Low	Medium	Medium	High	High	High	14.8 %
Supplies Shortage	Low	Low	Low	Medium	Medium	High	High	14.8 %
Water Supply Failure	Low	Low	High	High	Medium	Medium	Low	25.9 %
Work Stoppage	Low	Low	Low	Low	Medium	Medium	High	14.8 %

Section: Security

Hazard	Likelihood	Impact: Human	Impact: Property	Impact: Business	Preparedness: Preparedness	Preparedness: Internal	Preparedness: External	Risk
Biological Attack	Low	High	Low	High	Medium	High	High	20.4 %
Bomb Threat	Low	Low	High	Low	Medium	High	High	16.7 %
Chemical Attack	Low	Medium	Low	High	High	High	High	16.7 %
Cyber Attack	Low	Low	Low	Low	High	High	High	11.1 %
Explosives Attack	Low	Medium	High	Medium	Medium	High	High	20.4 %
Hostage/Barricade	Medium	Medium	Low	Medium	Medium	High	High	33.3 %
Infant/Child Abduction	Medium	Low	Low	Low	High	High	High	22.2 %

HVA Summary

LIVEPROCESS

Section: Natural

Hazard	Likelihood	Impact			Preparedness			Risk
		Human	Property	Business	Preparedness	Internal	External	
Pandemic Flu (Custom Hazard)	Medium	Medium	Medium	Medium	Medium	Medium	Low	48.1 %

Section: Security

Hazard	Likelihood	Impact			Preparedness			Risk
		Human	Property	Business	Preparedness	Internal	External	
Radiological Attack	Low	Medium	High	Medium	Medium	High	High	20.4 %
Terrorism Threat	Low	Low	Low	Low	Medium	High	High	13.0 %

Section: Mass Casualty

Hazard	Likelihood	Impact			Preparedness			Risk
		Human	Property	Business	Preparedness	Internal	External	
Biological Disease Outbreak	Medium	Medium	Low	Medium	Medium	Medium	Medium	40.7 %
Evacuation, Partial/Full	Low	Low	Low	Low	Medium	High	High	13.0 %
Mass Casualty Event , HazMat	High	High	Medium	Low	Medium	High	Low	66.7 %
Mass Casualty Event, Trauma	Medium	Medium	Medium	Low	High	High	High	30.0 %
Test - Suicidal Squirrels (Custom Hazard)	High	High	High	High	Low	Medium	Low	94.4 %

Vulnerability Questionnaire

1. What are the hazards in your community?
   floods, tornado, chemical hazards

2. Do you know the frequency and magnitude of possible future hazard events?
   Not really, but tornados are coming more frequently across the south east

3. Has the community ever been affected by any hazard events? If so, how?
   Yes a flood created problems, closing roads, businesses, putting the community at risk

4. Are some parts of the community particularly vulnerable to damages, or is the entire area vulnerable?
   Some parts are more vulnerable to floods

5. Are some buildings particularly vulnerable to damages? If so, how?
   University Hospital seems to be vulnerable during floods, flash floods, Court House, 911 center

6. What are the uses and occupancies of the vulnerable buildings?
   Health care, Judicial, 911 Dispatch

7. What will the expected damages do—threaten life safety? Ruin buildings? Destroy equipment and computers? Disrupt work?
   all of the above

8. Are your utilities vulnerable to damages? How?
   Yes. Power or electrical can be out for days with lines down or trees on lines.

9. What systems depend on either building functionality or utility functionality?
   911 dispatch

10. What could it cost to repair damages?
    Who knows? Probably millions of dollars

11. How long could it take?
Years.

12. How will community services be affected?
Tremendously, especially, public safety, public works

13. How will emergency response be affected?
It will slow response times, units may be tied up waiting on power company, every unit will be out on calls; dispatch will be extremely busy

14. How will on duty government personnel be affected?
They will be in harms way, under stress

15. How will off-duty personnel be affected?
Could be called in

16. Will personnel who live in the area be able to get to work?
Some will some may not depends on hazard, location and their vehicle

17. Will homes of personnel be affected by the hazard event(s)?
Yes definitely

18. Could the government operations close down for a significant period of time because of possible disaster losses?
I think so, it is hard to operate without power, phones, computers

Date: *What kinds of natural hazards can affect you?*

1. List the hazards that may occur in your jurisdiction.

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Coastal Erosion	☐	☐
Coastal Storm	☐	☐
Dam Failure	☐	☐
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Expansive Soils	☐	☐
Extreme Heat	☑	☑
Flood	☑	☑
Hailstorm	☑	☐
Hurricane	☐	☐
Land Subsidence	☐	☐
Landslide	☐	☐
Severe Winter Storm	☐	☐
Tornado	☑	☑
Tsunami	☐	☐
Volcano	☐	☐
Wildfire	☑	☑
Windstorm	☐	☐
Other_____	☐	☐
Other_____	☐	☐
Other_____	☐	☐
Other_____	☐	☐

Hazard or Event Description (Type of hazard, date of event, number of injuries, cost and types of damage, etc.)	**Source of Information**	**Map Available for This Hazard?**	**Scale of Map**

RESPONSE FROM CHIEF PATRICK CLAYTON DEPT. OF SCHOOL SAFETY & SECURITY

fromClayton, Patrick ClaytPa@boe.richmond.k12.ga.us
toTerri Turner <tturner@augustaga.gov>

cc"ranko_pudar@pudarconsulting.com" <ranko_pudar@pudarconsulting.com>,
"razorback@plansandmorellp.com" <razorback@plansandmorellp.com>,
"razorback1@plansandmorellp.com" <razorback1@plansandmorellp.com>,
"Brown, Ted" <BrownTe@boe.richmond.k12.ga.us>,
"Roundtree, Richard" <RoundRi@boe.richmond.k12.ga.us>

dateMon, Jun 20, 2011 at 3:13 PM
subjectRE: Hazard Mitigation Plan - Data Collection Resource Needs
mailed-byboe.richmond.k12.ga.us

Terri,

I took over as chief over 1 year ago. We have 59 different locations, but I will have the Communications Officer scan this into the computer or will send you another computer friendly list in the morning. We have approximately 32,000 students and about 5000 employees. We have Site Safety Plans for each individual school and a Comprehensive Emergency Operations Plan which still has to be approved by the Board. I will forward that plan to you under separate cover. We have approximately 200 buses to provide transportation to school as well as related activities.

Thanks,

Patrick Chief Patrick Clayton
Department of School Safety and Security
Richmond County School System(706) 826-1133

"Learning Today...Leading Tomorrow"The Mission of the Richmond County School System is to educate students to become lifelong learners and productive citizens.

RESPONSE FROM DAVID BROWN

fromBrown, David (Augusta, GA) David.Brown1@va.gov
toTerri Turner <tturner@augustaga.gov>,
susanj@uh.org,
kewells@georgiahealth.edu,
brad.thompson@hcahealthcare.com,
Bill.Welsh@triadhospitals.com

ccranko_pudar@pudarconsulting.com,
razorback@plansandmorellp.com,
razorback1@plansandmorellp.com

dateTue, Jun 21, 2011 at 2:10 PM
subjectRE: Hazard Mitigation Plan - Data Collection Resource Needs
mailed-byva.gov

hide details 2:10 PM (3 hours ago)

Terri: I am just getting this data collection request and have a couple of concerns. First, I cannot release documents without going through a process of local approval to include our Privacy Officer, Senior Management and in some cases legal folks. I do feel fairly comfortable providing a copy of my hazard vulnerability analysis since this is something the Joint Commission requires hospitals to collaborate with our community partners on. The HVA answers 19 a and b. I keep a separate list of disaster resource agreements such as the Georgia Hospital Association's Mutual Aid Compact and memorandums of agreement for various goods, commodities and services (to include blanket purchase agreements for every conceivable product or service). My EOP contains propriety information that I would need to scrub. Equipment and communications resources are also something I'd need to get approval to release.

RESPONSE FROM LORI M.VIDETTO

From: Lori M. Videtto
Sent: Friday, June 24, 2011 11:28 AM
To: Bill Shanahan; Terri Turner

Subject: RE: Hazard Mitigation Plan Update - Data Collection Resource Needs
Please see below. If there is anything else that is needed please let me know.

Mike Johnson, Solid Waste

a. Solid Waste Management

i. Waste Pick-up Providers – Providers under contract with Augusta include Advanced Disposal, Augusta Disposal and Recycling, and Inland Services Corp. There are other small companies which are subcontractors to these companies. They include Berry Smith Sanitation, Coleman Disposal, A-1 Sanitation, and Metropolitan Waste.

ii. Transfer Stations, including Greenboxes – Augusta does not operate transfer stations in the area. Augusta does not provide "greenboxes". There are some privately-owned recycling stations throughout the county; however those are typically for newspapers and aluminum cans.

iii. Local Landfill or Transported to facility outside the County – Trash that is picked up by the contracted service providers is disposed of exclusively at the Augusta Landfill. We do not transport trash to facilities outside of the County.

Lori Videtto
Deputy Director
Environmental Services Dept
706-592-3206 direct
706-592-3255 fax
706-993-7004 cell

RESPONSE FROM SCOTT HYATT USACE

fromHyatt, Scott M SAS Scott.M.Hyatt2@usace.army.mil
toTerri Turner <tturner@augustaga.gov>

ccranko_pudar@pudarconsulting.com,
razorback@plansandmorellp.com,
razorback1@plansandmorellp.com

dateTue, Jun 21, 2011 at 2:04 PM
subjectRE: Hazard Mitigation Plan Update - HAZARD IDENTIFICATION QUESTIONNAIRE (UNCLASSIFIED)
mailed-byusace.army.mil

hide details 2:04 PM (3 hours ago)

Classification: UNCLASSIFIED
Caveats: NONE

Terri,
Answers are attached, though most of mine are very brief since most likely Corps facilities would be the source of the hazard rather than on the receiving end.
Some additional information: Inundation maps exist for two scenarios involving a Thurmond Dam failure, one for a total failure (e.g from an earthquake), and one from a spillway failure (e.g. major flood event). These maps extend to the vicinity of New Savannah Bluff Lock and Dam, but are being expanded down to Waynesboro. I believe an office in Augusta-Richmond County already has the existing maps, it would have been related to the certification of the levee, but I do not know who. If we can't locate who has them you would need to generate a request to our District office in Savannah to get them. I can assist with that. The maps are available under a "For Official Use Only" caveat, so they could not be released to the public with the general plan.

Let me know if you need more information,

Scott Hyatt
Operations Project Manager
J Strom Thurmond Project
(864)333-1147
(800)533-3478 x1101
www.corpslakes.us/Thurmond

RESPONSE FROM SUSAN JAMES – UNIVERSITY HOSPITAL

fromSusan James SusanJ@uh.org
to"ranko_pudar@pudarconsulting.com"@uh.org,
"razorback@plansandmorellp.com"@uh.org,
"razorback1@plansandmorellp.com"@uh.org

dateTue, Jun 21, 2011 at 12:08 PM
subjectPolicies
mailed-byuh.org

hide details 12:08 PM (5 hours ago)

Main Campus address: University Hospital
1350 Walton Way
Augusta GA 30901

We currently have 373 adult beds. This does not include private rooms that used to be semi-private, recovery rooms, holding areas, ED, i.e., that could be utilized/expanded for surge capacity. It does not include neonates or nurseries. It is adult-ready-and-staffed-beds.

We are licensed for 581 beds.

Our MOU is noted in the G-12 EOP. There is a signed agreement with all hospitals in the State of Georgia. Our only other MOU is with the National Disaster Medical System (NDMS). We would accept victims transferred into the Augusta area from an affected region or wartime need.

Our EOP and supporting plans had to meet the Joint Commission requirements. I say this because the "flow" was disrupted by the requirements. It's my goal to revamp this year. But like all things, once you get the plan(s) revised and out to all the departments, it's time to update again.

We have an Evans Campus but that area does not house in-patients with the exception of a nursing home facility -- which comes under policies but they have to meet other guidelines required by the State. We are a resource for each other. We have another nursing home facility in West Augusta. They too meet the same requirements as the Evans Campus nursing home.

Susan James, LPN, CHSP, CHEC
Emergency Management Coordinator
University Hospital
1350 Walton Way
Augusta Georgia 30901
Phone - 706.774.8847
Fax - 706.774.5240
email -- susanj@uh.org

Thank you, Lord, that You provide strength to bear whatever the day may bring.

Vulnerability Questionnaire

1. What are the hazards in your community?
   Home fires, wildfires, tornadoes, floods, winter storms, high winds from hurricanes/tropical storms, high winds from severe weather, nuclear disaster, aviation disaster,

2. Do you know the frequency and magnitude of possible future hazard events?
   Home fires occur almost daily. Drought conditions cause an increased risk for wildfires

3. Has the community ever been affected by any hazard events? If so, how?
   We have responded over 90 home fires in Richmond County so far in FY2011. High winds from severe weather have caused extended power outages and homes damaged from trees falling. Augusta saw major flooding in 1990 as a result of Tropical Storm Marco and has since seen some other flood events; effects include flooded roadways and destroyed buildings and homes, displacement of families due to flooding.

4. Are some parts of the community particularly vulnerable to damages, or is the entire area vulnerable?
   The entire county can be affected by the hazards listed under question 1.

5. Are some buildings particularly vulnerable to damages? If so, how?
   Buildings may be affected by power outage, destroyed by winds/trees, or flooded

6. What are the uses and occupancies of the vulnerable buildings?
   We work with residential buildings. Families who have lost their homes or been forced to leave due to a natural disaster. Our office building on Ellis Street may also be affected.

7. What will the expected damages do—threaten life safety? Ruin buildings? Destroy equipment and computers? Disrupt work?
   If our office was affected we would not be able to operate in that facility. Our notification of assistance request comes through the phone service so we may be delayed in receiving calls. Computer equipment and supplies will be damaged or destroyed.
   Families who are affected may lose their home or their home may have extensive damage. This would threaten quality of life and permanent housing for themselves and their family.

8. Are your utilities vulnerable to damages? How?
   Yes. Power outage from trees on the power lines.

9. What systems depend on either building functionality or utility functionality?
   Notification for requests for response to families affected by disasters; dispatchers and families call our office from 9am-5pm and after 5pm they call our office and go through a series of menu prompts to reach our national dispatch system. Many of our supplies to open a shelter or relief center are in our office. Classes for the community on CPR, First Aid, etc are held at our office.

10. What could it cost to repair damages?
    Unknown.

11. How long could it take?
    Unsure. Depending on extent of damage and power outage.

12. How will community services be affected?
    Community education classes (CPR, First Aid, AED, etc) being held at our office would be postponed until the facility could be used again or another was identified.

13. How will emergency response be affected?
    Services to families affected would be delayed due to a delay in notification.

14. How will on duty government personnel be affected?
    Increased wait time for a return call from the American Red Cross

15. How will off-duty personnel be affected?
    None unless part of a family affected.

16. Will personnel who live in the area be able to get to work?
    May have difficulty depending on the disaster and the affect it has on the area around our office.

17. Will homes of personnel be affected by the hazard event(s)?
    Very likely. Many volunteers and staff line in Richmond County or surrounding counties.

18. Could the government operations close down for a significant period of time because of possible disaster losses?
    Unsure

Date: *What kinds of natural hazards can affect you?*

1. List the hazards that may occur in your jurisdiction.

a. Research newspapers and other historical records. (Check GEMA & FEMA databases and library archives in.)
b. Review existing community plans and reports.
c. Talk to the experts in your community, state, or region.
d. Gather information on Internet Web sites.

In the hazard list below, put a check mark in the boxes on the left (Column I) beside all hazards that may occur in your community.

2. Focus on the most prevalent hazards in your community or state and your county.

a. Go to hazard Web sites.
b. Locate your community on the Web site map.
c. Determine whether you are in a high-risk area. Get more localized information if necessary.
d. In the hazard list below, put a check mark in the boxes on the right (Column II) beside all hazards that pose a significant threat to your community.

	I	II
Avalanche	☐	☐
Coastal Erosion	☐	☐
Coastal Storm	☐	☐
Dam Failure	☒	☒
Drought	☐	☐
Earthquake	☐	☐
Expansive Soils	☐	☐
Extreme Heat	☒	☒
Flood	☒	☒
Hailstorm	☒	☐
Hurricane	☐	☐
Land Subsidence	☐	☐
Landslide	☐	☐
Severe Winter Storm	☐	☐
Tornado	☒	☒
Tsunami	☐	☐
Volcano	☐	☐
Wildfire	☐	☐
Windstorm	☐	☐
Other_____	☐	☐
Other_____	☐	☐
Other_____	☐	☐
Other_____	☐	☐

Use this space to record information you find for each of the hazards you will be researching. Attach additional pages as necessary.

Hazard or Event Description (Type of hazard, date of event, number of injuries, cost and types of damage, etc.)	**Source of Information**	**Map Available for This Hazard?**	**Scale of Map**
Dam Failure: Clark Hill Dam	**Richmond County GIS map**	**Yes: through GIS**	
Extreme Heat	**Meteorological history reports of summer temperatures in Augusta, GA**	**No**	
Flood: • **major flood event 1990**	**Richmond County GIS Flood maps**	**Yes**	
Hailstorm from severe weather event	**Weather reports from weather.com**	**No**	
Tornado • **2009 (19 homes with major damage or destroyed)**	**News Reports, Internal Red Cross reports**	**Unsure**	

	Augusta Richmond County EMA
SURVEY	
Date: 6/20/2011	
CHIEF HOWARD WILLIS, DIRECTOR **EMERGENCY MANAGEMENT**	
706-821-2855 **Have a wonderful day!**	

Vulnerability Questionnaire

1. What are the hazards in your community?
   1) Strong Thunder Storm with Wind, Hail, Lighting
   2) Ice Storms and Snow 3) Chemical Spill or Release 4) Flooding
   5) Drough 6) Fire
2. Do you know the frequency and magnitude of possible future hazard events?
   Annually
3. Has the community ever been affected by any hazard events? If so, how?
   Yes, All in the Above
4. Are some parts of the community particularly vulnerable to damages, or is the entire area vulnerable?
   Entire Area
5. Are some buildings particularly vulnerable to damages? If so, how?
   Downtown with Flooding and the East Augusta Area.
6. What are the uses and occupancies of the vulnerable buildings?
   Business and Homes
7. What will the expected damages do—threaten life safety? Ruin buildings? Destroy equipment and computers? Disrupt work?
   All of the Above
8. Are your utilities vulnerable to damages? How?
   Yes, Down Power lines Also water and Sewage pump stations may flood on Canal
9. What systems depend on either building functionality or utility functionality?
   911 Center, Law Enforcement Center, Court House could flood
10. What could it cost to repair damages?
    Millions of dollars

11. How long could it take?
Months or years

12. How will community services be affected?
Very heavely for entire City

13. How will emergency response be affected?
Could slow response time

14. How will on duty government personnel be affected?
Man Power shortage and Overtime

15. How will off-duty personnel be affected?
Not be able to get to work

16. Will personnel who live in the area be able to get to work?
No all people

17. Will homes of personnel be affected by the hazard event(s)?
Yes, Relocation of personnel

18. Could the government operations close down for a significant period of time because of possible disaster losses?
No, We would need help from outside of the city

Date: *What kinds of natural hazards can affect you?*

1. List the hazards that may occur in your jurisdiction.

a. Research newspapers and other historical records. (Check GEMA & FEMA databases and library archives in.)
b. Review existing community plans and reports.
c. Talk to the experts in your community, state, or region.
d. Gather information on Internet Web sites.

In the hazard list below, put a check mark in the boxes on the left (Column I) beside all hazards that may occur in your community.

2. Focus on the most prevalent hazards in your community or state and your county.

a. Go to hazard Web sites.
b. Locate your community on the Web site map.
c. Determine whether you are in a high-risk area. Get more localized information if necessary.
d. In the hazard list below, put a check mark in the boxes on the right (Column II) beside all hazards that pose a significant threat to your community.

Use this space to record information you find for each of the hazards you will be researching. Attach additional pages as necessary.

	I	II
Avalanche	☐	☐
Coastal Erosion	☐	☐
Coastal Storm	☑	☐
Dam Failure	☑	☐
Drought	☑	☐
Earthquake	☐	☐
Expansive Soils	☐	☐
Extreme Heat	☑	☐
Flood	☑	☐
Hailstorm	☑	☐
Hurricane	☐	☐
Land Subsidence	☐	☐
Landslide	☐	☐
Severe Winter Storm	☑	☐
Tornado	☑	☐
Tsunami	☐	☐
Volcano	☐	☐
Wildfire	☑	☐
Windstorm	☑	☐
Other Chemical	☑	☐
Other Accident	☐	☐
Other_____	☐	☐
Other_____	☐	☐

Hazard or Event Description (Type of hazard, date of event, number of injuries, cost and types of damage, etc.)	Source of Information	Map Available for This Hazard?	Scale of Map
Flooding	Local Paper FMA		
Tornado	"		
Winter Storm	"		
Wild Fire	"		
Chemical Accident	"		

Vulnerability Questionnaire

1. What are the hazards in your community?
   Storms, Fire, Snow/Ice, Drought, Extreme Heat

2. Do you know the frequency and magnitude of possible future hazard events?
   No

3. Has the community ever been affected by any hazard events? If so, how?
   No

4. Are some parts of the community particularly vulnerable to damages, or is the entire area vulnerable?
   Entire

5. Are some buildings particularly vulnerable to damages? If so, how?
   No

6. What are the uses and occupancies of the vulnerable buildings?
   No

7. What will the expected damages do—threaten life safety? Ruin buildings? Destroy equipment and computers? Disrupt work?
   All of the above...

8. Are your utilities vulnerable to damages? How?
   Water - Power outage - & possible terrorism, Chemical Spills - Water & Sewerage

9. What systems depend on either building functionality or utility functionality?
   Water - Sewer

10. What could it cost to repair damages?
    ↑ 20,000 -

HMPC HAZARD IDENTIFICATION SUBCOMMITTEE RANKING SURVEYS

Natural Hazards (Rank from 1-6):

Drought/Extreme Heat	___3__
Earthquake	___6__
Flooding	___2__
Tornado/Wind Storm / Hail / Lightening	__1___
Wildfire	___5__
Winter Storm	___4__

Man-Made/Technological Hazards (Rank from 1-4):

Chemical Leak/Spill; Chemical Release (Airborne)	__1___
Dam Failure	__3___
Nuclear Plant Incident	___4__
Terrorism	___2__

___George Patty_____ 7/8/11
Name of person completing ranking Date

Natural Hazards (Rank from 1-6):

Drought/Extreme Heat	__3___
Earthquake	__2___
Flooding	__1___
Tornado/Wind Storm / Hail / Lightening	__4___
Wildfire	__6___
Winter Storm	__5___

Man-Made/Technological Hazards (Rank from 1-4):

Chemical Leak/Spill; Chemical Release (Airborne)	__2___
Dam/Levee Failure	__1___
Nuclear Plant Incident	__4___
Terrorism	__3___

Scott Hyatt 8 July 2011
Name of person completing ranking Date

Natural Hazards (Rank from 1-6):

Drought/Extreme Heat	_1____
Earthquake	_6____
Flooding	__2___
Tornado/Wind Storm / Hail / Lightening	_3____
Wildfire	__5___
Winter Storm	__4___

Man-Made/Technological Hazards (Rank from 1-4):

Chemical Leak/Spill; Chemical Release (Airborne)	__1___
Dam Failure	__3___
Nuclear Plant Incident	__4___
Terrorism	__2___

Sharon W Bennett_Adm. Assist EMA 07-08-2011
Name of person completing ranking Date

Natural Hazards (Rank from 1-6):

Drought/Extreme Heat	__4___
Earthquake	__6___
Flooding	__2___
Tornado/Wind Storm / Hail / Lightening	__3___
Wildfire	__5___
Winter Storm	__1___

Man-Made/Technological Hazards (Rank from 1-4):

Chemical Leak/Spill; Chemical Release (Airborne)	__1___
Dam Failure	__2___
Nuclear Plant Incident	__4___
Terrorism	__3___

David Brown July 8, 2011
Name of person completing ranking Date

Natural Hazards (Rank from 1-6):

Drought/Extreme Heat	__3___
Earthquake	__6___
Flooding	__2___
Tornado/Wind Storm / Hail / Lightening	__1___
Wildfire	__5___
Winter Storm	__4___

Man-Made/Technological Hazards (Rank from 1-4):

Chemical Leak/Spill; Chemical Release (Airborne)	__1___
Dam Failure	__2___
Nuclear Plant Incident	__3___
Terrorism	__4___

Frank Carl 07-08-11
Name of person completing ranking Date

Natural Hazards (Rank from 1-6):

Drought/Extreme Heat	___4__
Earthquake	__6___
Flooding	__2___
Tornado/Wind Storm / Hail / Lightening	__1___
Wildfire	__3___
Winter Storm	____5_

Man-Made/Technological Hazards (Rank from 1-4):

Chemical Leak/Spill; Chemical Release (Airborne)	__2___
Dam Failure	__4___
Nuclear Plant Incident	__3___
Terrorism	__1___

Dominick E. Nutter 8 Jul 2011
Name of person completing ranking Date

Natural Hazards (Rank from 1-6):

Drought/Extreme Heat	4_____
Earthquake	6_____
Flooding	2_____
Tornado/Wind Storm / Hail / Lightening	1___
Wildfire	5_____
Winter Storm	3_____

Man-Made/Technological Hazards (Rank from 1-4):

Chemical Leak/Spill; Chemical Release (Airborne)	3_____
Dam Failure	4_____
Nuclear Plant Incident	2_____
Terrorism	1_____

Scott D. Gay, Captain Special operations July 8, 2011
Name of person completing ranking Date

Natural Hazards (Rank from 1-6):

Drought/Extreme Heat	3
Earthquake	6
Flooding	5
Tornado/Wind Storm / Hail / Lightening	1
Wildfire	4
Winter Storm	2

Man-Made/Technological Hazards (Rank from 1-4):

Chemical Leak/Spill; Chemical Release (Airborne)	1
Dam Failure	3
Nuclear Plant Incident	2
Terrorism	4

Loriann H. Chancey, City Clerk 07/08/2011
Name of person completing ranking Date

Natural Hazards (Rank from 1-6):

Drought/Extreme Heat	__5___
Earthquake	__4___
Flooding	___3__
Tornado/Wind Storm / Hail / Lightening	__1___
Wildfire	__6___
Winter Storm	__2___

Man-Made/Technological Hazards (Rank from 1-4):

Chemical Leak/Spill; Chemical Release (Airborne)	__1___
Dam Failure	___4__
Nuclear Plant Incident	__3___
Terrorism	___2__

jasper cooke july 07 2011
Name of person completing ranking Date

Natural Hazards (Rank from 1-6):

Drought/Extreme Heat	__2___
Earthquake	__6___
Flooding	__1___
Tornado/Wind Storm / Hail / Lightening	__3___
Wildfire	__5___
Winter Storm	__4___

Man-Made/Technological Hazards (Rank from 1-4):

Chemical Leak/Spill; Chemical Release (Airborne)	__1___
Dam Failure	__2___
Nuclear Plant Incident	__4___
Terrorism	__3___

Terri L Turner 7/8/2011
Name of person completing ranking Date

Natural Hazards (Rank from 1-6):

Drought/Extreme Heat	2
Earthquake	6
Flooding	4
Tornado/Wind Storm / Hail / Lightening	1
Wildfire	3
Winter Storm	5

Man-Made/Technological Hazards (Rank from 1-4):

Chemical Leak/Spill; Chemical Release (Airborne)	1
Dam Failure	3
Nuclear Plant Incident	4
Terrorism	2

William P. Shanahan Jr. 07/08/2011
Name of person completing ranking Date

Natural Hazards (Rank from 1-6):

Drought/Extreme Heat 3_____

Earthquake 6____

Flooding 5_____

Tornado/Wind Storm / Hail / Lightening 1_____

Wildfire 4_____

Winter Storm 2_____

Man-Made/Technological Hazards (Rank from 1-4):

Chemical Leak/Spill; Chemical Release (Airborne) 1_____

Dam Failure 4_____

Nuclear Plant Incident 2____

Terrorism 3_____

Martha R Allen 7/11/2011
Name of person completing ranking Date

Natural Hazards (Rank from 1-6):

Drought/Extreme Heat	3
Earthquake	5
Flooding	2
Tornado/Wind Storm / Hail / Lightening	1
Wildfire	6
Winter Storm	4

Man-Made/Technological Hazards (Rank from 1-4):

Chemical Leak/Spill; Chemical Release (Airborne)	1
Dam Failure	4
Nuclear Plant Incident	2
Terrorism	3

Susan James -- University Hospital July 11, 2011
Name of person completing ranking Date

Natural Hazards (Rank from 1-6):

Drought/Extreme Heat _1____

Earthquake _6____

Flooding __4___

Tornado/Wind Storm / Hail / Lightening __2___

Wildfire _5____

Winter Storm __3___

Man-Made/Technological Hazards (Rank from 1-4):

Chemical Leak/Spill; Chemical Release (Airborne) _1____

Dam Failure __4___

Nuclear Plant Incident __2___ (I would replace with radiological incident - spill on i-20, derailment on train tracks, dirty bomb and nuclear plan incidents)

Terrorism ___3__

Jonathan Adriano 7/11
Name of person completing ranking Date

Natural Hazards (Rank from 1-6):

Drought/Extreme Heat	___2__
Earthquake	____6_
Flooding	___3__
Tornado/Wind Storm / Hail / Lightening	__2___
Wildfire	___2__
Winter Storm	__5___

Man-Made/Technological Hazards (Rank from 1-4):

Chemical Leak/Spill; Chemical Release (Airborne)	__1___
Dam Failure	___2__
Nuclear Plant Incident	___1__
Terrorism	__2___

Steve Willard 07/11/11
Name of person completing ranking Date

Natural Hazards

1. Tornado/wind storm/hail/lightening

2. Flooding

3. Drought extreme heat

4. Winter storm

5. Wildfire

6. Earthquake

Manmade/technological hazards

1. Chemical leak/spill; chemical release(airborne)

2. Nuclear plant incident

3. Terrorism

4. Dam failure

Jack L. Womack II AAS, EMT-I July 11, 2011
Name Date

Natural Hazards (Rank from 1-6):

Drought/Extreme Heat	6
Earthquake	4
Flooding	2
Tornado/Wind Storm / Hail /Lightening	1
Wildfire	3
Winter Storm	5

Man-Made/Technological Hazards (Rank from 1-4):

Chemical Leak/Spill; Chemical Release(Airborne)	2
Dam Failure	1
Nuclear Plant Incident	4
Terrorism	3

Mie Lucas 7/12/11
Name of person completing ranking Date

Hazard Ranking Survey

Natural Hazards (Rank from 1-6 where 1 = Highest Risk and 6 = Lowest Risk):

Drought/Extreme Heat	5
Earthquake	6
Flooding	1
Tornado/Wind Storm / Hail / Lightening	2
Wildfire	4
Winter Storm	3

Man-Made/Technological Hazards (Rank from 1-4 Where 1 = Highest Risk and 4 = Lowest Risk):

Chemical Leak/Spill; Chemical Release (Airborne)	1
Dam Failure	2
Nuclear Plant Incident	3
Terrorism	4

Tom Knight — July 15, 2011

Name of person completing ranking — Date

By Phone Sheron Bennett

Hazard Ranking Survey

Natural Hazards (Rank from 1-6 where 1 = Highest Risk and 6 = Lowest Risk):

Drought/Extreme Heat	3
Earthquake	3
Flooding	3
Tornado/Wind Storm / Hail / Lightening	2
Wildfire	3
Winter Storm	4

Man-Made/Technological Hazards (Rank from 1-4 Where 1 = Highest Risk and 4 = Lowest Risk):

Chemical Leak/Spill; Chemical Release (Airborne)	3
Dam Failure	4
Nuclear Plant Incident	4
Terrorism	4

Evan Joseph — 7/14/11

Name of person completing ranking — Date

Hazard Ranking Survey

Natural Hazards (Rank from 1-6 where 1 = Highest Risk and 6 = Lowest Risk):

Drought/Extreme Heat	4	4
Earthquake	6	
Flooding	3	2
Tornado/Wind Storm / Hail / Lightening	2	1
Wildfire	5	
Winter Storm	1	3

Man-Made/Technological Hazards (Rank from 1-4 Where 1 = Highest Risk and 4 = Lowest Risk):

Chemical Leak/Spill; Chemical Release (Airborne)	1
Dam Failure	3
Nuclear Plant Incident	2
Terrorism	4

Tom D. Widmier — 7/14/11

Name of person completing ranking — Date

Natural Hazards (Rank from 1-6 where 1 = Highest Risk and 6 = Lowest Risk):

Drought/Extreme Heat	3
Earthquake	6
Flooding	1
Tornado/Wind Storm / Hail / Lightening	2
Wildfire	5
Winter Storm	4

Man-Made/Technological Hazards (Rank from 1-4 Where 1 = Highest Risk and 4 = Lowest Risk):

Chemical Leak/Spill; Chemical Release (Airborne)	4
Dam Failure	2
Nuclear Plant Incident	3
Terrorism	1

for Abe Lodom / Shirlette McCrae

Name of person completing ranking Date

Hazard Ranking Survey

Natural Hazards (Rank from 1-6 where 1 = Highest Risk and 6 = Lowest Risk):

Drought/Extreme Heat	4
Earthquake	5
Flooding	3
Tornado/Wind Storm / Hail / Lightening	1
Wildfire	6
Winter Storm	2

Man-Made/Technological Hazards (Rank from 1-4 Where 1 = Highest Risk and 4 = Lowest Risk):

Chemical Leak/Spill; Chemical Release (Airborne)	1
Dam Failure	4
Nuclear Plant Incident	3
Terrorism	2

BRAD THOMPSON — 7/18/2011

Name of person completing ranking — Date

Hazard Ranking Survey

Natural Hazards (Rank from 1-6 where 1 = Highest Risk and 6 = Lowest Risk):

Drought/Extreme Heat	3
Earthquake	6
Flooding	4
Tornado/Wind Storm / Hail / Lightening	2
Wildfire	1
Winter Storm	5

Man-Made/Technological Hazards (Rank from 1-4 Where 1 = Highest Risk and 4 = Lowest Risk):

Chemical Leak/Spill; Chemical Release (Airborne)	2
Dam Failure	3
Nuclear Plant Incident	4
Terrorism	1

Kurt Bleene July 19, 2011
Name of person completing ranking Date

By Phone Sharon Bennett

Hazard Ranking Survey

Natural Hazards (Rank from 1-6 where 1 = Highest Risk and 6 = Lowest Risk):

Drought/Extreme Heat	__5___
Earthquake	__6___
Flooding	__1___
Tornado/Wind Storm / Hail / Lightening	__2___
Wildfire	__3___
Winter Storm	__4___

Man-Made/Technological Hazards (Rank from 1-4 Where 1 = Highest Risk and 4 = Lowest Risk):

Chemical Leak/Spill; Chemical Release (Airborne)	__1___
Dam Failure	__3___
Nuclear Plant Incident	__4___
Terrorism	__2___

__Extrapolated from vulnerability questionnaire completed by Fred Russell by Mike Armstrong

_____ _____

Name of person completing ranking Date

Hazard Ranking Survey

Natural Hazards (Rank from 1-6 where 1 = Highest Risk and 6 = Lowest Risk):

Drought/Extreme Heat	__5___
Earthquake	__6___
Flooding	__1___
Tornado/Wind Storm / Hail / Lightening	__2___
Wildfire	__4___
Winter Storm	__3___

Man-Made/Technological Hazards (Rank from 1-4 Where 1 = Highest Risk and 4 = Lowest Risk):

Chemical Leak/Spill; Chemical Release (Airborne)	__1___
Dam Failure	__2___
Nuclear Plant Incident	__3___
Terrorism	__4___

_Created for Patrick Clayton from e-mail submission dtd 14 July 2011 by Mike Armstrong

Name of person completing ranking Date

HMPC Hazard Identification – Risk Assessment Questionnaire Qualitative Summary Report

The following comments and concerns were expressed by respondents on the HMPC Hazard Identification - Risk Assessment Questionnaire. As the HMPC begins the process of reviewing the raw hazard ranking data these qualitative comments are invaluable to inform the process of risk analysis and mitigation strategies. While qualitative data does not carry the statistical weight of quantitative data, it is important that the HMPC review them and determine the impact of each and the response of the community to them during the mitigation strategy element of the HMP.

FACILITY EXPOSURE

Respondents reported the following concerns/comments related to facility exposure in Augusta – Richmond County planning area:

- Older Residential, Commercial, Industrial Areas, Water/Wastewater Treatment Highly Vulnerable to Flooding.
- E -911 EOC, Fire Police, Government buildings could flood
- Destruction of buildings, all government buildings, fire stations, police stations, Municipal building, EOC, 911 Center during a flood
- The 911 Center is vulnerable to flooding.
- University Hospital, Courthouse, Wastewater treatment plant, lift stations vulnerable to 1990 floods.
- Flooding - East side of Augusta is in low-lying flood zone area.
- Buildings in low lying areas and flood plains.
- Downtown vulnerable to all hazards.
- Schools vulnerable East of Laney Walker.
- Julian Smith Casino and Maintenance Shop vulnerable to flooding.

HUMAN EXPOSURE

Respondents reported the following concerns/comments related to human exposure in Augusta – Richmond County planning area:

- Life safety risk during flooding
- Citizens living in flood areas may require evacuation, shelter. Potential for loss of life for all hazards
- Flooding in downtown areas, populations near railway and chemical plants, inmates, emergency response, hospital personnel
- Exposure to chemicals, flooding
- Low lying residential and commercial residents and occupants vulnerable to floods; all populations vulnerable to chemical leak

- Disruption of work, threaten life safety, Downtown and East Augusta vulnerable to floods
- Bon Air Hotel houses elderly and low income families
- Vulnerable 911 center building and population.
- Low lying residential and commercial residents and occupants vulnerable to floods;
- Residential and commercial areas vulnerable to floods, heat, drought.
- Life safety risk due to dam break.
- Life safety risk due to fires.
- Base personnel, housing residents, services on base.
- Residents in chemical exposure areas, flood area. Tornados in all areas. Storm systems attracted to Savannah River area. Life safety issues.
- Low lying areas and roads are prone to flooding along creeks, rivers, and downstream from built up commercial areas. Communities near chemical plants and railroads are more likely to be affected by chemical events.
- Residents live in flood areas.
- Students, staff, teachers and others in schools. Downtown residential and commercial occupants vulnerable to all hazards.
- The entire county has exposure to hazards
- Trailer parks or modular homes on McNutt Way and other unpaved roads will be dramatically affected. Good Dale Landing and Water's Edge are communities in close proximity to the river.

EQUIPMENT EXPOSURE

Respondents reported the following concerns/comments related to equipment exposure in Augusta – Richmond County planning area:

- Downtown power lines, water and sewage pumps may flood on canal
- Pump Stations, Water Supply, Waste water Treatment vulnerable to flooding.
- Public works equipment may be damaged, inaccessible, or destroyed. Emergency equipment may be damaged, inaccessible, or destroyed.
- Emergency response communications, law enforcement, hospitals
- Destruction of equipment in flood areas or exposed to chemical leak
- Destruction of equipment in flood areas or exposed to chemical leak
- Emergency response communications, law enforcement equipment vulnerable to floods
- Water storage vulnerable to wind/tornadoes
- 911 Center equipment.
- Lift stations, water sewer line crossings at streams are particularly vulnerable to floods.
- Dam control devices.
- Destruction of equipment in fire.
- Computers, collateral damages.
- Deliveries of critical supplies and equipment to hospitals are subject to disruption should the roads and streets become impassible. Most critical facilities do not maintain resources to allow for extended disruption of utilities or deliveries.

- Computers, equipment and supplies will be damaged or destroyed.
- County owned facilities and equipment in flood areas.

RESPONSE EXPOSURE
Respondents reported the following concerns/comments related to emergency response exposure in Augusta – Richmond County planning area.

- Law Enforcement and 911 face exposure during floods
- EMA personnel, first response risk in rescue efforts, Communication shutdown
- Not able to get to work, slow down of equipment and personnel response due to road impassability
- Manpower shortages, transportation routes cut off or impassible, equipment shortages if event severe
- Manpower shortages, transportation routes cut off or impassible, equipment shortages if event severe
- Slow response times, manpower shortage, overtime issues, can't get to work without special transportation, potential relocation of personnel that sustained damages
- Slowed but functional
- Unknown. Public Health is not a first responder entity.
- Emergency response would not be coordinated or effective due to the loss of the 911 center.
- It will slow response times; units may be tied up waiting on power companies; every unit will be out on call; dispatch will be extremely busy.
- Road closures causing limited access to critical areas/facilities
- Disruption of water supply is human health issue and has firefighting implications.
- Water is essential to life. Citizens would have to retrieve it from any source available. It would become a priority for emergency responders.
- Weather, location, size of incident and number of resources.
- We have backup plan and communication plan.
- The scenario drives the course of action to be taken. The availability of lack of resources and assets, communication links, manpower, i.e., will either excel or delay recovery efforts. It could be days to weeks before victims are rescued.
- Extended disruption of patient care services for the hospitals might result in the need to evacuate outside the community.
- Significant impact from flooding, flooded roads, cave-in caused problems with response. Other events could have similar impact.
- Severely hamper operations especially if a flood and later looting occurs.
- Service to families affected would be delayed due to a delay in notification.
- Response time for first responders would most likely double.
- Emergency Response called into action.

DAMAGES/COSTS
Respondents reported the following concerns/comments related to damage costs and rebuilding following a disaster in Augusta – Richmond County planning area:

- Buildings, equipment, computers
- Potential for millions of $ losses
- Millions or billions depending of severity of event
- Millions or billions depending of severity of event
- Unknown
- Varied depending on event. Cost to replace water storage tanks $500 to 900K
- Millions depending of severity of event
- Unknown
- Unsure of cost to repair damage.
- Who knows, probably millions of dollars.
- Unknown
- Could be complete replacement cost.
- Billions of dollars.
- Billions in building repair and replacing equipment.
- Multi millions of dollars.
- Could run into the millions of dollars depending on how widespread and significant the damage.
- In flooding, it would probably result in building renovation in the hundreds of thousands if not millions of dollars.
- Hundreds of thousands of dollars.
- $20,000 (water tank)

UTILITY EXPOSURE

Respondents reported the following concerns/comments related to utility exposure following a disaster in Augusta – Richmond County planning area:

- Electricity, water, sewer
- Pump stations, Wastewater Treatment facilities, Water Supply, Water Treatment facilities vulnerable, Water contamination exposure to chemical leak, flooding, fire, Electricity shutdown from winter storms, ice
- Water, wastewater facility exposure to flooding; electricity susceptible to ice, snow
- Water, wastewater facility exposure to flooding; electricity susceptible to ice, snow, high winds, pump stations vulnerable to flood
- Downed power lines
- Water storage tanks
- Extensive flooding could affect all utilities; sewage overflow
- Electric is vulnerable to windstorms and fallen tree limbs. Bad storms in June 2011 illustrated that.
- Yes. Power or electrical can be out for days with lines down.
- Lift stations and water sewer line crossings are particularly vulnerable during floods.
- Water system vulnerable to drought, hurricane, and tornados. Extreme drought could lower level in Thurmond reservoir to a level below the turbine intakes creating the need to pump low quality water from the reservoir to supply the downstream. Of

course the infrastructure for water distribution (water towers and buildings) is vulnerable to high winds.

- Dam gate operations for water flow control are the most critical but have local backup systems.
- Power lines. The larger, bigger are less vulnerable due to size and height. The smaller, are closer to the ground and utilities are more vulnerable to damage.
- Terrorist threat, storm damage, access, loss/disruption of communications and more.
- A first floor flood would take out water, sewer, sewage, vaccuum lines, medical gases, phone and computer services, normal power. Even the emergency generators would be lost if water rose to a certain level.
- No potable water other than municipal water. Energy plant buildings supporting these key structures are not protected from floods.
- Depending of severity of the disaster utilities could be in jeopardy to some degree.
- Severe water damage from flooding.
- Yes. Power outages from trees on power lines.
- Stormwater traps, sewer intakes, and possibly the wastewater treatment plant.
- Water, power outage vulnerable to possible terrorism, water and sewer vulnerable to chemical spills

DURATION OF EXPOSURE

Respondents reported the following concerns/comments related to duration of exposure following a disaster in Augusta – Richmond County planning area:

- Varied - depending on duration of event - days, weeks, months, years (5 respondents with identical comment)
- Unknown
- 6 months
- Undetermined. Depending on hazard could take days, weeks, months, years
- Unknown
- Over 30 days.
- Years.
- Depending on damage could be weeks or months.
- Time all depends on size, weather, location, resources, etc.
- Months.
- Years. Sometimes never recover.
- Weeks, months, years depending on degree of damage.
- Weeks for repairs. Power and water supply could be affected for weeks.
- Six months to a year at best.
- Depending on extent of damage and power outage.
- Research in the mid 1990's concluded that to construct 15 miles of highway would take approx. 75 weeks or 20 month.
- Up to months.

COMMUNITY SERVICES – PERSONNEL EXPOSURE

Respondents reported the following concerns/comments related to community services impact and personnel exposure following a disaster in Augusta – Richmond County planning area:

- Emergency response time slowed, manpower shortage, not able to get to work, need to relocate personnel suffering damage
- Possible manpower shortage, increased overtime, inability to report to work if impacted by event, personnel may suffer loss from event, possible shutdown of services and need to activate mutual aid or request state and federal assistance
- Potential shutdown during major hazard, government service interruption
- Could experience damage to own property, cannot report to work, shortage of personnel, off-duty call in to work; could shut down government offices
- Could experience damage to own property, cannot report to work, shortage of personnel, off-duty call in to work; could shut down government offices
- Slow response times, manpower shortage, overtime issues, can't get to work without special transportation, potential relocation of personnel that sustained damages
- Metro - Richmond tie-in to provide water services; Emergency response would not be affected
- Some services will be interrupted for an undetermined period
- Health Department would have to relocate clinical services.
- Community services will be severely degraded due to the loss of emergency communications. Calls for assistance would not be responded to in a timely fashion. On duty personnel will have to evacuate their workplace.
- Tremendously, especially public safety and public works.
- Road closures causing limited access to critical areas/facilities. Limited mobility and communication. Personnel can be affected by hazard.
- Disruption of water supply, human health issues and firefighting implications. May have trouble getting to work, may need to attend to home and families.
- Water is essential to life. Vulnerable to hazards.
- Loss of jobs, buildings, resources, inconveniences. Overtime, exhausted personnel and resources.
- Loss of service.
- In a first floor flood or dam break in the Augusta area there will still be two functional hospitals which would become overwhelmed very quickly with evacuees, misplaced residents, real emergencies and hospitals requiring evacuation. In a chemical or nuclear incident all hospitals could be affected and not able to offer medical attention to anyone. If it's a tornado, the effects would be based on the swath the storm system destroyed.
- Community services in the past have been heavily impacted from disasters including floods, storms, winter storms depending on the extent of the damage.
- Severely if a flood or chemical release occurs.
- Community education classes (CPR, First Aid, AED, etc.) being held at our office would be postponed until the facility could be used again or another was identified.

- Services could be severely crippled without proper infrastructure to support schools, businesses or the medical community; virtually no economic recovery could exist.
- Possible lack of services. Personnel expected to exceed routine duties and hours.

Notable in the comments and concerns expressed by the HMPC are vulnerabilities of low-lying area facilities and populations to floods, location of Augusta Emergency Response personnel and structures in flood areas, vulnerability of infrastructure including water, sewer, and stormwater facilities to flooding, and several housing developments located in areas subject to flooding. Other concerns are related to disruption of community services, manpower shortages during disaster events, and the exposure of medical facilities to flooding, chemical leaks, and the vulnerability of schools or government facilities to terrorism. The location of several chemical plants and the transport of chemicals by rail in areas adjacent to downtown Augusta were the subject of frequent comments. Electricity shutdown during winter storms, vulnerability to uncontrolled fires (whether forested, chemical burn-off, or ignited by lightning are listed as well.

These comments, concerns, and expressions of vulnerability provide insight, information, and focus for the HMPC mitigation strategy planning sessions to follow the Hazard Identification and Risk Assessment elements of the plan.

HAZARD IDENTIFICATION QUESTIONNAIRE DATA

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	**NAME**	**AFFILIATION ROLE**	**RESPONSE**	**NATURAL HAZARD 1 FLOODING**	**NATURAL HAZARD 2 DROUGHT EXTREME HEAT**	**NATURAL HAZARD 3 TORNADO WIND STORM HAIL**	**NATURAL HAZARD 4 WINTER STORM**	**NATURAL HAZARD 5 WILDFIRE**	**NATURAL HAZARD 6 EARTHQUAKE**	**MANMADE HAZARD 1 CHEMICAL LEAK/SPILL CHEMICAL RELEASE (AIRBORNE)**	**MANMADE HAZARD 2 DAM FAILURE**	**MANMADE HAZARD 3 NUCLEAR PLANT INCIDENT**	**MANMADE HAZARD 4 TERRORISM**	**COMMENTS**
2	Chief Howard Willis	City of Augusta HMPC Chairman	YES	3	4	1	2	5		1				
3	Terri Turner	City of Augusta HMPC Vice - chair	YES	1	2	3	4	5	6	1	2	4	3	Hurricane/Coastal Storms (Ranked as 7) are included in Flooding Section
4	Sharon Bennett	City of Augusta HMPC Secretary	YES	2	1	3	4	5	6	1	3	4	2	
5	Fred Russell	City of Augusta City Administrator	YES	1	5	2	4	3	6	1	3	4	2	
6	George Patty	Augusta - Richmond County Planning Commission Executive Director	YES	2	3	1	4	5	6	1	3	4	2	
7	Scott Gay	City of Augusta Sheriff's Department	YES	2	4	1	3	5	6	3	4	2	1	
8	Patricia Cole Loriann H. Chancey	City of Blythe	YES	5	3	1	2	4	6	1	3	2	4	
9	Bill Shanahan	City of Augusta Deputy Administrator	YES	4	2	1	5	3	6	1	3	4	2	Submitted email response to relay all departments under his supervision submitted questionnaires - 3 months in position as Deputy Administrator

HAZARD IDENTIFICATION QUESTIONNAIRE DATA

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	**NAME**	**AFFILIATION ROLE**	**RESPONSE**	**NATURAL HAZARD 1 FLOODING**	**NATURAL HAZARD 2 DROUGHT EXTREME HEAT**	**NATURAL HAZARD 3 TORNADO WIND STORM HAIL**	**NATURAL HAZARD 4 WINTER STORM**	**NATURAL HAZARD 5 WILDFIRE**	**NATURAL HAZARD 6 EARTHQUAKE**	**MANMADE HAZARD 1 CHEMICAL LEAK/SPILL CHEMICAL RELEASE (AIRBORNE)**	**MANMADE HAZARD 2 DAM FAILURE**	**MANMADE HAZARD 3 NUCLEAR PLANT INCIDENT**	**MANMADE HAZARD 4 TERRORISM**	**COMMENTS**
10	Bill Wright	City of Augusta Planning Commission Chair	NO											
11	Jonathan Adriano	GA Health - District 6 Director of Emergency Preparedness	YES	4		1	2		1		2			
12	Dominick Nutter	City of Augusta E-911 Director	YES	2	4	1	5	3	6	2	4	3	1	
13	Jack Womack	City of Augusta Fire Department Fire Marshall	YES	1		2				3				Listed Drought/Extreme Heat, Hail Storm, Wildfire but only ranked those shown
14	Hameed Malik	City of Augusta City Engineer	YES	1		2	3					1		States no dam failure, probability of levee failure low
15	Tom Wiedmeier	City of Augusta Director Utilities	YES	1	4	2	3		5			1		
16	Abie Ladson	City of Augusta Public Works Director	YES	1	3	2	4	5	6	4	2	3	1	
17	Rob Sherman	City of Augusta Director License/Inspections	NO											
18	Frank Carl	Augusta Port Authority Riverkeeper Science Advisor	YES	2	3	1	4	5	6	1	2			Drought/Extreme Heat combined, Hurricane/Tornado/Hailstorm combined

HAZARD IDENTIFICATION QUESTIONNAIRE DATA

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	**NAME**	**AFFILIATION ROLE**	**RESPONSE**	**NATURAL HAZARD 1 FLOODING**	**NATURAL HAZARD 2 DROUGHT EXTREME HEAT**	**NATURAL HAZARD 3 TORNADO WIND STORM HAIL**	**NATURAL HAZARD 4 WINTER STORM**	**NATURAL HAZARD 5 WILDFIRE**	**NATURAL HAZARD 6 EARTHQUAKE**	**MANMADE HAZARD 1 CHEMICAL LEAK/SPILL CHEMICAL RELEASE (AIRBORNE)**	**MANMADE HAZARD 2 DAM FAILURE**	**MANMADE HAZARD 3 NUCLEAR PLANT INCIDENT**	**MANMADE HAZARD 4 TERRORISM**	**COMMENTS**
19	Scott Hyatt	USCOE Operations Project Manager - J. Strom Thurmond Dam & Lake	YES	1	3	4	5	6	2	1	2	3	4	
20	Steve Willard	US Army - Fort Gordon Chief of Environ & Nat	YES	1	5	3	4	2			1			
21	Susan James	University Hospital Emergency Mgmt. Coordinator	YES	1		2	3			1	2	3		Respondent provided EOP Plan, Critical Facilities data
22	David Jones	MCG Emergency Management Specialist	YES	2		1				1	2			Respondent provided HVA Summary for MCG Health, Inc.Critical Facilities data
23	David Brown	VA Medical Center Emergency Preparedness Coordinator	YES	2	4	3	1	5	6	1	2	4	3	
24	Brad Thompson	Doctor's Hospital Director of Safety & Security	YES	3	4	1	2	6	5	1	4	3	2	
25	Bill Welsh	Trinity Hospital Director of Plant Operations	YES	4	2	1	3	5			1			
26	Tom Knight	South Star Special Projects Coordinator	YES	1		2	3							

HAZARD IDENTIFICATION QUESTIONNAIRE DATA

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	**NAME**	**AFFILIATION ROLE**	**RESPONSE**	**NATURAL HAZARD 1 FLOODING**	**NATURAL HAZARD 2 DROUGHT EXTREME HEAT**	**NATURAL HAZARD 3 TORNADO WIND STORM HAIL**	**NATURAL HAZARD 4 WINTER STORM**	**NATURAL HAZARD 5 WILDFIRE**	**NATURAL HAZARD 6 EARTHQUAKE**	**MANMADE HAZARD 1 CHEMICAL LEAK/SPILL CHEMICAL RELEASE (AIRBORNE)**	**MANMADE HAZARD 2 DAM FAILURE**	**MANMADE HAZARD 3 NUCLEAR PLANT INCIDENT**	**MANMADE HAZARD 4 TERRORISM**	**COMMENTS**
27	Chief Patrick Clayton	Richmond County BOE Dept. Safety & Security	YES	1						2				
28	Mie Lucas	Augusta Red Cross Emergency Serv. Director	YES	2		3		1				1		
29	Evan Joseph	GA Department of Corrections Warden	YES							1				
30	Tom Beck, Jr.	City of Augusta Recreation, Parks & Facilities - Director	YES	1	3	2		4			1			
31	Martha R. Allen	City of Hephzibah City Clerk	YES	5	4	1	3	2			1			
32	Jasper A. Cooke	Augusta State University Public Safety Director	YES	3	5	1	2	4	6	1	4	3	2	Respondent furnished EOP and HM Plan
33	Steve Abbott	GA Forestry	YES					1						
34														
35	**Note:** Column A Respondents Highlighted in **blue** completed the Hazard Questionnaire and Ranking Survey.													
36														
37	**LEGEND**													
38														
39	**PURPLE = Need Hazard Ranking**													
40	**RED = Need Questionnaire & Hazard Ranking**													

HMPC SUB-COMMITTEE HAZARD RANKING SURVEY RESPONSES

NAME	AFFILIATION ROLE	RESPONSE	NATURAL HAZARD 1 FLOODING	NATURAL HAZARD 2 DROUGHT EXTREME HEAT	NATURAL HAZARD 3 TORNADO WIND STORM HAIL	NATURAL HAZARD 4 WINTER STORM	NATURAL HAZARD 5 WILDFIRE	NATURAL HAZARD 6 EARTHQUAKE	MANMADE HAZARD 1 CHEMICAL LEAK/SPILL CHEMICAL RELEASE (AIRBORNE)	MANMADE HAZARD 2 DAM FAILURE	MANMADE HAZARD 3 NUCLEAR PLANT INCIDENT	MANMADE HAZARD 4 TERRORISM	COMMENTS
Chief Howard Willis	City of Augusta HMPC Chairman	YES	1	4	3	2	5	6	1	3	2	4	
Terri Turner	City of Augusta HMPC Vice - chair	YES	1	2	3	4	5	6	1	2	4	3	Hurricane Coastal Storms (Ranked as 7) are included in Flooding Section
Sharon Bennett	City of Augusta HMPC Secretary	YES	2	1	3	4	5	6	1	3	4	2	
Fred Russell	City of Augusta City Administrator	YES	1	5	2	4	3	6	1	3	4	2	
George Patty	Augusta - Richmond County Planning Commission Executive Director	YES	2	3	1	4	5	6	1	3	4	2	
Scott Gay	City of Augusta Sheriff's Department	YES	2	4	1	3	5	6	3	4	2	1	
Patricia Cole Loriann H. Chancey	City of Blythe	YES	5	3	1	2	4	6	1	3	2	4	
Bill Shanahan	City of Augusta Deputy Administrator	YES	2	3	1	4	5	6	1	3	4	2	Submitted email response to relay all departments under his supervision submitted questionnaires -
Jonathan Adriano	GA Health - District 6 Director of Emergency Preparedness	YES	4	1	2	3	5	6	1	4	2	3	
Dominick Nutter	City of Augusta E-911 Director	YES	2	4	1	5	3	6	2	4	3	1	

Jack Womack	City of Augusta Fire Department Fire Marshall	YES	2	3	1	4	5	6	1	4	2	3
Hameed Malik	City of Augusta City Engineer	YES	1	5	1	5	4	6	2	2	3	4
Tom Wiedmeier	City of Augusta Director Utilities	YES	2	4	1	3	5	6	1	3	2	4
Abie Ladson	City of Augusta Public Works Director	YES	1	3	2	4	5	6	4	2	3	1
Rob Sherman	City of Augusta Director License/Inspections	YES	3	4	1	2	5	6	1	4	3	2
Scott Hyatt	USCOE Operations Project Manager - J. Strom Thurmond Dam & Lake	YES	1	3	4	5	6	2	1	2	3	4
Steve Abbott	GA Forestry Commission Chief Ranger	YES	4	3	2	5	1	6	2	3	4	1
Steve Willard	US Army - Fort Gordon Chief of Environ & Nat	YES	3	2	2	5	2	6	1	2	1	2
Susan James	University Hospital Emergency Mgmt. Coordinator	YES	2	3	1	4	6	5	1	4	2	3
David Jones	MCG Health, Inc.	YES	2		1				1	2		
David Brown	VA Medical Center Emergency Preparedness Coordinator	YES	2	4	3	1	5	6	1	2	4	3
Tom Knight	South Star Special Projects Coordinator	YES	1	5	2	3	4	6	1	2	3	4
Chief Patrick Clayton	Richmond County BOE Dept. Safety & Security	YES	2	4	1	3	5	6	1	4	3	2
Mie Lucas	Emergency Serv. Dir.	YES	2	6	1	5	3	4	2	1	4	3

Evan Joseph	GA Department of Corrections	YES	3	3	2	4	3	3	3	4	4	4	
Tom Beck, Jr.	City of Augusta Recreation, Parks	YES	2	4	1	3	5	6	2	1	4	3	
Martha Allen	City of Hephzibah City Clerk	YES	5	3	1	2	4	6	1	4	2	3	
Jasper A. Cooke	Augusta State University Public Safety Director	YES	3	5	1	2	4	6	1	4	3	2	Respondent furnished EOP and HM Plan
Randy Wishard	Richmond County Health Department	YES	2	3	1	5	4	6	1	4	3	2	
Bill Welsh	Trinity Hospital Director of Plant Operations	YES	3	2	1	4	5	6	1	2	3	4	
Brad Thompson	Doctor's Hospital Director of Safety & Security	YES	3	4	1	2	6	5	1	4	3	2	
RANKING TOTALS			**75**	**105**		**50**	**111**	**135**	**175**	**44**	**95**	**94**	**82**

NATURAL HAZARD RANKING

1 TORNADO WIND STORM HAIL	1 = Highest Risk = Lowest Risk	6
2 FLOODING		
3 DROUGHT EXTREME HEAT		
4 WINTER STORM		
5 WILDFIRE		
6 EARTHQUAKE		

MANMADE/TECHNOLOGICAL HAZARD RANKING

1 CHEMICAL LEAK/SPILL CHEMICAL RELEASE (AIRBORNE)	1 = Highest Risk = Lowest Risk	4
2 TERRORISM		
3 NUCLEAR PLANT INCIDENT		
4 DAM/LEVEE FAILURE		

NOTES: 1. Respondents completed the Hazard Identification Questionnaire to determine community hazards and risks. **2.** Identified Hazards were grouped into two categories, **Natural Hazards** and **Manmade/Technological Hazards**. **3.** Respondents were asked to rank the identified **Natural Hazards** (Where 1 = Highest Risk and 6 = Lowest Risk) and **Manmade - Technological Hazards** (Where 1 = Highest Risk and 4 = Lowest Risk). Results were tabulated on a numeric scale to determine ranking of Identified Hazards. **4.** Respondent Frank Carl did not rank Manmade/Technological Hazards **Nuclear Plant Incident** or **Terrorism**

QUALITATIVE DATA
COMMUNITY INPUT - COMMENTS

RESPONDENT	FACILITY EXPOSURE	HUMAN EXPOSURE	EQUIPMENT EXPOSURE	RESPONSE EXPOSURE	Damages	Utility Exposure	Duration of Exposure	Community Services - Personnel Exposure
Chief Willis	Residential and Businesses in downtown and East Augusta area have flood exposure	Life safety risk	Downtown power lines, water and sewage pumps may flood on canal	Law Enforcement and 911 face exposure during floods	Buildings, equipment, computers	Electricity, water, sewer	Varied - depending on duration of event - days, weeks, months, years	Emergency response time slowed, manpower shortage, not able to get to work, need to relocate personnel suffering damage
Terri Turner	Older Residential, Commercial, Industrial Areas, Water/Wastewater Treatment Highly Vulnerable to Flooding. Chemical Leak, Winter Storms, Fire, Tornadoes could impact broader community.	Citizens living in flood areas may require evacuation, shelter. Potential for loss of life for all hazards	Pump Stations, Water Supply, Wastewater Treatment vulnerable to flooding. Public works equipment may be damaged, inaccessible, or destroyed. Emergency equipment may be damaged, inaccessible, or destroyed.	EMA personnel, first response risk in rescue efforts, Communication shutdown	Potential for millions of $ losses	Pump stations, Wastewater Treatment facilities, Water Supply, Water Treatment facilities vulnerable, Water contamination exposure to chemical leak, flooding, fire, Electricity shutdown from winter storms, ice	Varied - depending on duration of event - days, weeks, months, years	Possible manpower shortage, increased overtime, inability to report to work if impacted by event, personnel may suffer loss from event, possible shutdown of services and need to activate mutual aid or request state and federal assistance
Sharon Bennett	Locations adjacent to railways and chemical plants	Flooding in downtown areas, populations near railway and chemical plants, inmates, emergency response, hospital personnel	Emergency response communications, law enforcement, hospitals	Not able to get to work, slow down of equipment and personnel response due to road impassability			Varied - depending on duration of event - days, weeks, months, years	Potential shutdown during major hazard, government service interruption
Fred Russell	All areas susceptible to chemical leak, low lying areas susceptible to flood. E -911 EOC, Fire Police, Government buildings	Exposure to chemicals, flooding	Destruction of equipment in flood areas or exposed to chemical leak	Manpower shortages, transportation routes cut off or impassible, equipment shortages if event severe	Millions or billions depending of severity of event	Water, wastewater facility exposure to flooding; electricity susceptible to ice, snow	Varied - depending on duration of event - days, weeks, months, years	Could experience damage to own property, cannot report to work, shortage of personnel, off-duty call in to work; could shut down government offices

QUALITATIVE DATA
COMMUNITY INPUT - COMMENTS

RESPONDENT	FACILITY EXPOSURE	HUMAN EXPOSURE	EQUIPMENT EXPOSURE	RESPONSE EXPOSURE	Damages	Utility Exposure	Duration of Exposure	Community Services - Personnel Exposure
George Patty	Destruction of buildings, all government buildings, fire stations, police stations, Municipal building, EOC, 911 Center	Low lying residential and commercial residents and occupants vulnerable to floods; all populations vulnerable to chemical leak	Destruction of equipment in flood areas or exposed to chemical leak	Manpower shortages, transportation routes cut off or impassible, equipment shortages if event severe	Millions or billions depending of severity of event	Water, wastewater facility exposure to flooding; electricity susceptible to ice, snow, high winds, pump stations vulnerable to flood	Varied - depending on duration of event - days, weeks, months, years	Could experience damage to own property, cannot report to work, shortage of personnel, off-duty call in to work; could shut down government offices
Scott Gay	Law Enforcement Center, Courthouse, (Federal and State), 911 Center	Disruption of work, threaten life safety, Downtown and East Augusta vulnerable to floods	Emergency response communications, law enforcement equipment vulnerable to floods	Slow response times, manpower shortage, overtime issues, can't get to work without special transportation, potential relocation of personnel that sustained damages	Unknown	Downed power lines	Unknown	Slow response times, manpower shortage, overtime issues, can't get to work without special transportation, potential relocation of personnel that sustained damages
Loriann Chancey			Water storage vulnerable to wind/tornadoes		Varied depending on event. Cost to replace water storage tanks $500 to 900K	Water storage tanks	6 months	Metro - Richmond tie-in to provide water services; Emergency response would not be affected
Bill Shanahan	Areas throughout Augusta susceptible to flooding; i.e., Walton Way Ext., Hyde Park, East Boundary, San Bar Ferry, Laney Walker area	Bon Air Hotel houses elderly and low income families		Slowed but functional	Millions depending of severity of event	Extensive flooding could affect all utilities; sewage overflow	Undetermined. Depending on hazard could take days, weeks, months, years	Some services will be interrupted for an undetermined period

QUALITATIVE DATA
COMMUNITY INPUT - COMMENTS

RESPONDENT	FACILITY EXPOSURE	HUMAN EXPOSURE	EQUIPMENT EXPOSURE	RESPONSE EXPOSURE	Damages	Utility Exposure	Duration of Exposure	Community Services - Personnel Exposure
Jonathan Adriano	Public Health Building on North Leg Rd.; Health Department Building as vulnerable to power outages as others in that area.			Unknown. Public Health is not a first responder entity.	Unknown	Electric is vulnerable to windstorms and fallen tree limbs. Bad storms in June 2011 illustrated that.	Unknown	Health Department would have to relocate clinical services.
Dominick Nutter	The 911 Center is vulnerable to flooding.	Vulnerable 911 center building and population.	911 Center equipment.	Emergency response would not be coordinated or effective due to the loss of the 911 center.	Unsure of cost to repair damage.	NO	Over 30 days.	Community services will be severely degraded due to the loss of emergency communications. Calls for assistance would not be responded to in a timely fashion. On duty personnel will have to evacuate their workplace.
Jack Womack	University Hospital, Courthouse, 911 Center	Low lying residential and commercial residents and occupants vulnerable to floods; k		it will slow response times; units may be tied up waiting on power companies; every unit will be out on call; dispatch will be extremely busy.	Who knows, probably millions of dollars.	Yes. Power or electrical can be out for days with lines down.	Years.	Tremendously, especially public safety and public works.
Hameed Malik				Road closures causing limited access to critical areas/facilities				Road closures causing limited access to critical areas/facilities. Limited mobility and communication. Personnel can be affected by hazard.
Tom Wiedmeier	Wastewater treatment plant, lift stations vulnerable to 1990 floods. Windstorm 2011 knocked out power to supply wells.		Lift stations, water sewer line crossings at streams are particularly vulnerable to floods.	Disruption of water supply are human health issue and firefighting implications.	Unknown	Lift stations and water sewer line crossings are particularly vulnerable during floods.	Depending on damage could be weeks or months.	Disruption of water supply, human health issues and firefighting implications. May have trouble getting to work, may need to attend to home and families.
Abie Ladson								
Rob Sherman								

QUALITATIVE DATA
COMMUNITY INPUT - COMMENTS

RESPONDENT	FACILITY EXPOSURE	HUMAN EXPOSURE	EQUIPMENT EXPOSURE	RESPONSE EXPOSURE	Damages	Utility Exposure	Duration of Exposure	Community Services - Personnel Exposure
Frank Carl	Low lying areas vulnerable to floods and dam failure; all facilities vulnerable to drought.	Residential and commercial areas vulnerable to floods, heat, drought.		Water is essential to life. Citizens would have to retrieve it from any source available. It would become a priority for emergency responders.		Water system vulnerable to drought, hurricane, and tornados. Extreme drought could lower level in Thurmond reservoir to a level below the turbine intakes creating the need to pump low quality water from the reservoir to supply the downstream. Of course the infrastructure for water distribution (water towers and buildings) are vulnerable to high winds.		Water is essential to life. Vulnerable to hazards.
Scott Hyatt	New Savannah Bluff Lock and Dam and levee breaks vulnerability to flooding.	Life safety risk due to dam break.	Dam control devices.			Dam gate operations for water flow control are the most critical but have local backup systems.		
Steve Abbott	Homes and building in the rural areas are more vulnerable to fire damages.	Life safety risk due to fires.	Destruction of equipment in fire.	Weather, location, size of incident and number of resources.	Could be complete replacement cost.	Power lines. The larger, bigger are less vulnerable due to size and height. The smaller, are closer to the ground and utilities are more vulnerable to damage.	Time all depends on size, weather, location, resources, etc.	Loss of jobs, buildings, resources, inconveniences. Overtime, exhausted personnel and resources.
Steve Willard	Yes, headquarters buildings (US ARMY), housing, hospitals and clinics, emergency management and security functions.	Base personnel, housing residents, servicemen on base.		We have backup plan and communication plan.	Billions of dollars.	Terrorist threat, storm damage, access, loss/disruption of communications and more.	Months.	Loss of service.

QUALITATIVE DATA
COMMUNITY INPUT - COMMENTS

RESPONDENT	FACILITY EXPOSURE	HUMAN EXPOSURE	EQUIPMENT EXPOSURE	RESPONSE EXPOSURE	Damages	Utility Exposure	Duration of Exposure	Community Services - Personnel Exposure
Susan James	Flooding - East side of Augusta is in low-lying flood zone area. There are three major hospitals that could be taken out with a water surge of five to ten feet deep (1st floor flooding). Chemical Plants - other business in downtown Augusta area. Residential areas.	Residents in chemical exposure areas, flood area. Tornados in all areas. Storm systems attracted to Savannah River area. Life safety issues.	Computers, collateral damages.	The scenario drives the course of action to be taken. The availability of lack of resources and assets, communication links, manpower, i.e., will either excel or delay recovery efforts. It could be days to weeks before victims are rescued.	Billions in building repair and replacing equipment.	A first floor flood would take out water, sewer, sewage, vacuum lines, medical gases, phone and computer services, normal power. Even the emergency generators would be lost if water rose to a certain level.	Years. Sometimes never recover.	In a first floor flood or dam break in the Augusta area there will still be two functional hospitals which would become overwhelmed very quickly with evacuees, misplaced residents, real emergencies and hospitals requiring evacuation. In a chemical or nuclear incident all hospitals could be affected and not able to offer medical attention to anyone. If it's a tornado, the effects would be based on the swath the storm system destroyed.
David Jones								
David Brown	Hospitals are particularly dependent on power, sewage, water and traffic accessibility. Hospitals and government buildings are potentially targets for human caused disasters.	Low lying areas and roads are prone to flooding along creeks, rivers, and downstream from built up commercial areas. Communities near chemical plants and railroads are more likely to be affected by chemical events.	Deliveries of critical supplies and equipment to hospitals are subject to disruption should the roads and streets become impassible. Most critical facilities do not maintain resources to allow for extended disruption of utilities or deliveries.	Extended disruption of patient care services for the hospitals might result in the need to evacuate outside the community.	Multi millions of dollars.	No potable water other than municipal water. Energy plant buildings supporting these key structures are not protected from floods.	Weeks, months, years depending on degree of damage.	

QUALITATIVE DATA
COMMUNITY INPUT - COMMENTS

RESPONDENT	FACILITY EXPOSURE	HUMAN EXPOSURE	EQUIPMENT EXPOSURE	RESPONSE EXPOSURE	Damages	Utility Exposure	Duration of Exposure	Community Services - Personnel Exposure
Tom Knight	Buildings in low lying areas and flood plains.	Residents flood area.		Significant impact from flooding, flooded roads, cave-in caused problems with response. Other events could have similar impact.	Could run into the millions of dollars depending on how widespread and significant the damage.	Depending of severity of the disaster utilities could be in jeopardy to some degree.	Weeks for repairs. Power and water supply could be affected for weeks.	Community services in the past have been heavily impacted from disasters including floods, storms, winter storms depending on the extent of the damage.
Chief Patrick Clayton	Downtown vulnerable to all hazards. Schools vulnerable East of Laney Walker.	Students, staff, teachers and others in schools. Downtown residential and commercial occupants vulnerable to all hazards.		Severely hamper operations especially if a flood and later looting occurs.	In flooding, it would probably result in building renovation in the hundreds of thousands if not millions of dollars.	Severe water damage from flooding.	Six months to a year at best.	Severely if a flood or chemical release occurs.
Mie Lucas	The entire county could be affected by the listed hazards. If office affected we could not provide services.	The entire county.	Computers, equipment and supplies will be damaged or destroyed.	Service to families affected would be delayed due to a delay in notification.		Yes. Power outages from trees on power lines.	Depending on extent of damage and power outage.	Community education classes (CPR, First Aid, AED, etc.) being held at our office would be postponed until the facility could be used again or another was identified.
Evan Joseph								

QUALITATIVE DATA
COMMUNITY INPUT - COMMENTS

RESPONDENT	FACILITY EXPOSURE	HUMAN EXPOSURE	EQUIPMENT EXPOSURE	RESPONSE EXPOSURE	Damages	Utility Exposure	Duration of Exposure	Community Services - Personnel Exposure
Tom Beck	District 2 & District 8 are prone to damages due to flooding. Structures located behind the levee gate near Prep Phillips. Traffic Engineering, Boathouse, and Welding Shop. Julian Smith Casino and Maintenance Shop vulnerable to flooding. East view stormwater pipes are sub sized and cannot handle runoff.	Trailer parks or modular homes on McNutt Way and other unpaved roads will be dramatically affected. Good Dale Landing and Water's Edge are communities in close proximity to the river.	County owned facilities and equipment in flood areas.	Response time for first responders would most likely double.	Hundreds of thousands of dollars.	Stormwater traps, sewer intakes, and possibly the wastewater treatment plant.	Research in the mid 1990's concluded that to construct 15 miles of highway would take approx. 75 weeks or 20 month.	Services could be severely crippled without proper infrastructure to support schools, businesses or the medical community, virtually no economic recovery could exist.
Martha Allen				Called into action.	$20,000	Water, power outage vulnerable to possible terrorism, water and sewer vulnerable to chemical spills	Up to months.	Possible lack of services. Personnel expected to exceed routine duties and hours.
Jasper A. Cooke								

GEMA Worksheet #2 Profile Hazard Events Step 2

County: Richmond Date: 19 July, 2011

How Bad Can It Get?

Task A. Obtain or create a base map.

GEMA will be providing you with a base map, USGS topos and DOQQ as part of our deliverables to local government for the planning process. Additionally, we will be providing you with detailed hazard layer coverages. These data layers originate from state or nationwide coverage or datasets. Therefore, it is important for local government to assess what you already have at the local level. It is important for you at the local level to have an idea of what existing maps you have available for the planning process. Some important things to think about:

1) What maps do we already have in the county that would be relevant to the planning process?
2) Have other local plans used maps or mapping technology where there is specific data that is also needed in my local plan?
3) What digital maps do we have?
4) Do we have any Geographic Information System (GIS) data, map themes or layers or databases here at the local level (or regional) that we can use?
5) If we do have any GIS data, where is it located at, and who is our local expert?
6) Are there any ongoing GIS or mapping initiatives at the local level in other planning or mapping efforts? If so, what are they, and what are the timetables for completion?
7) Are there mapping needs that have been identified at the local level in the past? If so, what are they and when were they identified?
8) Of the existing maps, GIS data and other digital mapping information, what confidence do we have at the local level that it is accurate data?

Please answer the above questions on a separate sheet of paper and attach to this worksheet.
It is important to realize that those counties that already have GIS and digital mapping, (ie: parcel level data, GPS fire hydrants, etc) higher levels of spatial accuracy and detail will exist for some data layers at the local level. However, for this planning process, that level of detail will not be needed on all layers in the overall mapping and analysis.

You can use existing maps from:

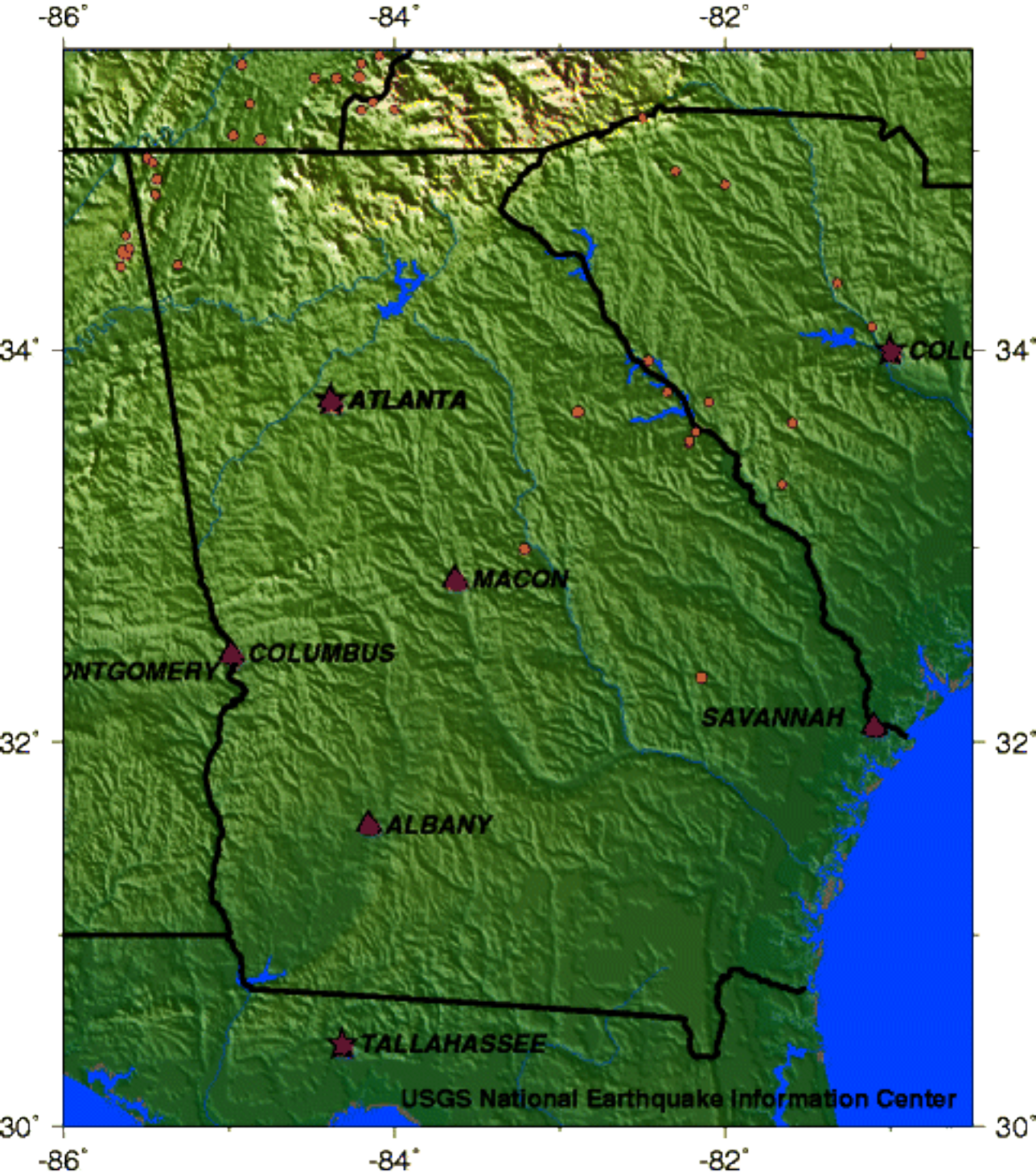
- Road Maps
- USGS topographic maps or Digital Orthophoto Quarter Quads (DOQQ)
- Topographic and/or planimetric maps from other agencies
- Aerial topographic and/or planimetric maps
- Field Surveys
- GIS software
- CADD software
- Digitized paper map

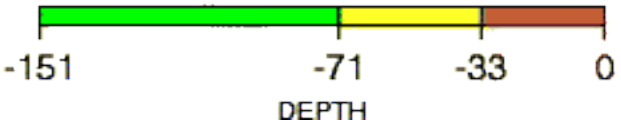
Title of Map	Scale	Date
* Map List - Maps attached		

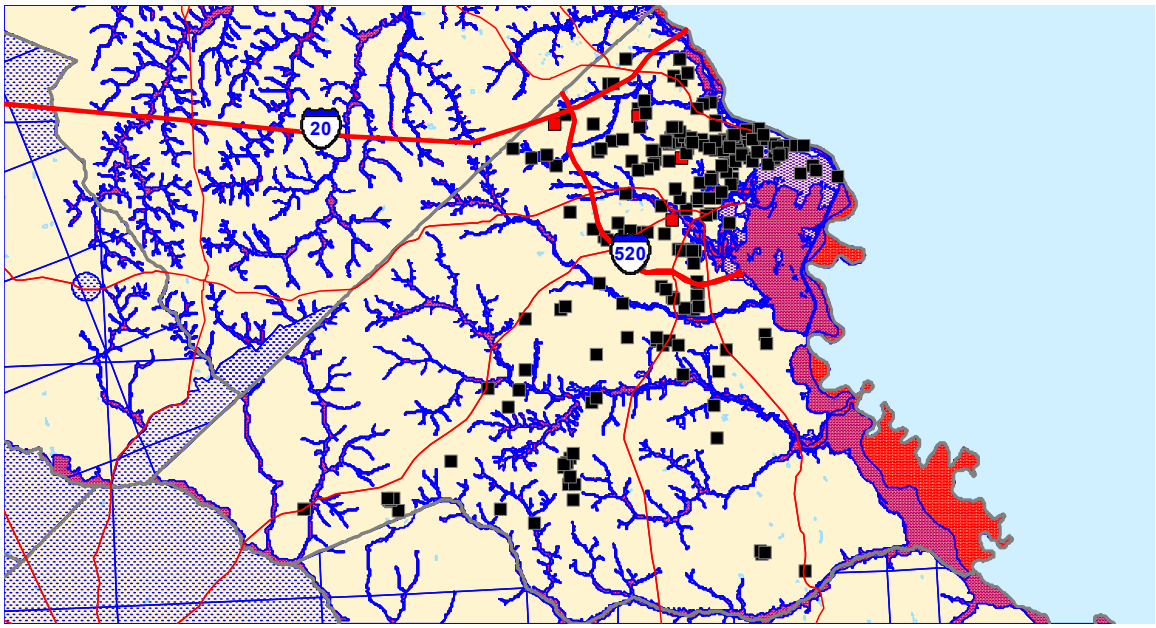
Task B. Obtain a hazard event profile.	Task C. Record your hazard event profile information.
Avalanche	
Coastal Storm / Coastal Erosion 1. Get a copy of your FIRM. _____ 2. Verify that the FIRM is up-to-date and complete. _____ 3. Determine the annual rate of coastal erosion. _____ 4. Find your design wind speed. _____	1. Transfer the boundaries of your coastal storm hazard areas onto your base map. 2. Transfer the BFEs onto your base map. 3. Record the erosion rates on your base map: _____ 4. Record the design wind speed here and on your base map: _____
Dam Failure	
Drought	
Earthquake 1. Go to the http://geohazards.cr.usgs.gov Website. 2. Locate your planning area on the map. 3. Determine your PGA.	1. Record your PGA: 0.19410 2. If you have more than one PGA print, download or order your PGA map.
Expansive Soils	
Extreme Heat	
Flood 1. Get a copy of your FIRM. DFIRM MAP USED 2. Verify the FIRM is up-to-date and complete. _____	1. Transfer the boundaries from your firm onto your base map (floodway, 100-yr flood, 500-yr flood). 2. Transfer the BFEs onto your base map.
Hailstorm	
Hurricane	
Land Subsidence	
Landslide 1. Map location of previous landslides. N/A 2. Map the topography. x 3. Map the geology. N/A 4. Identify thee high-hazard areas on your map. _____	1. Mark the areas susceptible to landslides onto your base map.
Severe Winter Storm	
Tornado 1. Find your design wind speed. 80 MPH	1. Record your design wind speed: 80 mph 2. If you have more than one design wind speed, print, download or copy your design wind speed zones, copy the boundary of your design wind speed zones on your base map, then record the design wind speed zones on your base map.
Tsunami	
Wildfire 1. Map the fuel models located within the urban-wildland interface areas. _____ 2. Map the topography. _____ 3. Determine your critical fire weather frequency. _____ 4. Determine your fire hazard severity. x	1. Draw the boundaries of your wildfire hazard areas onto your base map.
Other 1. Map the hazard. _____	1. Record hazard event info on your base map.

Seismicity of Georgia

1990 - 2006

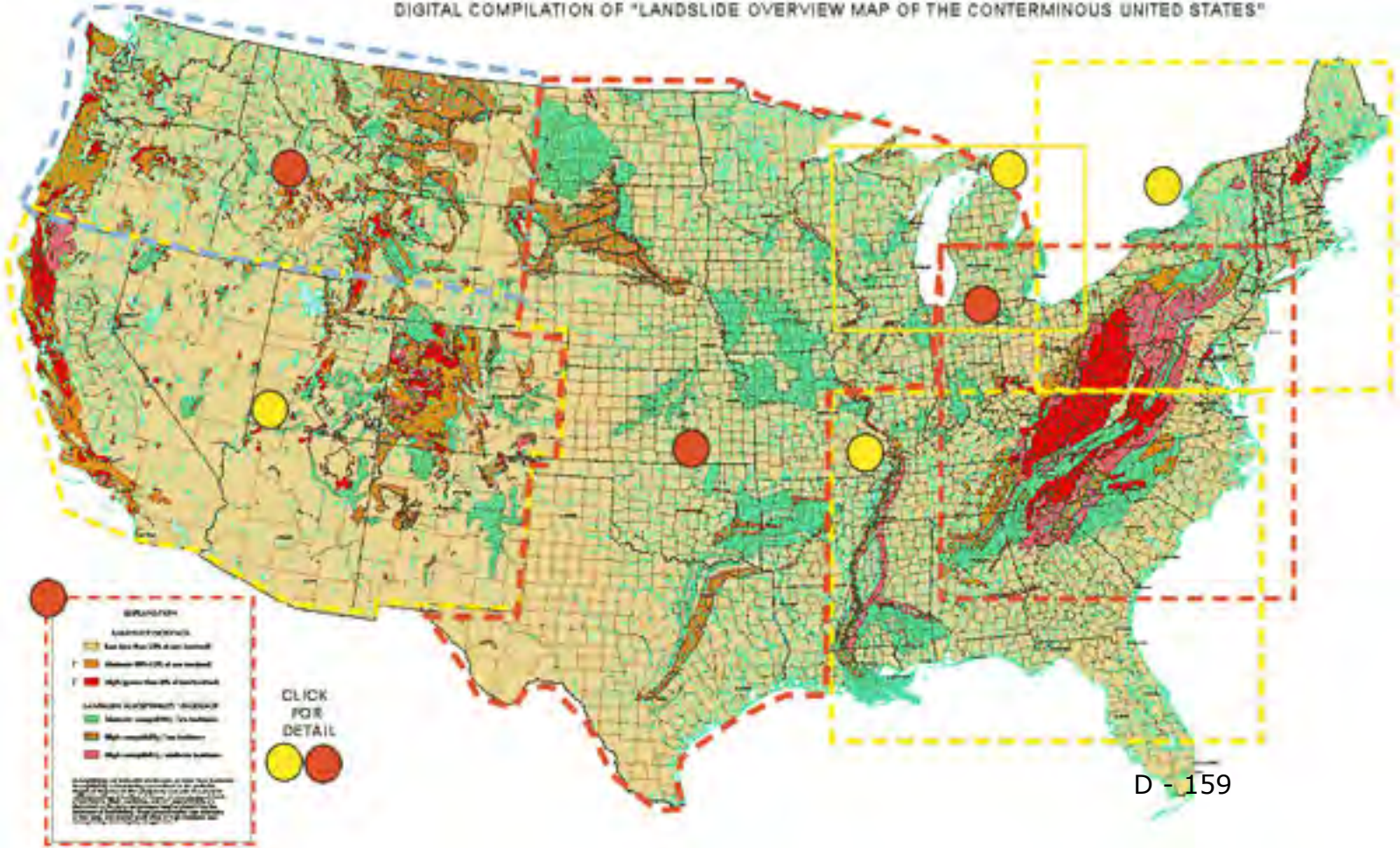


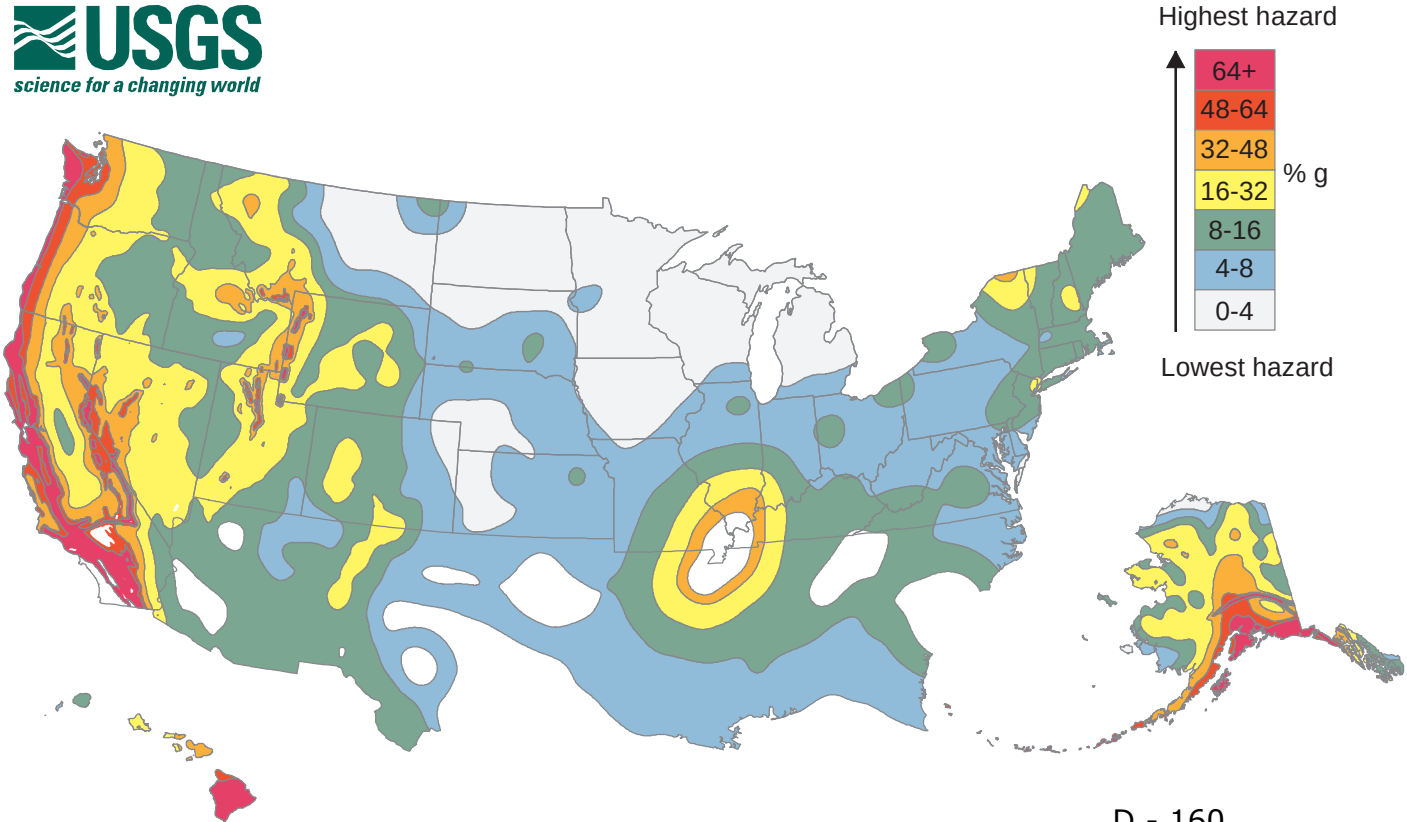




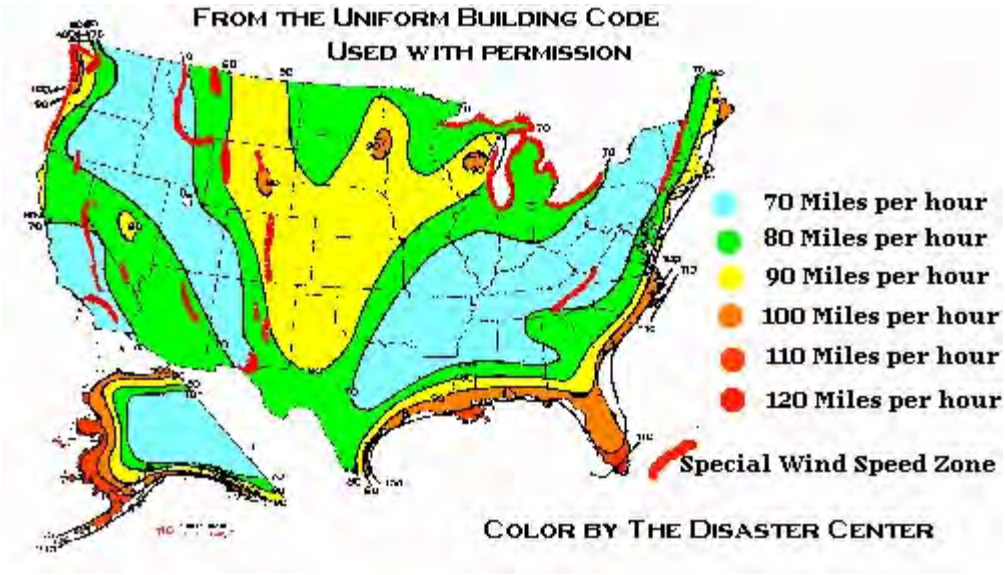
GMIS FLOOD HAZARD MAP

DIGITAL COMPILATION OF "LANDSLIDE OVERVIEW MAP OF THE CONTERMINOUS UNITED STATES"

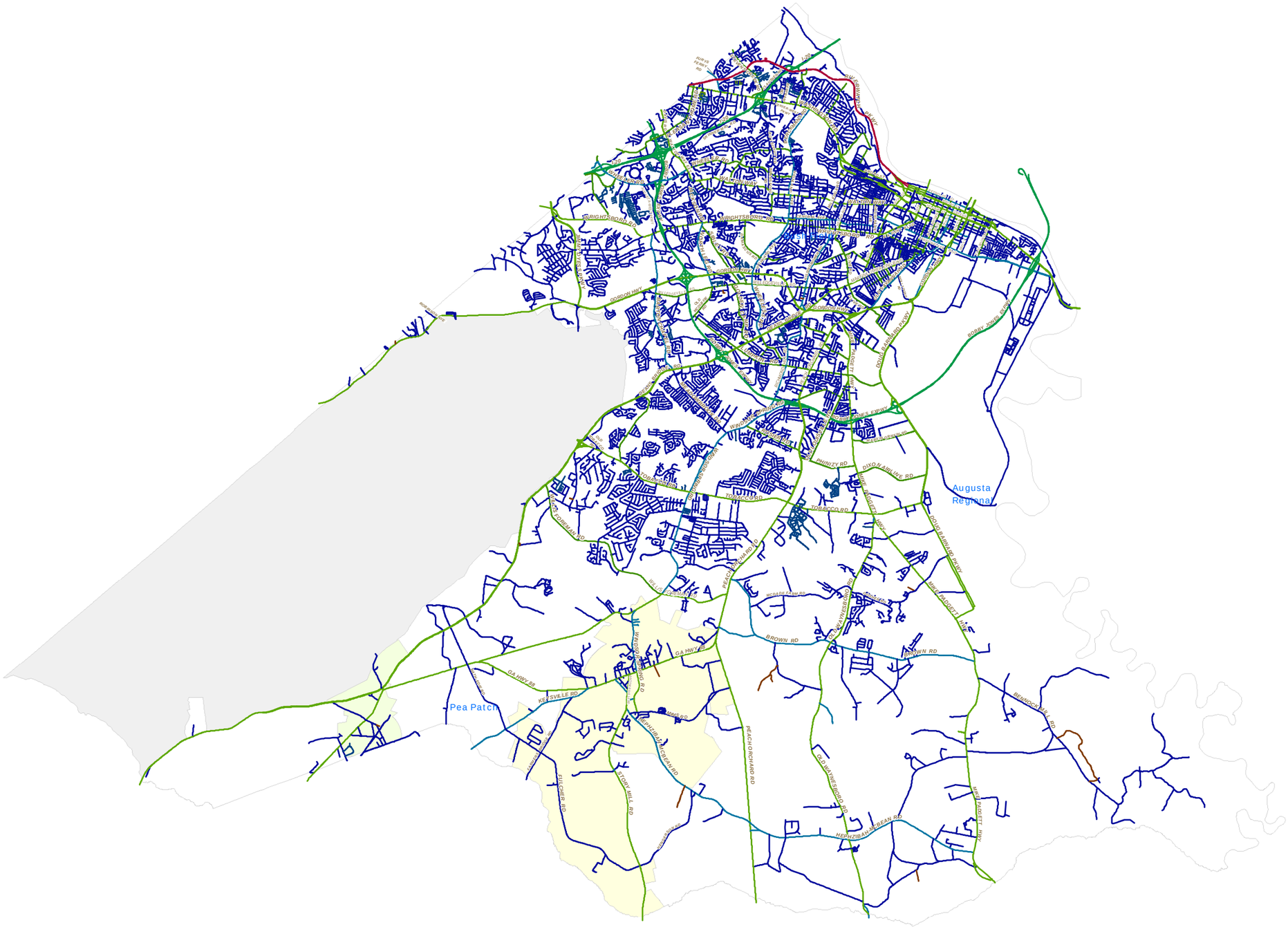



USGS
science for a changing world
Highest hazard
64+
48-64
32-48
16-32
8-16
4-8
0-4
% g
Lowest hazard

D - 160


FROM THE UNIFORM BUILDING CODE
USED WITH PERMISSION
70 Miles per hour
80 Miles per hour
90 Miles per hour
100 Miles per hour
110 Miles per hour
120 Miles per hour
Special Wind Speed Zone
COLOR BY THE DISASTER CENTER

Roads



Roads

- Alley
- Dirt Road
- Interstate Principal Arterial
- Private Street
- Urban Collector Street
- Urban Fwy and Exp
- Urban Local Street
- Urban Minor Arterial
- Urban Principal Arterial

Political Boundaries

- AUGUSTA
- BLYTHE
- FORT GORDON
- HEPHZIBAH

4

0 0.5 1 2 3 4 Miles

Augusta Richmond County GIS

Planning & Zoning Bldg
3rd Floor - GIS Division
525 Telfair St
Augusta, GA 30904

Projection	Stateplane
Zone	3651
Units	Feet

Augusta, GA Disclaimer: The data represented on this map has been compiled by the best methods available. Accuracy is contingent upon the source information as compiled by various agencies and departments both internal and external to the consolidated government of Augusta, GA. Augusta, GA and the companies contracted to develop these data assume no legal responsibilities for the information or accuracy contained on this map. It is strictly forbidden to sell or reproduce these maps or data for any reason without the written consent of the Augusta-Richmond County Commission.

CITY OF AUGUSTA FACILITIES

Augusta GEORGIA

FACILITY NAME

1. 911/EMA FACILITY
2. ADMINISTRATOR'S OFFICE
3. ANIMAL SERVICES
4. APPLEBY BRANCH LIBRARY
5. AT&T PAYMENT CENTER
6. AT&T PAYMENT CENTER
7. AT&T PAYMENT CENTER
8. AT&T PAYMENT CENTER
9. AT&T PAYMENT CENTER
10. AT&T PAYMENT CENTER
11. AT&T PAYMENT CENTER
12. AT&T PAYMENT CENTER
13. AT&T PAYMENT CENTER
14. AT&T PAYMENT CENTER
15. AT&T PAYMENT CENTER
16. AUDIO VISUAL CENTER
17. AUGUSTA CARES
18. AUGUSTA MARINA
19. AUGUSTA MUNICIPAL GOLF COURSE
20. AUGUSTA REGIONAL AIRPORT
21. BOARD OF ELECTIONS
22. CEDAR GROVE CEMETERY
23. CIVIL AND MAGISTRATE COURT *
24. CLERK OF COMMISSION
25. CLERK OF STATE COURT *
26. CLERK OF SUPERIOR COURT *
27. CORONER'S OFFICE
28. CORRECTIONAL INSTITUTION
29. DANIEL FIELD AIRPORT
30. DEPT OF FAMILY AND CHILDREN SERVICES
31. DIAMOND LAKES BRANCH LIBRARY
32. DISADVANTAGED BUSINESS ENTERPRISE
33. DISTRICT ATTORNEY *
34. ENGINEERING ADMINISTRATION
35. ENGINEERING ENGINEERING DIVISION
36. ENGINEERING SIGN SHOP
37. ENGINEERING STREET LIGHTS
38. ENGINEERING TRAFFIC
39. ENGINEERING TRAFFIC ADMIN
40. EXTENSION SERVICE
41. FINANCE
42. FINANCE ACCOUNTING
43. FLEET MANAGEMENT ADMINISTRATION
44. FLEET MANAGEMENT HEAVY VEHICLES GARAGE
45. FLEET MANAGEMENT LIGHT VEHICLES SHOP
46. FLEET MANAGEMENT SHOP
47. FLEET MANAGEMENT SMALL ENGINE SHOP
48. FRIEDMAN BRANCH LIBRARY
49. GEORGIA DEPARTMENT OF DRIVER SERVICES
50. GEORGIA DEPARTMENT OF LABOR
51. GEORGIA POWER COMPANY
52. HEALTH DEPARTMENT
53. HEALTH DEPARTMENT
54. HEALTH DEPARTMENT ENVIRONMENTAL HEALTH
55. HEALTH DEPTARTMENT VITAL RECORDS
56. HILLCREST MEMORIAL CEMETERY
57. HOUSING AND ECONOMIC DEVELOPMENT
58. HUMAN RELATIONS
59. HUMAN RESOURCES
60. INFORMATION TECHNOLOGY
61. JAMES BROWN ARENA
62. JEFF MAXWELL BRANCH LIBRARY
63. JEFFERSON ENERGY COOPERATIVE
64. JUDICIAL CENTER *2011*
65. LAKE OLMSTEAD STADIUM
66. LAW DEPARTMENT
67. LAW LIBRARY *
68. LIBRARY MAIN
69. LICENSE AND INSPECTION
70. MAGNOLIA CEMETERY
71. MARSHAL'S OFFICE
72. MARSHAL'S OFFICE SUBSTATION
73. MAYOR'S OFFICE
74. NEIGHBORHOOD ENHANCEMENT (WEED & SEED)
75. PLANNING & ZONING COMMISSION
76. PROBATE COURT *
77. PROBATION OFFICE FELONY
78. PROBATION OFFICE MISDEMEANOR
79. PROCUREMENT
80. PUBLIC SERVICES ADMINISTRATION
81. PUBLIC SERVICES BLDG AND GROUNDS
82. PUBLIC SERVICES BLDG AND GROUNDS
83. PUBLIC SERVICES BLDG AND GROUNDS
84. PUBLIC SERVICES CONSTRUCTION SHOP
85. PUBLIC SERVICES FACILITIES MANAGEMENT
86. PUBLIC SERVICES MAINTENANCE
87. PUBLIC SERVICES MAINTENANCE
88. PUBLIC SERVICES RECORDS RETENTION
89. PUBLIC SERVICES TREES & LANDSCAPE DIV
90. PUBLIC SERVICES TREES & LANDSCAPE DIV
91. PUBLIC SERVICES TREES & LANDSCAPE DIV
92. PUBLIC SERVICES TREES & LANDSCAPE DIV
93. PUBLIC SERVICES TREES AND LANDSCAPING
94. PUBLIC TRANSIT OFFICE
95. RECREATION AND PARKS_ADMINISTRATION
96. RECREATION AND PARKS_AQUATICS CENTER
97. RECREATION AND PARKS_RIVERWALK SP EVENTS
98. RISK MANAGEMENT
99. SHERIFF_ADMIN AND LAW ENFORCEMENT CENTER
100. SHERIFF_CHARLES B WEBSTER DETENTION CTR
101. SHERIFF_CID_CRIME SCENE TECHNICIANS
102. SHERIFF_NARCOTICS
103. SHERIFF_NORTH PRECINCT SUBSTATION
104. SHERIFF_QUATERMASTER/PROPERTY/EOD GARAGE
105. SHERIFF_RD PATROL SATELLITE SUBSTATION
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126. SHERIFF_RD PATROL SATELLITE SUBSTATION
127. SHERIFF_RD PATROL SATELLITE SUBSTATION
128. SHERIFF_RD PATROL SATELLITE SUBSTATION
129. SHERIFF_SOUTH PRECINCT SUBSTATION
130. SHERIFF_TRAINING DIVISION
131. SOCIAL SECURITY ADMINISTRATION
132. SOLID WASTE - LANDFILL
133. STATE COURT *
134. STATE COURT SOLICITOR *
135. SUPERIOR COURT *
136. TAG OFFICE MAIN
137. TAG OFFICE SOUTH AUGUSTA
138. TAX COMMISSIONER
139. THE FAMILY Y SOUTH BRANCH
140. THE FAMILY Y TUBMAN BRANCH
141. THE FAMILY Y WILSON BRANCH
142. UNITED STATES POSTAL SERVICE
143. UNITED STATES POSTAL SERVICE
144. UNITED STATES POSTAL SERVICE
145. UNITES STATES POSTAL SERVICE
146. UTILITIES_ADMINISTRATION
147. UTILITIES_CONST & MAINT
148. UTILITIES_FILTER PLANT
149. UTILITIES_N MAX HICKS WTP
150. UTILITIES_OMI JAMES B MESSERLY WWTP
151. UTILITIES_PLANT 1
152. UTILITIES_PLANT 2
153. UTILITIES_PLANT 3
154. UTILITIES_SPIRIT CREEK SEWG TRMT PLANT
155. UTILITIES_WATER DEPT MUNICIPAL BLDG
156. UTILITIES_WATER PAYMENT CENTER
157. UTILITIES_WATER PUMP STATION
158. WALLACE BRANCH LIBRARY
159. WESTOVER CEMETERY
160. WESTVIEW CEMETERY
161. YOUTH DEVELOPMENT CENTER

Municipal Building

- ADMINISTRATOR'S OFFICE
- BOARD OF ELECTIONS
- CIVIL AND MAGISTRATE COURT *
- CLERK OF COMMISSION
- CLERK OF SUPERIOR COURT *
- FINANCE
- FINANCE_ACCOUNTING
- HUMAN RESOURCES
- INFORMATION TECHNOLOGY
- LAW LIBRARY *
- MARSHAL'S OFFICE
- MAYOR'S OFFICE
- PROBATE COURT *
- PROCUREMENT
- PUBLIC SERVICES_BLDG AND GROUNDS
- RISK MANAGEMENT
- SUPERIOR COURT *
- TAX COMMISSIONER
- UTILITIES_WATER DEPT MUNICIPAL BLDG

Law Enforcement Center

- CLERK OF STATE COURT *
- PUBLIC SERVICES_BLDG AND GROUNDS
- SHERIFF_ADMIN AND LAW ENFORCEMENT CENTER
- STATE COURT *
- STATE COURT SOLICITOR *

500 Building

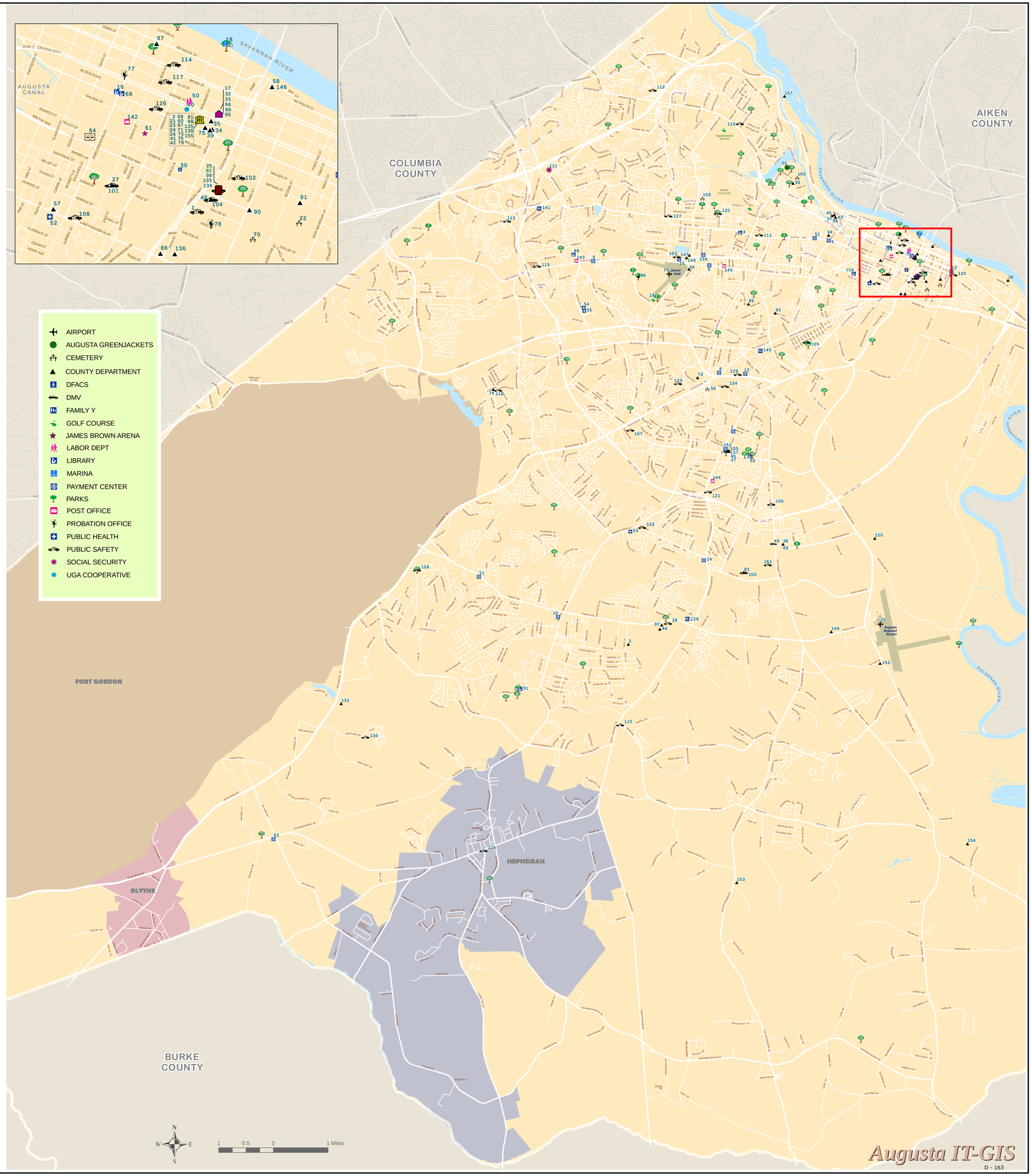
- AUGUSTA CARES
- DISADVANTAGED BUSINESS ENTERPRISE
- DISTRICT ATTORNEY *
- LAW DEPARTMENT
- PUBLIC SERVICES ADMINISTRATION
- PUBLIC SERVICES FACILITIES MANAGEMENT

JUDICIAL CENTER * 2011

- CIVIL & MAGISTRATE COURT (JUDGES)
- PROBATE COURT
- SUPERIOR COURT (JUDGES)
- STATE COURT (JUDGES)
- CLERK CIVIL & MAGISTRATE COURT
- CLERK OF SUPERIOR COURT
- COURT ADMINISTRATION
- DISTRICT ATTORNEY
- SOLICITOR
- JURY CLERK
- LAW LIBRARY

PARKS

1. A.L. WILLIAMS PARK
2. ALEXANDER BARRETT PARK
3. APPLE VALLEY PARK
4. AUGUSTA AQUATICS CENTER
5. AUGUSTA BOXING CLUB
6. AUGUSTA COMMON
7. AUGUSTA GOLF COURSE
8. AUGUSTA SKATEBOARD PARK
9. AUGUSTA SOCCER PARK
10. AUGUSTA STATE UNIVERSITY PE COMPLEX
11. BAURLE BOAT LANDING
12. BAYVALE PARK
13. BEDFORD HEIGHTS PARK
14. BERNIE WARD COMMUNITY CENTER
15. BETHLEHEM COMMUNITY CENTER
16. BIG OAK PARK
17. BLOUNT PARK
18. BLYTHE AREA RECREATION CENTER
19. BOYKIN ROAD PARK
20. BROOKFIELD PARK
21. CARRIE J MAYS PARK
22. CENTRAL PARK
23. CHAFEE PARK
24. DIAMOND LAKES ATHLETIC OFFICE
25. DIAMOND LAKES CENTER
26. DIAMOND LAKES PARK
27. DIAMOND LAKES TENNIS CENTER
28. DOUGHTY PARK
29. DYESS PARK
30. EASTVIEW PARK
31. EISENHOWER PARK
32. ELLIOT PARK
33. FLEMING ATHLETIC OFFICE
34. FLEMING SPORTS COMPLEX
35. FLEMING TENNIS CENTER
36. GARRETT GYMNASIUM
37. GORDON LAKES
38. GRACEWOOD PARK
39. H. H. BRIGHAM PARK
40. HEPHZIBAH/CARROLL PARK
41. HICKMAN PARK
42. HILLSIDE PARK
43. HYDE PARK
44. JAMESTOWN COMMUNITY CENTER
45. JESSYE NORMAN AMPHITHEATER
46. JONES POOL
47. JULIAN SMITH BARBEQUE PIT
48. JULIAN SMITH CASINO
49. LAKE OLMSTEAD PARK
50. LOCK & DAM PARK
51. M.M. SCOTT PARK
52. MAY PARK
53. MCBEAN COMMUNITY PARK
54. MCDUFFIE WOODS PARK
55. MEADOWBROOK PARK
56. MINNICK PARK
57. NEWMAN TENNIS CENTER
58. OLD GOVERNMENT HOUSE
59. PENDLETON KING PARK
60. RADFORD PARK
61. RIVERWALK AUGUSTA
62. RIVERWALK MARINA
63. SAND HILLS PARK
64. SPRINGFIELD VILLAGE PARK
65. SUE REYNOLDS PARK
66. TANGLEWOOD PARK
67. THE BOATHOUSE
68. W. T. JOHNSON COMMUNITY CENTER
69. WARREN ROAD COMMUNITY CENTER
70. WEST VINELAND PARK
71. WOOD PARK
72. WOOD ST PARK
73. WOODLAKE PARK



Augusta IT-GIS

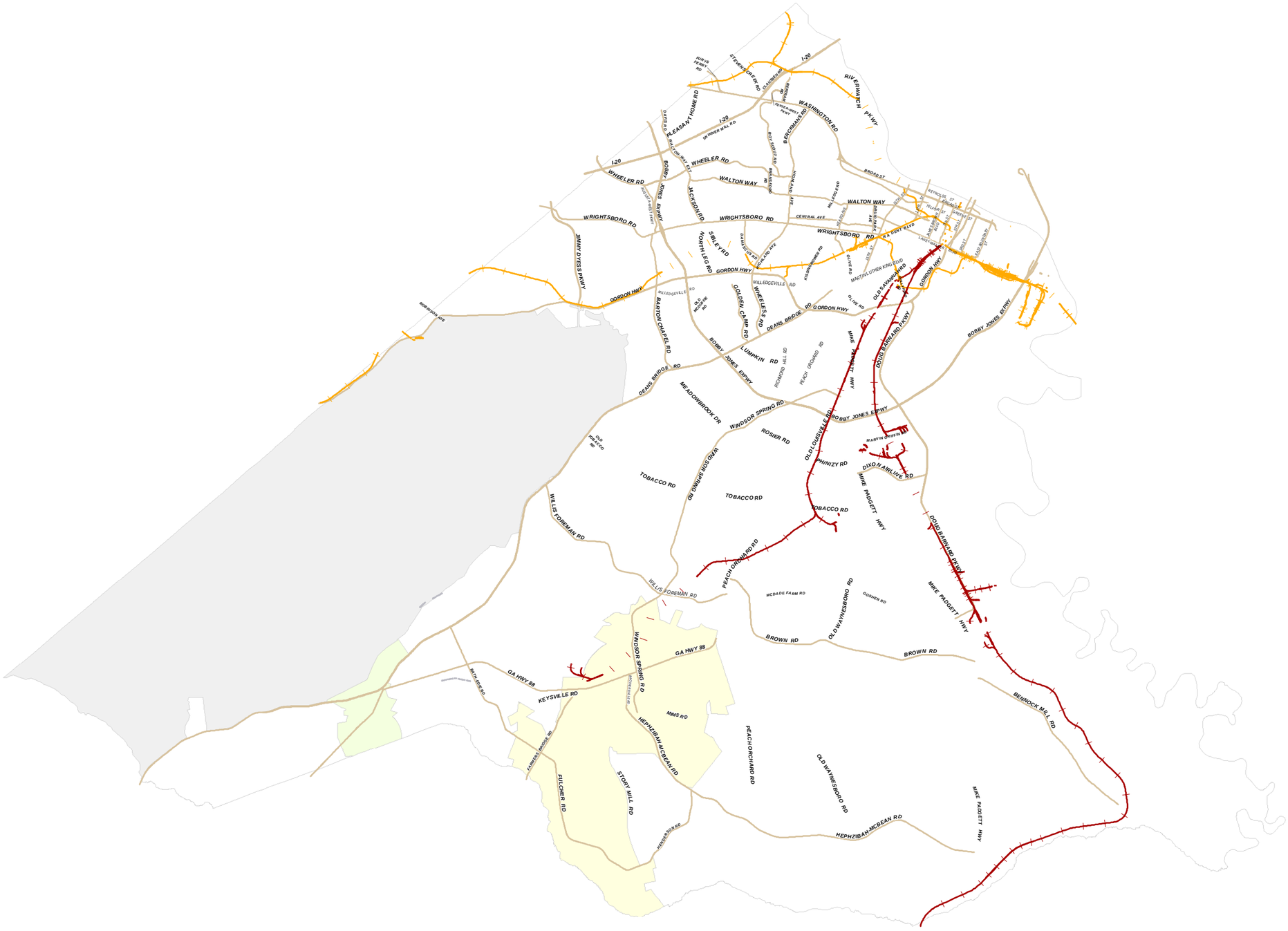
Railroads

Rail Roads By Owner

- ABANDONED
- CSX
- NORFOLK SOUTHERN

Political Boundaries

- AUGUSTA
- BLYTHE
- FORT GORDON
- HEPHZIBAH



4

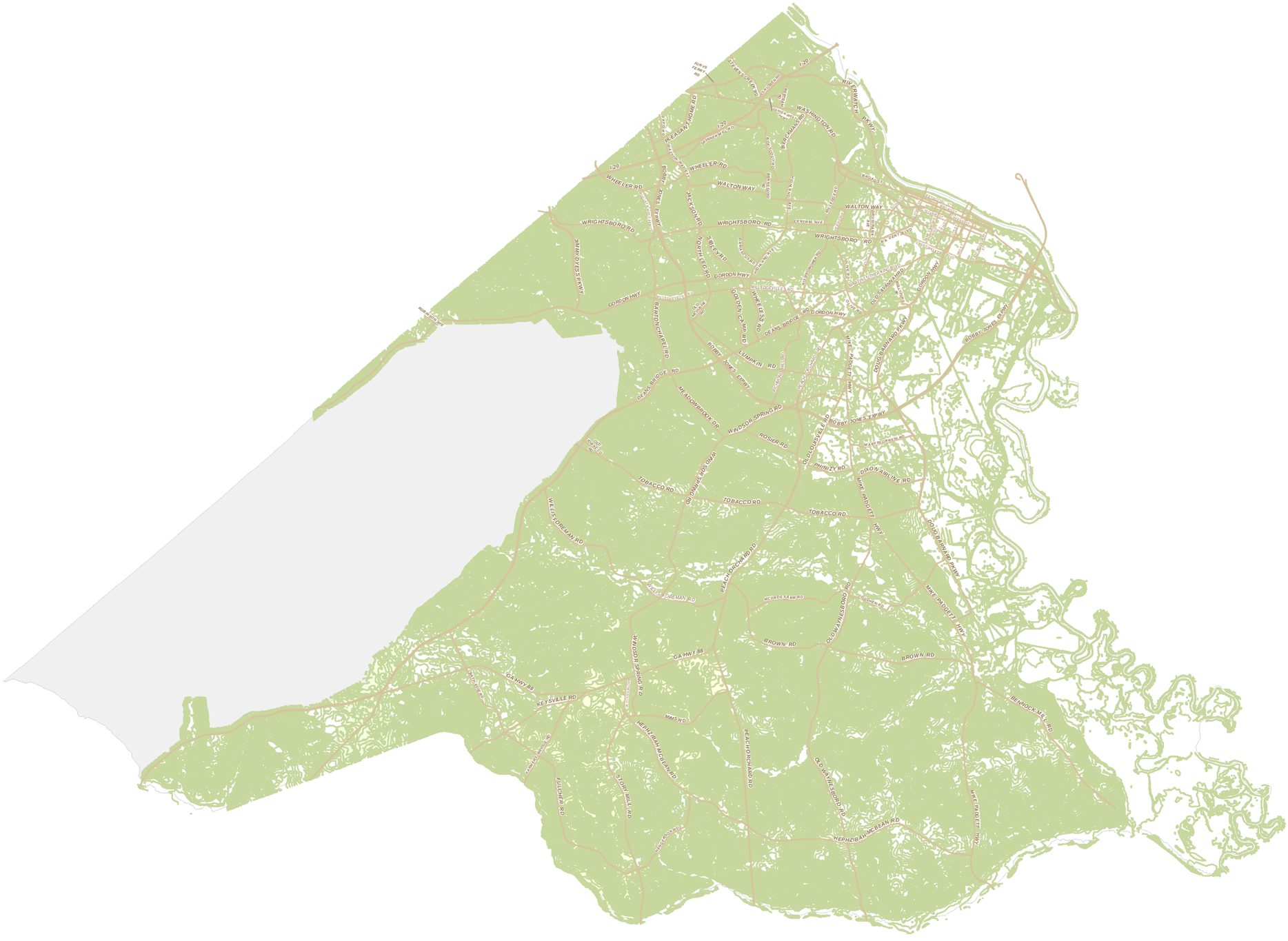
0 0.5 1 2 3 4 Miles

Augusta Richmond County GIS

Planning & Zoning Bldg
3rd Floor - GIS Division
525 Telfair St
Augusta, GA 30904

Projection	Stateplane
Zone	3651
Units	Feet

Augusta, GA Disclaimer: The data represented on this map has been compiled by the best methods available. Accuracy is contingent upon the source information as compiled by various agencies and departments both internal and external to the consolidated government of Augusta, GA. Augusta, GA and the companies contracted to develop these data assume no legal responsibilities for the information or accuracy contained on this map. It is strictly forbidden to sell or reproduce these maps or data for any reason without the written consent of the Augusta-Richmond County Commission.



Contours

- Major Roads
- Contours 5 Foot

Political Boundaries

- AUGUSTA
- BLYTHE
- FORT GORDON
- HEPHZIBAH

4

0 0.5 1 2 3 4 Miles

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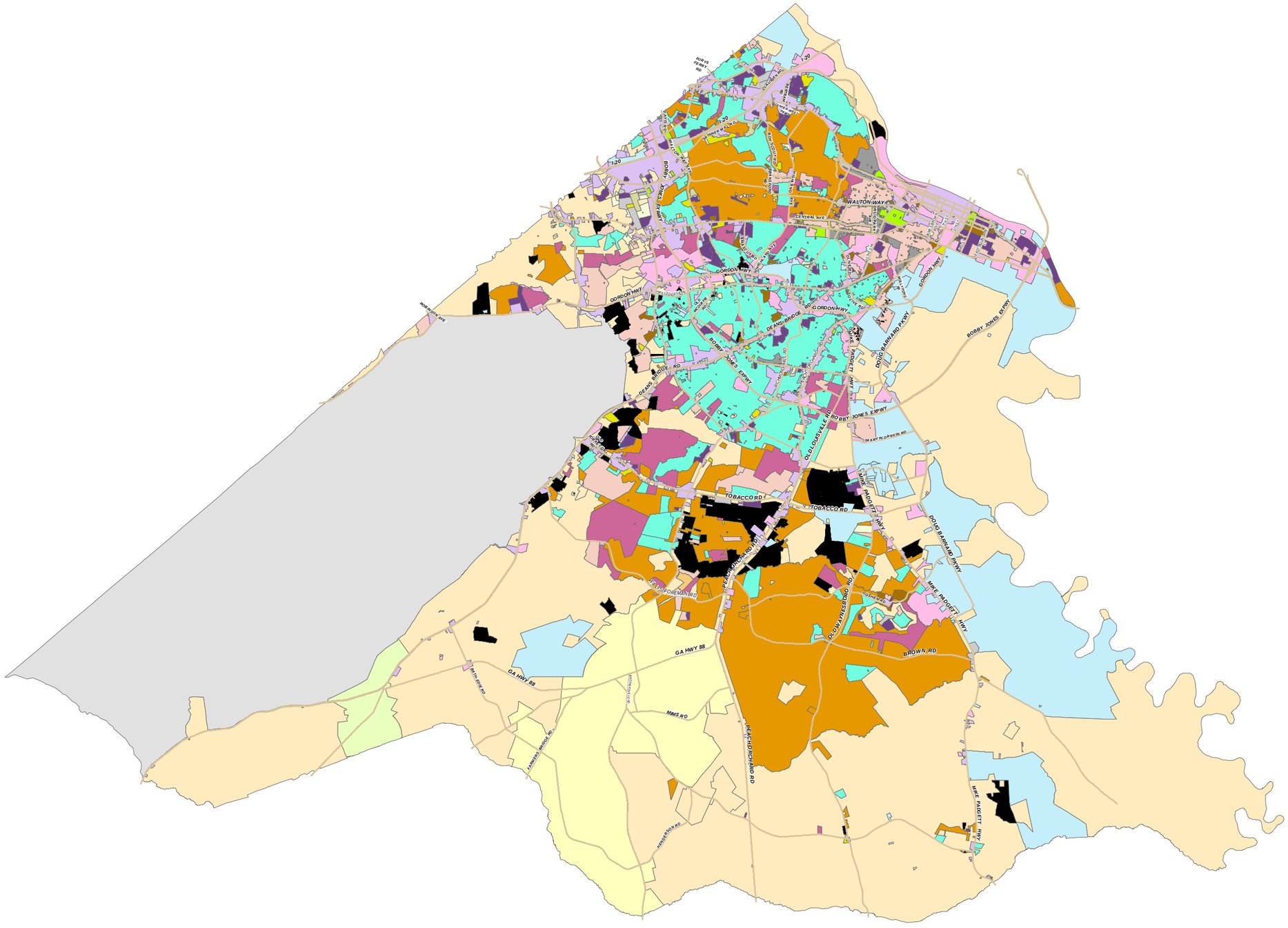

Zoning

Major Roads

Zoning

- A
- B-1
- B-2
- BLYTHE
- FT GORDON
- HEPHZIBAH
- HI
- LI
- P-1
- PUD
- R-1
- R-1A
- R-1B
- R-1C
- R-1D
- R-1E
- R-2
- R-3A
- R-3B
- R-3C
- R-MH

4

0 0.5 1 2 3 4 Miles

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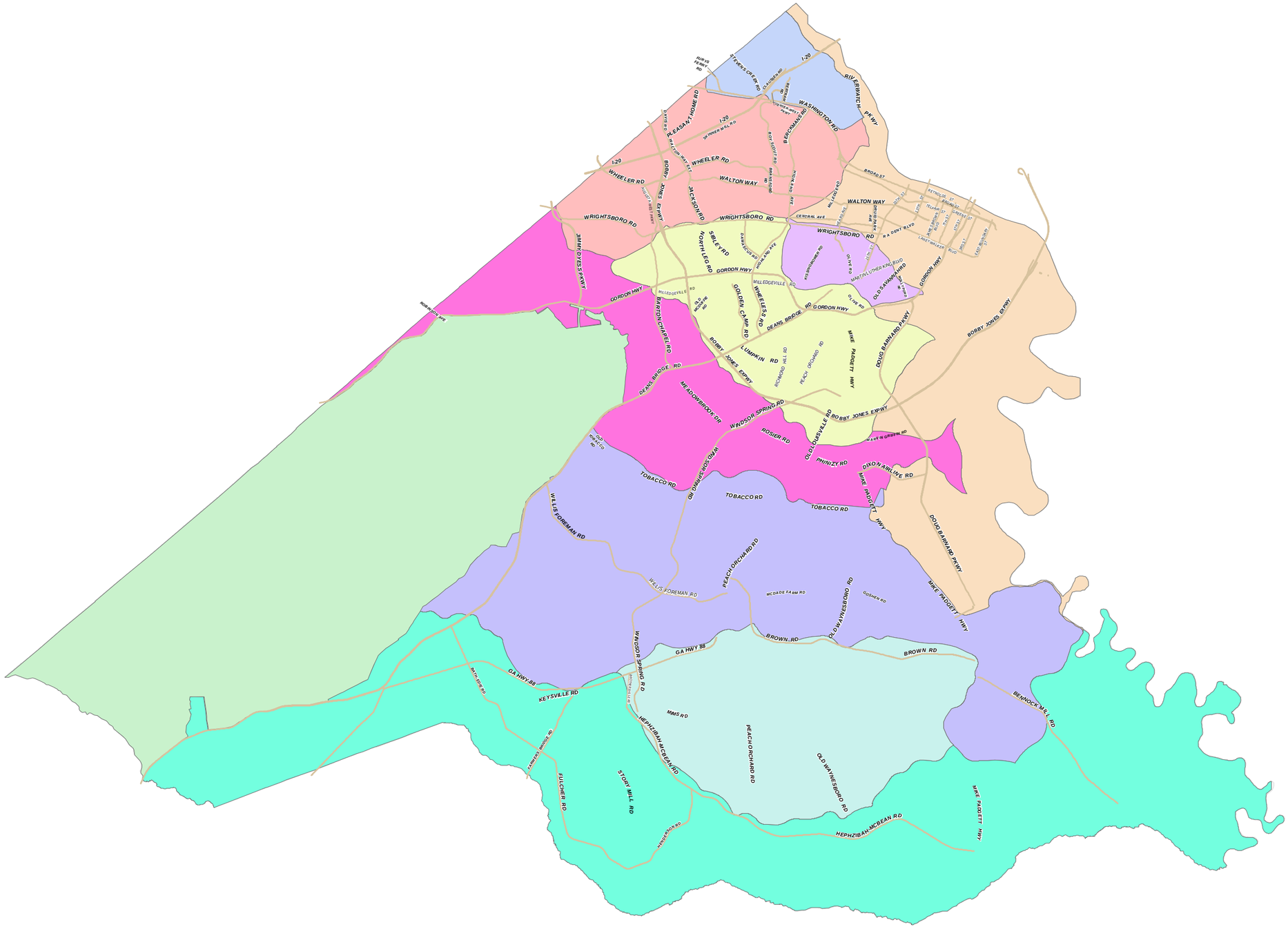
Water Basins

- Butler Creek
- Fort Gordon
- Little Spirit Ceek
- McBean Creek
- Oates Creek
- Phinizy Swamp
- Raes Creek
- Rock Creek
- Rocky Creek
- Spirit Creek



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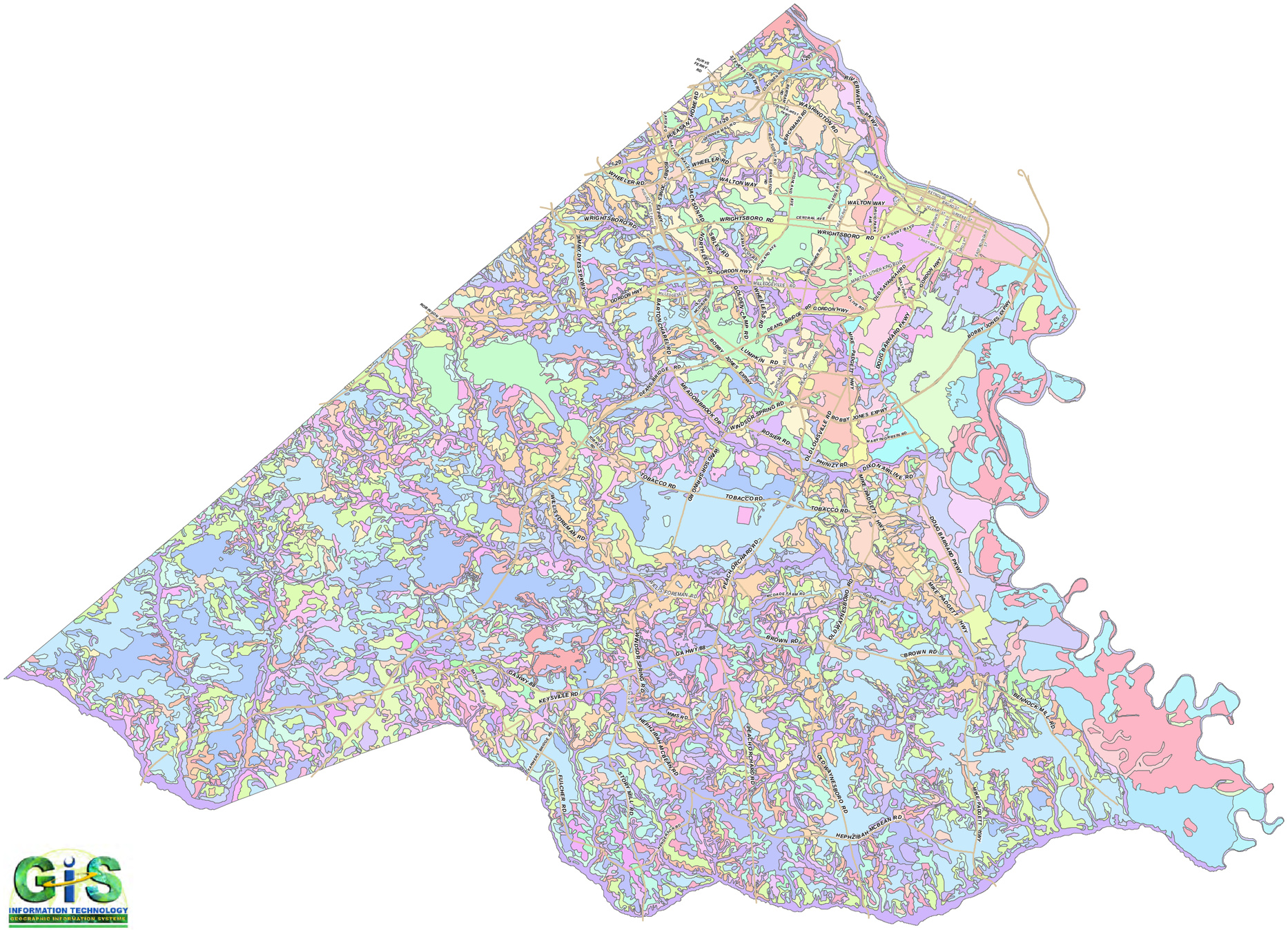
Soils 2008



Soil 2008 (MUSYM)	
AgB	LmB
AgC	LmC
AgD	LmD
Av	MkB
BO	OeA
CC	OeB
CR	OeD
Ca	OsC
DgA	Pm
DhA	Ra
DoA	Rh
DoB	Ro
DuB	Rp
FeA	Rr
FeB	TwB
FeC	TwC
FsB	TwD
FuC	TxC
GgB	UaA
GgC	Uc
GhC	Ud
GmA	VaC
GnA	VaD
GoE	VuC
Gr	VuD
GvB	W
GvC	WeC
HZ	WeD
LkB	WuC
LkC	WuD
LkD	WvB

4

0 0.5 1 2 3 4 Miles

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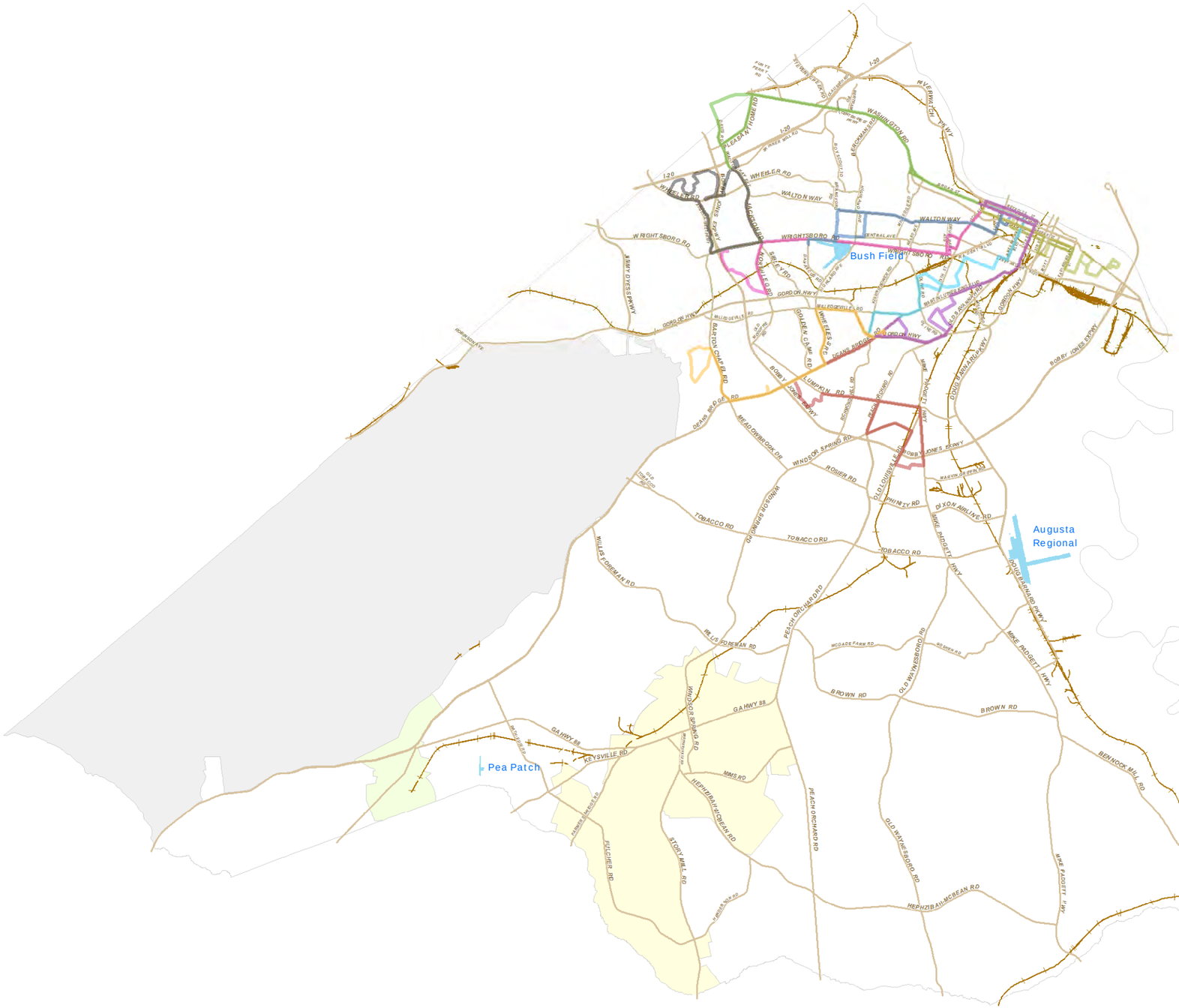
Transportation



Bus Routes

- Walton Way
- West Parkway
- East Augusta
- Turpin Hill / Southgate
- Washington Rd
- K-Mart
- Augusta Mall
- Barton Chapel / Transfer
- Lumpkin Rd / GA Regional

Political Boundaries

- AUGUSTA
- BLYTHE
- FORT GORDON
- HEPHZIBAH
- Major Roads
- Rail Roads
- Airports

4

0 0.5 1 2 3 4 Miles

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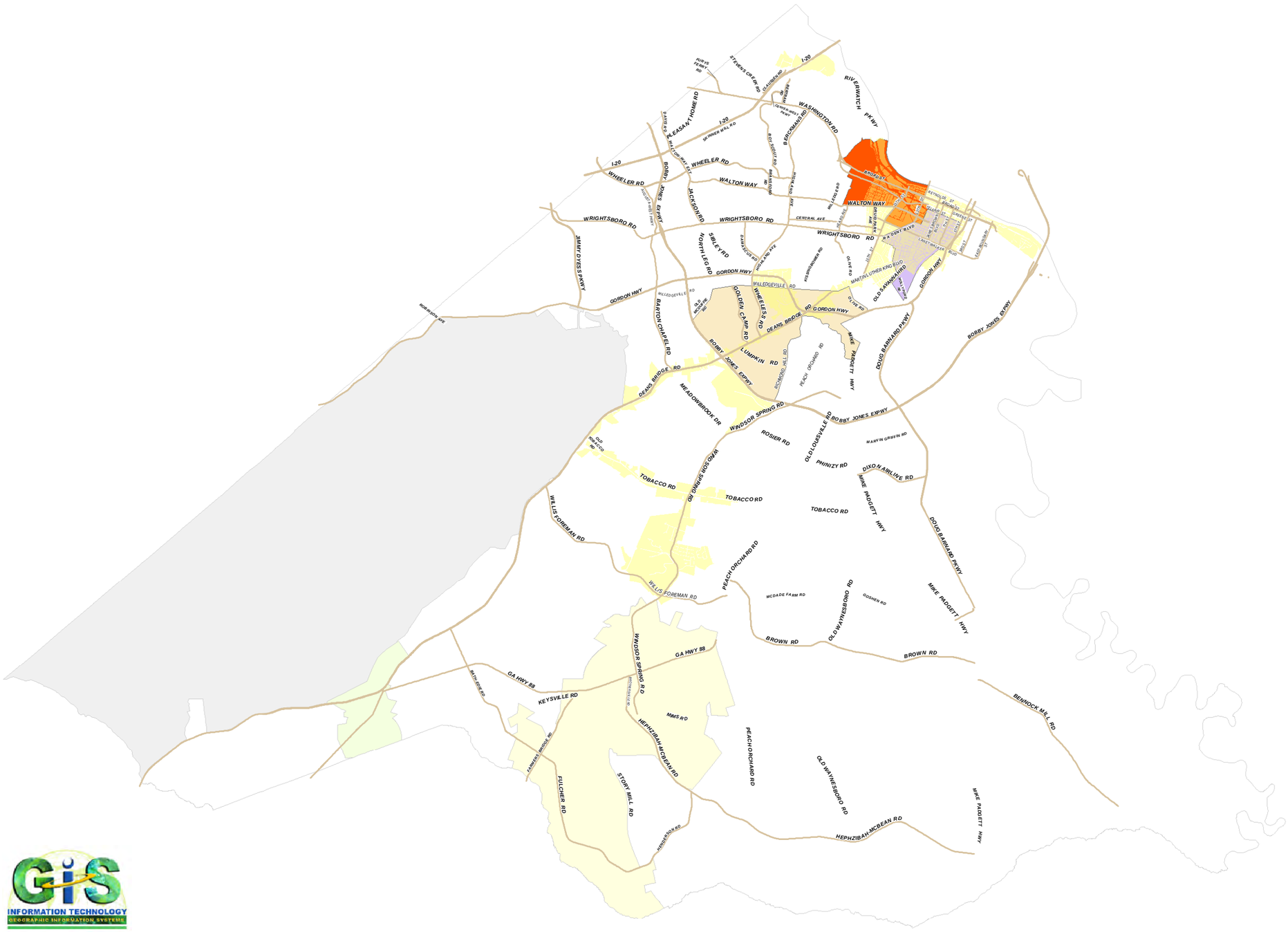

Special Districts

- TAD
- Rocky Creek Enterprise Zone
- Laney Walker Enterprise Zone
- Harrisburg West

4

0 0.5 1 2 3 4 Miles

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COUNTY **RICHMON**D
HAZARD FREQUENCY TABLE

Hazard	Number of Events in Historic Record	Number of Years in Historic Record	Number of Events in Past 10 Years	Number of Events in Past 20 Years	Number of Events in Past 50 Years	Historic Recurrence Interval (years)	Historic Frequency % chance/year	Past 10 Year Record Frequency Per Year	Past 20 Year Record Frequency Per Year	Past 50 Year Record Frequency Per Year
Hurricane Surge - Cat 1	1	76	0	0	0	76.00	1.32	0	0	0
Hurricane Surge - Cat 2						#DIV/0!	#DIV/0!	0	0	0
Hurricane Surge - Cat 3						#DIV/0!	#DIV/0!	0	0	0
Hurricane Surge - Cat 4						#DIV/0!	#DIV/0!	0	0	0
Hurricane Surge - Cat 5						#DIV/0!	#DIV/0!	0	0	0
Hurricane Wind						#DIV/0!	#DIV/0!	0	0	0
Floods	12	61	4	12	12	5.08	19.67	0.4	0.6	0.24
Wildfire	0	0	0	0	0	0.00	#DIV/0!	0	0	0
Earthquake						#DIV/0!	#DIV/0!	0	0	0
Tornado	9	61	2	6	9	6.78	14.75	0.2	0.3	0.18
Thunderstorm Wind	140	56	54	88	134	0.40	250.00	5.4	4.4	2.68
Hail	62	61	41	56	62	0.98	101.64	4.1	2.8	1.24
Drought	49	108	10	11	17	0.00	0.00	0	0.55	0.34
Extreme Heat	5	10	5			2.00	50.00	0.5	0	0
Snow & Ice	6	5	5	5	5	0.83	120.00	0.5	0.25	0.1
Landslide						#DIV/0!	#DIV/0!	0	0	0
Dam Failure	1	31	0	0	1	31.00	3.23	0	0	0.02
High Wind	2	61	1	2		30.50	3.28	0.1	0.1	0
HazMat Release (fixed)						#DIV/0!	#DIV/0!	0	0	0
HazMat Release (trans)	2	6	2	2	2	3.00	33.33	0.2	0.1	0.04
Radiological Release						#DIV/0!	#DIV/0!	0	0	0

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

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

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

HMPC Critical Facilities List

Subject: RE: Hazard Mitigation Plan Update - Info Needed I'll keep checking Terri, but I think this is most if not all the "critical facilities". I wanted to get this to you as it's from Plazid and I'll cross check the grading permit list for any others that I might have missed. Bob is doing the other two.

1. Fire Stations 20 Total, EMS stationed at stations
2. Trinity Hospital Complex 2260 Wrightsboro Road
3. Paine College 1235 15th Street
4. Walton West Rehab. Hosp., 2501 Center West Pkwy
5. Augusta Richmond County Board of Education (Schools)
6. University Hospital Complex 1350 Walton Way
7. Doctors Hosp 3851 Wheeler Rd
8. East Central Regional Hospital & Serenity, 4146 Gracewood Dr
9. Sheriff's Office Bldg, 401 Walton Way
   2 Sub Stations, 1600 Gordon Hwy, 2800 Wrightsboro Road
10. Marshal's Office Bldg, 3050 Deans Bridge Rd
11. Charlie Norwood VA Medical Center 1101 15th Street
    Georgia War Nursing Home
12. Georgia Power North Leg Road
13. Jefferson Electric Ga. Hwy 88
14. Natural Gas Company
15. Georgia Health Sciences University (MCG) 1429 Harper St
16. New Savannah Bluff Lock n Dam Lock N Dam Road
17. Fort Gordon Complex
18. Augusta Judicial Center, 735 James Brown Blvd.
19. Water Towers/Tanks (location not to be announced)
20. University of Phoenix, 3150 Perimeter Pkwy
21. Augusta Utilities Campus, Benson Rd
22. Water Treatment Plant expansion
23. Water Treatment Plant new construction
24. Webster Detention Center, 1941 Phinizy Rd
25. Underground Pipeline (location not to announced)

26. Augusta Regional Airport
27. Interstates 20-I-520/to include bridges within the county

Main Office – 4600 Frontage Road Augusta Georgia, 30909
Routine Maintenance Office - 4006 Mack Lane Road

1. I-20
2. I-520
3. SR 56 Spur (Doug Bernard Parkway)
4. SR 104 (Riverwatch Parkway)
5. SR 28 (John C. Calhoun Expressway)
6. SR 28 (Sandbar Ferry Road) from US 1/US 25 to South Carolina
7. SR 56 (Mike Padgett Highway) from Burke County line to I-520 Interchange.
8. SR 121/US 25 (Peach Orchard Road) from Burke County line to I-520 Interchange

Bridges (specifically over rivers and canal):

1. I-20 over Savannah River
2. I-20 over Augusta Canal
3. SR 4 (13th Street) over Savannah River
4. US 1/US 25 over Savannah River
5. I-520 over Savannah River
6. SR 28 (Sandbar Ferry Road) over Savannah

28. Augusta Utilities Raw Water Pump Station, Goodrich Street at River
29. Fort Gordon Water Treatment Plant
30. Augusta Technical School 3200 Deans Bridge Road
31. Norfolk Southern Railways
32. CSX Railroad bridge crossing Rae's' Creek (Goodrich Street)***
33. CSX Railroad track extension (Lovers Ln)

Emergency Management

Heat Shelters

The following facilities are available as heat shelters. **Name**	**Location**	**Phone**
1 Carrie J. Mays Center	1014 11th Ave. Augusta	706-821-2827
2 Bernie Ward Center	1941 Lumpkin Rd. Augusta	706-790-0588
3 Blythe Center	3129 HWY 88 Blythe	706-592-4988
4 Henry H. Brigham Center	2463 Golden Camp Rd. Augusta	706-771-2654
5 May Park	622 4th Street Augusta	706-724-0504
6 McBean Center	1155 Hephzibah/McBean Rd. Hephzibah	706-560-2628
7 Sand Hills Center	2540 Wheeler Rd. Augusta	706-842-1912
8 W. T. Johnson Center	1606 Hunter St. Augusta	706-821-2866
9 Warren Road Center	300 Warren Rd. Augusta	706-860-2833

County	Building Name	Gross Square Footage	Total Occupancy	Replacement Value	Year Constructed	Insured Value	Contents Value
Richmond	Payne Hall	16,540	155	$2,001,340.00	1826	$6,000,000.00	$500,000.00
Richmond	Allgood Hall	123,190	1832	$30,181,550.00	2000	$31,000,000.00	$4,023,350.00
Richmond	Rains Hall	9,564	11	$1,157,244.00	1826	$4,500,000.00	$300,000.00
Richmond	Fanning Hall	10,179	75	$1,231,659.00	1826	$2,000,000.00	$1,000,000.00
Richmond	Boykin Wrigth Cott	1,535	13	$185,735.00	1900	$200,000.00	$50,000.00
Richmond	Benet Garage	621	$75,141.00	1945	$95,000.00	$50,000.00	
Richmond	Bellevue Hall	5,113	38	$572,656.00	1805	$1,500,000.00	$300,000.00
Richmond	Bus Stop	204	$24,480.00	1984	$25,000.00		
Richmond	Boykin Wright Hall	7,800	180	$943,800.00	1900	$3,500,000.00	$500,000.00
Richmond	Washington Hall	44,708	232	$5,007,296.00	1941	$15,000,000.00	$3,000,000.00
Richmond	Galloway Hall- Con	16,271	$2,359,295.00	1947	$4,500,000.00	$500,000.00	
Richmond	Chateau	2,566	$287,392.00	1860	$300,000.00	$50,000.00	
Richmond	CFH (Storage)	1,833	$91,650.00	1994	$250,000.00	$300,000.00	
Richmond	Fine Arts Center	20,651	$2,994,395.00	1967	$7,000,000.00	$1,000,000.00	
Richmond	Forest Hills Shed-Athletic	1,800	48	$97,200.00	1995	$100,000.00	
Richmond	Gorgas Road Toilet	240	$24,480.00	1959	$30,000.00		
Richmond	Bellevue Annex (Firehouse)	2,617	30	$293,104.00	1942	$750,000.00	$50,000.00
Richmond	Guard House	952	7	$106,624.00	1866	$300,000.00	$100,000.00
Richmond	Haz. Waste Bldg. (FH)	128	$15,360.00	1998	$150,000.00	$10,000.00	
Richmond	Quad Wall Bldg.	3,659	$442,739.00	1847	$1,200,000.00	$115,000.00	
Richmond	Kiln Shed	1,100	$132,000.00	1959	$140,000.00	$25,000.00	
Richmond	Reese Library	79,337	830	$19,437,565.00	1976	$25,000,000.00	$10,000,000.00
Richmond	Maxwell Alumni Hou	4,423	53	$495,376.00	1915	$2,000,000.00	$250,000.00
Richmond	Faculty Art Studio	3,574	39	$518,230.00	1947	$700,000.00	$100,000.00
Richmond	Green House	988	30	$118,560.00	1997	$130,000.00	$25,000.00
Richmond	Performing Arts Th	28,803	$380,799.00	1967	$20,000,000.00	$1,000,000.00	
Richmond	CETC/Radio Station	2,956	20	$428,620.00	1942	$750,000.00	$300,000.00
Richmond	Public Safety	2,641	25	$396,150.00	1942	$500,000.00	$200,000.00
Richmond	Benet Hall	9,389	$1,136,069.00	1826	$3,000,000.00	$300,000.00	
Richmond	CFH Storage	1,800	$90,000.00	1998	$250,000.00	$117,500.00	
Richmond	Maintenance Shop	17,187	$1,684,326.00	1941	$2,000,000.00	$500,000.00	
Richmond	Natatorium (Pool)	15,383	777	$3,245,813.00	1965	$150,000.00	

Richmond	(BB) Storage Building	394	$37,430.00	1849	$80,000.00	$100,000.00	
Richmond	Human Resources	2,271	17	$254,352.00	1900	$500,000.00	$200,000.00
Richmond	Purchasing Office	876	7	$105,996.00	1840	$325,000.00	$50,000.00
Richmond	University Hall	112,370	1123	$27,530,650.00	2002	$30,000,000.00	$6,000,000.00
Richmond	Grounds-Warehouse 201	14,701	$1,146,678.00	1941	$1,500,000.00	$200,000.00	
Richmond	Ceramics/Sculp/Sto	12,444	123	$970,632.00	1941	$1,500,000.00	$150,000.00
Richmond	ROTC/Storage/Bio/Ceramic Wshe. 203	12,388	$966,264.00	1941	$1,500,000.00	$110,000.00	
Richmond	Central Services	14,768	$1,151,904.00	1941	$1,500,000.00	$300,000.00	
Richmond	Central Utility Pl	13,791	183	$3,047,811.00	1942	$9,000,000.00	$5,500,000.00
Richmond	Archaeology Lab (W	978	11	$109,536.00	1875	$200,000.00	$25,000.00
Richmond	Golf House CFH	7,000	44	$1,092,000.00	2006	$1,300,000.00	$90,000.00
Richmond	Science Hall	121,478	1500	$29,762,110.00	1998	$40,000,000.00	$10,000,000.00
Richmond	Forest Hills Stora	7,991	$623,298.00	1950	$750,000.00		
Richmond	Literacy Center (D	2,611	$266,322.00	1950	$500,000.00	$50,000.00	
Richmond	Forest Hills Maint	7,200	$360,000.00	1986	$750,000.00	$300,000.00	
Richmond	Forest Hills Pavil	625	$97,500.00	2005	$100,000.00		
Richmond	Forest Hills Pumphouse-I	216	$10,368.00	1987	$20,000.00	$100,000.00	
Richmond	Christenberry Fieldhouse	129,870	4004	$17,272,710.00	1987	$33,000,000.00	$3,000,000.00
Richmond	Forest Hills Club	8,931	128	$1,393,236.00	1991	$2,500,000.00	$1,000,000.00
Richmond	Forest Hills Practice Range Wshe.	330	23	$51,480.00	$75,000.00		
Richmond	Jaquar Student Activities Center	2,271	1000	$7,049,900.00	N/A	$712,300.00	(Leased Building - not insured but replacement value was system)
Richmond	Amphitheatre Pavilion	952	$109,480.00	$300,000.00	$0.00		
Richmond	Forest Hills Storage Shed (green)	80	$1,000.00				
Richmond	Forest Hills Pumphouse II	192	$9,216.00	$100,000.00	$100,000.00		
Richmond	Forest Hills Open Pavilion	256	$12,800.00	$15,000.00	$0.00		
Richmond	Jaguar Student Housing (University Village)	192,275	(Unknown)	N/A	$77,000.00		

Date: Monday, August 15, 2011

To: Hazard Mitigation Plan Update Planning Committee / Stakeholders Committee

Re: STAPLEE Process for Hazard Mitigation Plan Update – Mitigation Actions

In Chapter 2 of this Plan Update, members of the Augusta-Richmond County HMPC conducted quantitative and qualitative evaluation of the community's exposure to natural hazards through HRV process. As a direct result of the prevalent natural hazard evaluation, HMPC established the following 2011 mitigation goals and objectives:

Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to tornadoes, wind, storms, and hail.

Objective 1.1: Increase resilience of critical facilities (including shelters) to the effects of tornado winds, violent storms, and hail.

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of tornado winds, violent storms, and hail in Augusta-Richmond County.

Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to the riverine and localized flooding.

Objective 2.1: Increase resilience of building stock, critical infrastructure, and essential facilities to the effects of flooding.

Objective 2.2: Increase public awareness and increase level of protection to local population from the effects of flooding.

Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to drought and effects of extreme heat.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of drought and extreme heat in Augusta-Richmond County.

Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of winter storms.

Objective 4.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of winter storms.

Goal 5: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of wildfire.

Objective 5.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of wildfire in Augusta-Richmond County.

Goal 6: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of earthquakes.

Objective 6.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of seismic activity.

Mitigation Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to tornadoes, wind, storms, and hail.

Objective 1.1: Increase resilience of critical facilities (including shelters) to the effects of tornado winds, violent storms, and hail.

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.1 (Multi Jurisdictional)

3

Review capacity of the existing tornado shelters and construct new ones if needed

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	−	+	−	−	−	+	+	+	+	+	−	+	−	−	+	+	+	+	+	+

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.2 (Multi Jurisdictional)

1

Debris Management Plan - Work with the cities, Georgia Forestry Commission, power companies, and other entities to develop a Debris Management Plan. Note: FEMA has a guidebook for developing debris management strategies and examples from other jurisdictions are available.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	−	−	−	+	+	+	+	+	+	+	−	+	+	+	+	+	+	+

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.3

2

Augusta Public Tree Maintenance - Continue tree maintenance on city streets and city-owned property (reduce debris, impacts of falling).

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	−	+	+	+	+	+	−	+	−	+	+	+	+	+	+	+

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.4

(4) **Promote Enhanced Anchoring of Manufactured Homes** – making them less susceptible to tornado damages and detachment from the pad.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	−	+	+	+	+	−	−	−	−	+	−	+	+	+	+	−	+	+	+	+	+	+	+

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of tornado winds, violent storms, and hail in Augusta-Richmond County.

GOAL 1 – Objective 1.2 – Mitigation Action 1.2.1 (Multi Jurisdictional)

Severe Storm Awareness - Continue public outreach on severe storm and tornado risks; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of representatives from Augusta, Blythe, Hephzibah, and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the National Weather Service, FEMA, the American Red Cross, and others and determine whether changes are appropriate. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	–	–	–	+	+	+	–	+	–	+	–	+	+	+	+	+	+	+

Mitigation Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to the riverine and localized flooding.

Objective 2.1: Increase resilience of building stock, critical infrastructure, and essential facilities to the effects of flooding.

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.1

8

Drainage and Stormwater Management. Implement central database for staff to record drainage and flooding problems (build on existing software). Train staff of all departments that receive citizen calls to use the database to register appropriate information to ensure quality data. Develop method to consider the database contents in setting priorities for drainage projects and to support identification of flood mitigation opportunities. Formalize detention basin maintenance procedures and system to prioritize maintenance.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	−	+	+	+	+	+	−	+	+	+	−	+	+	+	+	+

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.2

2

Sewer Line Infiltration and Inflow. Continue to undertake projects to identify and resolve infiltration and inflow.During wet weather and flooding conditions, water infiltrates into sewer lines and flows into the system through submerged manhole covers, based on qualitative assessment of cost/effort and long-term benefits

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	+	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

6

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.3

Soil Erosion and Sediment Control Sedimentation in waterways may be contributing to drainage problems and flooding Due to the significant size and duration of four projects proposed by Georgia DOT for the upper part of the Crane Creek basin, and the high visibility of downstream flooding, request GDOT's continued attention to exemplary sediment and erosion control practices. Communicate with City crews and contractors that City projects are to be undertaken with exemplary sediment and erosion control practices. Examine the feasibility of offering training for local contractors to reinforce proper installation and maintenance of sediment control measures; seek cooperative partners, including the District Soil Conservation Office, Georgia DOT, and GA Department of Natural Resources. Increase frequency of inspections of sediment control measures and work with project owner/contractor to maintain effective measures throughout construction.

Continue cooperative efforts with Columbia County regarding installation and maintenance of sediment and erosion control measures on active construction sites in the upper portions of waterways that drain into Augusta, with particular attention to Crane Creek, Rae's Creek, and Butler Creek

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

3

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.4

Flood Hazard Map Revisions and Updates Pursue City-wide revision of the Flood Insurance Rate Maps, building on the City's new digital topography and work underway by the U.S. Army Corps of Engineers to prepare flood studies as part of the *Flood Reduction Study* (including Rocky Creek, Rae's Creek, Crane Creek, Augusta Canal and Phinizy Swamp), and including other studies and identified watersheds. Communicate to the Georgia Department of Natural Resources and FEMA Region IV the importance of receiving revised maps in the Digital Flood Insurance Rate Map format. When available for local use, annotate digital map with the "lower floodway fringe" delineation to facilitate awareness of and application of the Flood Damage Prevention Ordinance and to more clearly identify areas targeted for greenspace purposes. Incorporate new flood maps into the City's GIS. Develop a database of property owners for use in public awareness activities.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	−	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

(4)

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.5

Economic Analysis related to Flood Hazard and critical facilities Perform economic analysis related to identifying the most effective flood mitigation projects. Utilize newly developed FEMA DFIRMs and new topography to ascertain economic impact of flooding at various frequencies. Develop several scenarios and identify the most cost-beneficial mitigation measures or the most exposed industrial facility in downtown Augusta.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

(1)

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.6

Policies & Procedures for Flood Mitigation Projects. Develop Flood Mitigation Project Policies and Procedures Manual. Establish systematic method for using and prioritizing funds, including a mechanism to account for changes in priorities as a function of several variables (such as the funding agency's priorities, recent flooding, degree of damage, damage history, predicted depth of flooding, existing drainage problems, sewer infiltration, proximity to other public open space/ greenspace, etc.). Gather data on buildings in FEMA-mapped floodways and repetitive loss areas to have available in the post-flood period; use to target efforts for recovery, permitting, and grant application development. Obtain FEMA's Residential Substantial Damage Estimator software and maintain ability to use it to facilitate damage estimates and substantial damage determinations. Develop policy on abandoned homes in SFHA (donations, condemn, demolish, HUD funds). Examine the Corps' database of buildings in the SFHA and pre-identify those most likely to sustain significant damage if floods equivalent to the SFHA or greater occur, i.e., those predicted to have more than 2-feet of water above the lowest floor.

Use the identified list to target post-flood inspections. Maintain awareness of different sources of mitigation funding (pre-disaster, post-disaster, CDBG/HOME, NFIP flood insurance claims payments, etc). Continue to seek mitigation grant funds to implement mitigation in high priority actions. Explore with GDOT if, as part of its environmental enhancement and wetlands mitigation requirements, funding could support additional buyouts areas where the frequency of flooding indicates the hydrology would support allowing areas to return to wetland functions. Include consideration of flood mitigation opportunities in the City's identification of projects for which ISTEA applications will be prepared, which may include projects to preserve floodway greenspace or floodplain buyouts in areas where detention is required or wetlands are desirable.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

7

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.7

The National Flood Insurance Program's (NFIP) Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS: 1) Reduce flood losses; 2)Facilitate accurate insurance rating; and 3)Promote the awareness of flood insurance.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	−	+	+	−	+	+	+	+	+	+	+	+	+	+	+	+

5

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.8

Dam Safety. For State-designated Category I dams that are located in the City or on waterways that drain through the City, estimate potential impacts and determine if the downstream risks are sufficient to contact owners to encourage their development of limited emergency action plan procedures, and periodic inspections, that are coordinated with the City.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Objective 2.2: Increase public awareness and increase level of protection to local population from the effects of flooding

GOAL 2 – Objective 2.2 – Mitigation Action 2.2.1
Public Awareness Initiative. Mitigation is a partnership and citizens are both obligated and responsible for certain actions to help reduce exposure to flooding and to improve the City's ability to recover from flooding. To increase public awareness and responsibility, convene a work group (e.g., City departments, neighborhood associations, NRCS/SCS, Corps of Engineers, others) to prepare and implement a multi-year plan for public awareness. The Plan may contain the following actions: Encourage property owner purchase of flood insurance to provide financial protection that helps personal recovery; Encourage property owner purchase of flood insurance to increase options for post-flood mitigation (because of Increased Cost of Compliance insurance coverage). Prepare articles for publication emphasizing what property owners can do to plan and prepare for floods and to reduce losses (flooded road safety, low cost mitigation measures, insurance, the automated 911 Message flood warning alerts). Coordinate with campaigns undertaken by the State (flood awareness, winter storm awareness, etc.). Develop web-based materials; link to other sites (GEMA, FEMA, Red Cross, Extension Service). Co-op with stormwater management initiative to distribute periodic mailing to property owners along waterways to inform them of their responsibility to keep drainageways clear (don't dump debris, yard clippings, tree limbs, etc.). Develop materials for the Planning Commission and License and Inspections to handout with permits or mailings (tailored for homeowners, business owners, and owners of vacant lands). Topics to include flood insurance, mitigation options, flood safety, permit requirements, etc. Improve consistency of communication to the public regarding flooding, prepare briefing of basic information for City staff who field calls or meet with citizens groups. Establish a hotline for citizen reports of flooding and drainage problems. Request and sponsor periodic NFIP workshops provided by others (GADNR, FEMA) for lenders, insurance agents, real estate professionals and others. To facilitate preparation of Elevation Certificates and other uses, post database of elevation benchmarks and reference marks on the City's webpage and notify local surveyors and engineers of its availability. Research options to improve disclosure of flood hazards as part of the property transfer process.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	−	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

GOAL 2 – Objective 2.2 – Mitigation Action 2.2.2

1

Flood Mitigation/Hazard Mitigation Staffing. Seek new staff position to coordinate the City's floodplain management and mitigation efforts. Functions would include: leadership for implementation and tracking of priority action items identified in the Plan; provide staff review of permit applications for floodplain development; function as the City's Community Rating System Coordinator; develop flood mitigation policies and procedures; apply for and administer mitigation grants; coordinate the City's interaction with the U.S. Army Corps of Engineers; coordinate multi-year effort to revise FIRMs; coordinate the Flood Damage Assessment Team (with L&I) for substantial damage determinations; serve as liaison with press and the public on matters related to flooding.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

GOAL 2 – Objective 2.2 – Mitigation Action 2.2.3

4

Savannah River Flood Protection and Awareness. Although there is a very low probability that flood levels on the Savannah River would prompt closure of the eight breaches in the Levee, the consequences of such flooding would be catastrophic. Residential and nonresidential uses exist on the riverside of the levee (some on City-owned land) and may be subject to damage at different floodwater levels. To enhance protection and awareness: Convene a City work group to review and revise the Emergency Levee Closure Plan. For City-owned property on the riverside of the Levee that is leased to private entities, examine lease conditions with respect to adequate advisory language to protect the City. Consider whether lessees should be notified of the risk of flooding; that the City periodically conducts a levee closing exercise; and that certain conditions of flooding predicted by the U.S. Army Corps of Engineers may prompt the City to require evacuation. Other topics for consideration: the availability of flood insurance to cover losses (for both structure and contents); the requirement to obtain permits for building improvements, additions, and repair of damage; termination of leases under certain circumstances (e.g., if buildings are substantially damaged by any cause (e.g., flood or fire); etc. Notify owners of private property on the river side of the Levee about the risk of flooding, levee closing procedures, requirements to evacuate, availability of flood insurance, and the requirement to obtain permits. Continue to exercise the Emergency Levee Closure Plan every two years.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

GOAL 2 – Objective 2.2 – Mitigation Action 2.2.4

3

Flood Warning - Augusta's watersheds are relatively small and tend to respond rapidly to heavy rainfall, making it difficult to use the traditional door-to-door notification to adequately warn residents to evacuate. For the same reason, placing barricades or stationing City personnel at flood-prone roads is problematic, especially in the upper reaches of watersheds. To enhance flood safety: Use GIS and flood maps to identify buildings within flood hazard areas and develop phone groups for automated, generalized flood warning announcements through 911 Message; exercise the announcement system periodically. Explore if the automated rain gages that may be installed by Augusta Utilities as part of watershed assessments can be used to augment the City's preparations during times when flooding is likely. Improve the list of flood-prone roads; evaluate whether the most frequently flooded areas warrant signs to alert the traveling public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Mitigation Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to drought and effects of extreme heat.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of drought and extreme heat in Augusta-Richmond County.

GOAL 3 – Objective 3.1 – Mitigation Action 3.1.1 (Multi Jurisdictional)

Water Conservation Awareness. Augusta Utilities to continue implementation of the Water Conservation Plan; continue to comment on proposed development site and landscaping plans; continue to report on and encourage conservation in The H2O Newsletter and to highlight water conservation tips on its web page. The City of Hephzibah will continue to follow and implement the State's water conservation guidelines.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	−	−	−	+	+	+	+	+	−	+	+	+	+	+	+	+	+	+

Mitigation Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of winter storms.

Objective 4.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of ice and winter storms.

3

GOAL 4 – Objective 4.1 – Mitigation Action 4.1.1 (Multi Jurisdictional)

Severe Winter Storm Awareness - Continue public outreach on severe winter storm and ice; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of representatives from Augusta, Blythe, Hephzibah, and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the National Weather Service, FEMA, the American Red Cross, and others and determine whether changes are appropriate. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	−	+	+	−	+	+	+	+	+	+	+	+	+	+	+	+

2

GOAL 4 – Objective 4.1 – Mitigation Action 4.1.2

Augusta Public Tree Maintenance - Continue tree maintenance on city streets and city-owned property (reduce debris, impacts of falling).

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	−	−	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

GOAL 4 – Objective 4.1 – Mitigation Action 4.1.3 (Multi Jurisdictional)

(1) **Debris Management Plan** - Work with the cities, Georgia Forestry Commission, power companies, and other entities to develop a Debris Management Plan. Note: FEMA has a guidebook for developing debris management strategies and examples from other jurisdictions are available.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	−	−	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Mitigation Goal 5: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of wildfire.

Objective 5.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of wildfire in Augusta-Richmond County.

1

GOAL 5 – Objective 5.1 – Mitigation Action 5.1.1

Pre-Suppression Planning for City-Owned Lands. Request assistance from the Georgia Forestry Commission to evaluate fire risks on City-owned parks and greenspace to develop prevention plans to improve forest health.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	−	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

2

GOAL 5 – Objective 5.1 – Mitigation Action 5.1.2

Subdivisions & Driveway Access for Fire Vehicles. Request that the Quarterly Subdivision Regulations Review Committee consider new standards for widths of subdivision roads and shoulders, and for common driveways for multiple flagpole lots to provide safer access by larger fire trucks.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	−	+	−	+	+	−	−	−	+	+	−	+	+	+	+	+	+	+	+	+	+	+	+

Mitigation Goal 6: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of earthquakes.

Objective 6.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of seismic activity.

GOAL 6 – Objective 6.1 – Mitigation Action 6.1.1
Outreach and seismic inspection Request that the building inspectors conduct field verification of the building's overall health and field operators Seismic inspection of the residential structure.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	−	−	−	+	+	−	−	−	+	+	−	+	+	−	+	−	+	+	+	+	+	+	+

In Chapter 3 of this Plan Update, members of the Augusta-Richmond County HMPC conducted quantitative and qualitative evaluation of the community's exposure to technological hazards through HRV process. As a direct result of the prevalent technological hazard evaluation, HMPC established the following 2011 mitigation goals and objectives:

Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to chemical spills / airborne release.

Objective 1.1: Increase environmental safety with respect to flood hazards and downtown Augusta railroad infrastructure.

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of chemical spills / airborne release.

Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to terrorism.

Objective 2.1: Increase public awareness and increase level of protection to local population from the effects of terrorism.

Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to nuclear plant incident.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of nuclear plant incident.

Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to dam / levee break.

Objective 4.1 (in conjunction with Objective 1.1): Maintain public awareness and increase level of protection to critical infrastructure and local population from the effects of dam / levee break.

Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to chemical spills / airborne release.

Objective 1.1: Increase environmental safety with respect to flood hazards and downtown Augusta railroad infrastructure.

(2)

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.1

Environmental Safety and Flood Hazards. Improve geo-location data for the actual physical locations of hazardous materials and use the GIS-based mapped flood hazard areas to identify sites that are in or near mapped floodplains. Flood hazards should be identified both from FEMA DFIRMs and USACE inundation maps. For sites determined to have some degree of flood risk, request that the LEPC use the information to inform owners/operators and encourage including flood threat recognition and protective measures into risk management plans.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	−	+	+	+	+	+	+	+	+	+		+	+	+	+	+

(1)

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.2

Downtown Railroad Safety. Continue to pursue activities (engineering, land acquisition, etc.) related to relocating railroads from downtown Augusta; in particular, NS Railroad mainline o ff of 6th Street right-of-way. This action is contained in the Augusta-Richmond County Comprehensive Plan.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	+	−	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of chemical spills / airborne release.

GOAL 1 – Objective 1.2 – Mitigation Action 1.2.1

Chemical Spill Awareness - Continue public outreach on chemical spills and airborne release; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of representatives from Augusta, LEPC, and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the National Weather Service, FEMA, the American Red Cross, and others and determine whether changes are appropriate. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	−	+	+	+	+	+	−	+	−	+	+	+	+	+	+	+

Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to terrorism.

Objective 2.1: Increase public awareness and increase level of protection to local population from the effects of terrorism.

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.1

Terrorism Awareness - Continue public outreach on terrorism; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of emergency management and law enforcement representatives from Augusta, Blythe, Hephzibah, LEPC and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the Department of Homeland Security, Georgia Bureau of Investigation (GBI), and GEMA. Ensure that all essential facilities have threat of terrorism evaluated and provided for in their contingency plans. Provide training and emergency drills for operators of all essential facilities. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	−	+	+	+	+	+	−	+	−	+	+	+	+	+	+	+

Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to nuclear plant incident.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of nuclear plant incident.

GOAL 3 – Objective 3.1 – Mitigation Action 3.1.1

Nuclear Plant Incident Awareness - Continue public outreach on nuclear hazard; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of emergency management and representatives from Augusta, Blythe, Hephzibah, LEPC, SRNS, Southern Company and members of the public, including nonprofit and neighborhood organizations and others, to evaluate existing outreach efforts and materials and propose improvements, if necessary. Provide training and emergency drills for operators of all essential facilities. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	−	+	+	+	+	+	−	+	−	+	+	+	+	+	+	+

Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to dam / levee break.

Objective 4.1 (in conjunction with Objective 1.1): Maintain public awareness and increase level of protection to critical infrastructure and local population from the effects of dam / levee break.

GOAL 4 – Objective 4.1 – Mitigation Action 4.1.1

Dam / levee Break Flood Hazard Considerations. . Improve geo-location data for the actual physical locations of hazardous materials and use the GIS-based mapped flood hazard areas to identify sites that are in or near mapped floodplains. For sites determined to have some degree of flood risk, request that the LEPC use the information to inform owners/operators and encourage including flood threat recognition and protective measures into risk management plans. Continue public outreach and maintain awareness of the dam/levee break hazard; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of emergency management and representatives from USACE, smaller dam owners and members of the public, including nonprofit and neighborhood organizations and others, to evaluate existing outreach efforts and materials and propose improvements, if necessary. Provide training and emergency drills for operators of all essential facilities. Expand use of Augusta's website to make information readily available to the public. Evaluate dam/levee break warning systems.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	−	+	+	+	+	+	−	+	−	+	+	+	+	+	+	+

STAPLEE Criteria Package filled out by:

JACK L. WOMACK II

Name

8/15/11

Date:

CAPTAIN / FIRE MARSHAL

Title

AUGUSTA FIRE DEPT

Agency

City of Blythe
294 Church Street
Blythe, GA 30805
(706)592-6255 – Phone
(706) 592-0511 – Fax
cityofblythe@comcast.net

facsimile transmittal

To:	Terri Turner	**Fax:**	706-821-1806
From:	Loriann H. Chancey	**Date:**	08/16/11
Re:	STAPLEE Process for Hazard Mitigation Plan Update – Mitigation Actions	**Pages:**	24
CC:			

☐ Urgent ☒ For Review ☐ Please Comment ☐ Please Reply ☐ Please Recycle

Terri,

If you can't read the fax let me know & I'll have the packet delivered.

THIS MESSAGE IS INTENDED ONLY FOR THE USE OF THE INDIVIDUAL OR ENTITY TO WHICH IT IS ADDRESSED AND MAY CONTAIN INFORMATION THAT IS PRIVILEGED, CONFIDENTIAL AND EXEMPT FROM DISCLOSURE UNDER APPLICABLE LAW. IF THE READER OF THIS MESSAGE IS NOT THE INTENDED RECIPIENT OR THE EMPLOYEE OR AGENT RESPONSIBLE FOR DELIVERING THE MESSAGE TO THE INTENDED RECIPIENT, YOU ARE HEREBY NOTIFIED THAT ANY DISSEMINATION, DISTRIBUTION OR COPYING OF THIS COMMUNICATION IS STRICTLY PROHIBITED. IF YOU HAVE RECEIVED THIS COMMUNICATION IN ERROR, PLEASE NOTIFY US IMMEDIATELY BY TELEPHONE AND RETURN THE ORIGINAL MESSAGE TO US AT THE ABOVE ADDRESS VIA U.S. POSTAL SERVICE. THANK YOU.

Blythe

Date: Monday, August 15, 2011

To: Hazard Mitigation Plan Update Planning Committee / Stakeholders Committee

Re: STAPLEE Process for Hazard Mitigation Plan Update – Mitigation Actions

In Chapter 2 of this Plan Update, members of the Augusta-Richmond County HMPC conducted quantitative and qualitative evaluation of the community's exposure to natural hazards through HRV process. As a direct result of the prevalent natural hazard evaluation, HMPC established the following 2011 mitigation goals and objectives:

Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to tornadoes, wind, storms, and hail.

Objective 1.1: Increase resilience of critical facilities (including shelters) to the effects of tornado winds, violent storms, and hail.

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of tornado winds, violent storms, and hail in Augusta-Richmond County.

Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to the riverine and localized flooding.

Objective 2.1: Increase resilience of building stock, critical infrastructure, and essential facilities to the effects of flooding.

Objective 2.2: Increase public awareness and increase level of protection to local population from the effects of flooding.

Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to drought and effects of extreme heat.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of drought and extreme heat in Augusta-Richmond County.

Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of winter storms.

Objective 4.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of winter storms.

Blythe

Goal 5: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of wildfire.

Objective 5.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of wildfire in Augusta-Richmond County.

Goal 6: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of earthquakes.

Objective 6.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of seismic activity.

Blythe

Mitigation Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to tornadoes, wind, storms, and hail.

Objective 1.1: Increase resilience of critical facilities (including shelters) to the effects of tornado winds, violent storms, and hail.

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.1 (Multi Jurisdictional)

Review capacity of the existing tornado shelters and construct new ones if needed #3

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)					
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Available	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenges	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws	
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	15

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.2 (Multi Jurisdictional)

#1 **Debris Management Plan** - Work with the cities, Georgia Forestry Commission, power companies, and other entities to develop a Debris Management Plan. Note: FEMA has a guidebook for developing debris management strategies and examples from other jurisdictions are available.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)					
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Available	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenges	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws	
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	18

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.3

#2 **Augusta Public Tree Maintenance** - Continue tree maintenance on city streets and city-owned property (reduce debris, impacts of falling).

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)					
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Available	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenges	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws	
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	17

Blythe

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.4

Promote Enhanced Anchoring of Manufactured Homes – making them less susceptible to tornado damages and detachment from the pad. #4

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)			
Considerations + for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contribute to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

16

Blythe

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of tornado winds, violent storms, and hail in Augusta-Richmond County.

GOAL 1 – Objective 1.2 – Mitigation Action 1.2.1 (Multi Jurisdictional)

Severe Storm Awareness - Continue public outreach on severe storm and tornado risks; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of representatives from Augusta, Blythe, Hephzibah, and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the National Weather Service, FEMA, the American Red Cross, and others and determine whether changes are appropriate. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contribution to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Laws
	+	+	+	+	+	-	-	+	+	+	+	+	+	-	+	-	-	-	+	+	+	+	+

Blythe

Mitigation Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to the riverine and localized flooding.

Objective 2.1: Increase resilience of building stock, critical infrastructure, and essential facilities to the effects of flooding.

* To Develope a Data Base

#5

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.1

Drainage and Stormwater Management. Implement central database for staff to record drainage and flooding problems (build on existing software). Train staff of all departments that receive citizen calls to use the database to register appropriate information to ensure quality data. Develop method to consider the database contents in setting priorities for drainage projects and to support identification of flood mitigation opportunities. Formalize detention basin maintenance procedures and system to prioritize maintenance.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contribute to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
						/	/	/															

#2

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.2

Sewer Line Infiltration and Inflow. Continue to undertake projects to identify and resolve infiltration and inflow. During wet weather and flooding conditions, water infiltrates into sewer lines and flows into the system through submerged manhole covers, based on qualitative assessment of cost/effort and long-term benefits

N/A Blythe - No sewer lines in Blythe

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contribute to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent With Community Environmental Goals	Consistent With Federal Laws
						/	/	/															

Blythe

#6

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.3

Soil Erosion and Sediment Control Sedimentation in waterways may be contributing to drainage problems and flooding Due to the significant size and duration of four projects proposed by Georgia DOT for the upper part of the Crane Creek basin, and the high visibility of downstream flooding, request GDOT's continued attention to exemplary sediment and erosion control practices. Communicate with City crews and contractors that City projects are to be undertaken with exemplary sediment and erosion control practices. Examine the feasibility of offering training for local contractors to reinforce proper installation and maintenance of sediment control measures; seek cooperative partners, including the District Soil Conservation Office, Georgia DOT, and GA Department of Natural Resources. Increase frequency of inspections of sediment control measures and work with project owner/contractor to maintain effective measures throughout construction.

Continue cooperative efforts with Columbia County regarding installation and maintenance of sediment and erosion control measures on active construction sites in the upper portions of waterways that drain into Augusta, with particular attention to Crane Creek, Rae's Creek, and Butler Creek

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent With Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+		/	/	/	+	+	0	+	+	/	+	/	+	+	+	+	+	+	+

15

* Blythe has no bodies of water

#3

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.4

Flood Hazard Map Revisions and Updates Pursue City-wide revision of the Flood Insurance Rate Maps, building on the City's new digital topography and work underway by the U.S. Army Corps of Engineers to prepare flood studies as part of the *Flood Reduction Study* (including Rocky Creek, Rae's Creek, Crane Creek, Augusta Canal and Phinizy Swamp), and including other studies and identified watersheds. Communicate to the Georgia Department of Natural Resources and FEMA Region IV the importance of receiving revised maps in the Digital Flood Insurance Rate Map format. When available for local use, annotate digital map with the "lower floodway fringe" delineation to facilitate awareness of and application of the Flood Damage Prevention Ordinance and to more clearly identify areas targeted for greenspace purposes. Incorporate new flood maps into the City's GIS. Develop a database of property owners for use in public awareness activities.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent With Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+		/	/	/	+	+	+	+	+	/	+	+	+	+	+	+	+	+	+

18

Blythe

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.5

Economic Analysis related to Flood Hazard and critical facilities Perform economic analysis related to identifying the most effective flood mitigation projects. Utilize newly developed FEMA DFIRMs and new topography to ascertain economic impact of flooding at various frequencies. Develop several scenarios and identify the most cost-beneficial mitigation measures or the most exposed industrial facility in downtown Augusta.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contribution to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+		/	/	/	+	+	+	+	+	/	+	/	+	+	+	+	+	+	+

+1

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.6

Policies & Procedures for Flood Mitigation Projects. Develop Flood Mitigation Project Policies and Procedures Manual. Establish systematic method for using and prioritizing funds, including a mechanism to account for changes in priorities as a function of several variables (such as the funding agency's priorities, recent flooding, degree of damage, damage history, predicted depth of flooding, existing drainage problems, sewer infiltration, proximity to other public open space/ greenspace, etc.). Gather data on buildings in FEMA-mapped floodways and repetitive loss areas to have available in the post-flood period; use to target efforts for recovery, permitting, and grant application development. Obtain FEMA's Residential Substantial Damage Estimator software and maintain ability to use it to facilitate damage estimates and substantial damage determinations. Develop policy on abandoned homes in SFHA (donations, condemn, demolish, HUD funds). Examine the Corps' database of buildings in the SFHA and pre-identify those most likely to sustain significant damage if floods equivalent to the SFHA or greater occur, i.e., those predicted to have more than 2-feet of water above the lowest floor.

Use the identified list to target post-flood inspections. Maintain awareness of different sources of mitigation funding (pre-disaster, post-disaster, CDBG/HOME, NFIP flood insurance claims payments, etc). Continue to seek mitigation grant funds to implement mitigation in high priority actions. Explore with GDOT if, as part of its environmental enhancement and wetlands mitigation requirements, funding could support additional buyouts areas where the frequency of flooding indicates the hydrology would support allowing areas to return to wetland functions. Include consideration of flood mitigation opportunities in the City's identification of projects for which ISTEA applications will be prepared, which may include projects to preserve floodway greenspace or floodplain buyouts in areas where detention is required or wetlands are desirable.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contribution to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	/	/	/	+	+	+	+	+	+	+	/	+	+	+	+	+	+	+

9

Blythe

#7

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.7

The National Flood Insurance Program's (NFIP) Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS: 1) Reduce flood losses; 2)Facilitate accurate insurance rating; and 3)Promote the awareness of flood insurance.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations – for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contribution to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	-	+	-	+	+	/	/	/	-	+	-	+	+	-	+	-	+	+	+	+	+	+	+

14

#5

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.8

Dam Safety. For State-designated Category I dams that are located in the City or on waterways that drain through the City, estimate potential impacts and determine if the downstream risks are sufficient to contact owners to encourage their development of limited emergency action plan procedures, and periodic inspections, that are coordinated with the City. Down stream risk

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations – for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contribution to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	-	+	-	/	/	/	+	+	+	+	+	-	+	-	+	+	+	+	+	+	+

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Blythe

Objective 2.2: Increase public awareness and increase level of protection to local population from the effects of flooding

#2

GOAL 2 – Objective 2.2 – Mitigation Action 2.2.1
Public Awareness Initiative. Mitigation is a partnership and citizens are both obligated and responsible for certain actions to help reduce exposure to flooding and to improve the City's ability to recover from flooding. To increase public awareness and responsibility, convene a work group (e.g., City departments, neighborhood associations, NRCS/SCS, Corps of Engineers, others) to prepare and implement a multi-year plan for public awareness. The Plan may contain the following actions: Encourage property owner purchase of flood insurance to provide financial protection that helps personal recovery; Encourage property owner purchase of flood insurance to increase options for post-flood mitigation (because of Increased Cost of Compliance insurance coverage). Prepare articles for publication emphasizing what property owners can do to plan and prepare for floods and to reduce losses (flooded road safety, low cost mitigation measures, insurance, the automated 911 Message flood warning alerts). Coordinate with campaigns undertaken by the State (flood awareness, winter storm awareness, etc.). Develop web-based materials; link to other sites (GEMA, FEMA, Red Cross, Extension Service). Co-op with stormwater management initiative to distribute periodic mailing to property owners along waterways to inform them of their responsibility to keep drainageways clear (don't dump debris, yard clippings, tree limbs, etc.). Develop materials for the Planning Commission and License and Inspections to handout with permits or mailings (tailored for homeowners, business owners, and owners of vacant lands). Topics to include flood insurance, mitigation options, flood safety, permit requirements, etc. Improve consistency of communication to the public regarding flooding, prepare briefing of basic information for City staff who field calls or meet with citizens groups. Establish a hotline for citizen reports of flooding and drainage problems. Request and sponsor periodic NFIP workshops provided by others (GADNR, FEMA) for lenders, insurance agents, real estate professionals and others. To facilitate preparation of Elevation Certificates and other uses, post database of elevation benchmarks and reference marks on the City's webpage and notify local surveyors and engineers of its availability. Research options to improve disclosure of flood hazards as part of the property transfer process.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)						
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champions	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contribution to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Laws		
	+	+	/	+	+	/	/	/	+	+	+	+	+	/	+	+	+	+	+	+	+	+	+		

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Blythe

#1

GOAL 2 – Objective 2.2 – Mitigation Action 2.2.2

Flood Mitigation/Hazard Mitigation Staffing. Seek new staff position to coordinate the City's floodplain management and mitigation efforts. Functions would include: leadership for implementation and tracking of priority action items identified in the Plan; provide staff review of permit applications for floodplain development; function as the City's Community Rating System Coordinator; develop flood mitigation policies and procedures; apply for and administer mitigation grants; coordinate the City's interaction with the U.S. Army Corps of Engineers; coordinate multi-year effort to revise FIRMs; coordinate the Flood Damage Assessment Team (with L&I) for substantial damage determinations; serve as liaison with press and the public on matters related to flooding.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/ Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

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#4

GOAL 2 – Objective 2.2 – Mitigation Action 2.2.3

Savannah River Flood Protection and Awareness. Although there is a very low probability that flood levels on the Savannah River would prompt closure of the eight breaches in the Levee, the consequences of such flooding would be catastrophic. Residential and nonresidential uses exist on the riverside of the levee (some on City-owned land) and may be subject to damage at different floodwater levels. To enhance protection and awareness: Convene a City work group to review and revise the Emergency Levee Closure Plan. For City-owned property on the riverside of the Levee that is leased to private entities, examine lease conditions with respect to adequate advisory language to protect the City. Consider whether lessees should be notified of the risk of flooding; that the City periodically conducts a levee closing exercise; and that certain conditions of flooding predicted by the U.S. Army Corps of Engineers may prompt the City to require evacuation. Other topics for consideration: the availability of flood insurance to cover losses (for both structure and contents); the requirement to obtain permits for building improvements, additions, and repair of damage; termination of leases under certain circumstances (e.g., if buildings are substantially damaged by any cause (e.g., flood or fire); etc. Notify owners of private property on the river side of the Levee about the risk of flooding, levee closing procedures, requirements to evacuate, availability of flood insurance, and the requirement to obtain permits. Continue to exercise the Emergency Levee Closure Plan every two years.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/ Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

16

Blythe

#3

GOAL 2 – Objective 2.2 – Mitigation Action 2.2.4

Flood Warning - Augusta's watersheds are relatively small and tend to respond rapidly to heavy rainfall, making it difficult to use the traditional door-to-door notification to adequately warn residents to evacuate. For the same reason, placing barricades or stationing City personnel at flood-prone roads is problematic, especially in the upper reaches of watersheds. To enhance flood safety: Use GIS and flood maps to identify buildings within flood hazard areas and develop phone groups for automated, generalized flood warning announcements through 911 Message; exercise the announcement system periodically. Explore if the automated rain gages that may be installed by Augusta Utilities as part of watershed assessments can be used to augment the City's preparations during times when flooding is likely. Improve the list of flood-prone roads; evaluate whether the most frequently flooded areas warrant signs to alert the traveling public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)					E (Environmental)			
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champions	Private Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefits of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	-+	+	+	-+	+	+	-	+	+	+	+	+	+	+	+	-+	-+	+	-+	-+	-+	-+

City of Blythe

Mitigation Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to drought and effects of extreme heat.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of drought and extreme heat in Augusta-Richmond County.

GOAL 3 – Objective 3.1 – Mitigation Action 3.1.1 (Multi Jurisdictional)

Water Conservation Awareness. Augusta Utilities to continue implementation of the Water Conservation Plan; continue to comment on proposed development site and landscaping plans; continue to report on and encourage conservation in The H2O Newsletter and to highlight water conservation tips on its web page. The City of Hephzibah, City of Blythe will continue to follow and implement the State's water conservation guidelines.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champions	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contribution to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on Haz Mat / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	-	-	-	+	+	-	+	+	+	+	-	-	-	+	+	+	+	+

City of Blythe will continue to follow & implement the state's water conservation guidelines as well as Blythe's outdoor water use ordinance.

Blythe

Mitigation Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of winter storms.

Objective 4.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of ice and winter storms.

#3

GOAL 4 – Objective 4.1 – Mitigation Action 4.1.1 (Multi Jurisdictional)

Severe Winter Storm Awareness - Continue public outreach on severe winter storm and ice; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of representatives from Augusta, Blythe, Hephzibah, and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the National Weather Service, FEMA, the American Red Cross, and others and determine whether changes are appropriate. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Available	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Consistent to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	-	-	-	+	+	-	+	+	-	+	-	+	+	+	+	+	+	+

17

#2

GOAL 4 – Objective 4.1 – Mitigation Action 4.1.2

Augusta Public Tree Maintenance - Continue tree maintenance on city streets and city-owned property (reduce debris, impacts of falling).

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Available	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Consistent to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	-	-	-	+	+	+	+	+	-	+	-	+	+	+	+	+	+	+

18

Blythe

#1

GOAL 4 – Objective 4.1 – Mitigation Action 4.1.3 (Multi Jurisdictional)

Debris Management Plan - Work with the cities, Georgia Forestry Commission, power companies, and other entities to develop a Debris Management Plan. Note: FEMA has a guidebook for developing debris management strategies and examples from other jurisdictions are available.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contribute to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	-	-	-	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+

19

Blythe

Mitigation Goal 5: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of wildfire.

Objective 5.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of wildfire in Augusta-Richmond County.

#1

GOAL 5 – Objective 5.1 – Mitigation Action 5.1.1

Pre-Suppression Planning for City-Owned Lands. Request assistance from the Georgia Forestry Commission to evaluate fire risks on City-owned parks and greenspace to develop prevention plans to improve forest health.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	-	-	-	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+/-

#2

GOAL 5 – Objective 5.1 – Mitigation Action 5.1.2

Subdivisions & Driveway Access for Fire Vehicles. Request that the Quarterly Subdivision Regulations Review Committee consider new standards for widths of subdivision roads and shoulders, and for common driveways for multiple flagpole lots to provide safer access by larger fire trucks.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	-	+	+	+	+	-	-	-	+	+	-	+	+	-	+	-	+	+	+	+	+	+	+

City of Blythe

Mitigation Goal 6: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of earthquakes.

Objective 6.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of seismic activity.

GOAL 6 – Objective 6.1 – Mitigation Action 6.1.1
Outreach and seismic inspection Request that the building inspectors conduct field verification of the building's overall health and field operators Seismic inspection of the residential structure.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contribute to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on Haz Mat / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	-	+	+	+	+	-	-	-	+	-	-	+	+	-	+	-	+	-	+	+	+	+	+

Blythe

In Chapter 3 of this Plan Update, members of the Augusta-Richmond County HMPC conducted quantitative and qualitative evaluation of the community's exposure to technological hazards through HRV process. As a direct result of the prevalent technological hazard evaluation, HMPC established the following 2011 mitigation goals and objectives:

Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to chemical spills / airborne release.

Objective 1.1: Increase environmental safety with respect to flood hazards and downtown Augusta railroad infrastructure.

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of chemical spills / airborne release.

Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to terrorism.

Objective 2.1: Increase public awareness and increase level of protection to local population from the effects of terrorism.

Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to nuclear plant incident.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of nuclear plant incident.

Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to dam / levee break.

Objective 4.1 (in conjunction with Objective 1.1): Maintain public awareness and increase level of protection to critical infrastructure and local population from the effects of dam / levee break.

Blythe

Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to chemical spills / airborne release.

Objective 1.1: Increase environmental safety with respect to flood hazards and downtown Augusta railroad infrastructure.

#2

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.1

Environmental Safety and Flood Hazards. Improve geo-location data for the actual physical locations of hazardous materials and use the GIS-based mapped flood hazard areas to identify sites that are in or near mapped floodplains. Flood hazards should be identified both from FEMA DFIRMs and USACE inundation maps. For sites determined to have some degree of flood risk, request that the LEPC use the information to inform owners/operators and encourage including flood threat recognition and protective measures into risk management plans.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)			E (Environmental)			
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	/	/	/	+	+	+	+	+	/	+	/	+	+	+	+	+	+	+

#1

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.2

Downtown Railroad Safety. Continue to pursue activities (engineering, land acquisition, etc.) related to relocating railroads from downtown Augusta; in particular, NS Railroad mainline o ff of 6th Street right-of-way. This action is contained in the Augusta-Richmond County Comprehensive Plan.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)			E (Environmental)			
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	/	/	/	+	+	+	+	+	/	+	+	+	+	+	+	+	+	+

City of Blythe * we have no plants or industry within our City However trucks traveling Hwy 88 at risk!

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of chemical spills / airborne release. could have a spill

GOAL 1 – Objective 1.2 – Mitigation Action 1.2.1
Chemical Spill Awareness - Continue public outreach on chemical spills and airborne release; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of representatives from Augusta, LEPC, and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the National Weather Service, FEMA, the American Red Cross, and others and determine whether changes are appropriate. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)			
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contribution to Economic Goals	Outside Funding Required	Effect on Land / Waters	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	-	+	-	-	-	-	-	-	+	-	-	+	+	-	+	-	+	-	+	-	++	+	+

City of Blythe

Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to terrorism.

Objective 2.1: Increase public awareness and increase level of protection to local population from the effects of terrorism.

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.1
Terrorism Awareness - Continue public outreach on terrorism; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of emergency management and law enforcement representatives from Augusta, Blythe, Hephzibah, LEPC and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the Department of Homeland Security, Georgia Bureau of Investigation (GBI), and GEMA. Ensure that all essential facilities have threat of terrorism evaluated and provided for in their contingency plans. Provide training and emergency drills for operators of all essential facilities. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contribution to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

City of Blythe

Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to nuclear plant incident.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of nuclear plant incident.

GOAL 3 – Objective 3.1 – Mitigation Action 3.1.1
Nuclear Plant Incident Awareness - Continue public outreach on nuclear hazard; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of emergency management and representatives from Augusta, Blythe, Hephzibah, LEPC, SRNS, Southern Company and members of the public, including nonprofit and neighborhood organizations and others, to evaluate existing outreach efforts and materials and propose improvements, if necessary. Provide training and emergency drills for operators of all essential facilities. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/ Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost-to-Benefit	Consistent with Economic Goals	Outside Funding Required	Effect on Land/ Water	Effect on Endangered Species	Effect on HAZMAT/ Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Laws
	+	+	+	+	+	/	/	/	+	+	+	+	+	+	+	/	+	/	+	+	+	+	+

Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to dam / levee break.

- **Objective 4.1 (in conjunction with Objective 1.1):** Maintain public awareness and increase level of protection to critical infrastructure and local population from the effects of dam / levee break.

GOAL 4 – Objective 4.1 – Mitigation Action 4.1.1

Dam / levee Break Flood Hazard Considerations. . Improve geo-location data for the actual physical locations of hazardous materials and use the GIS-based mapped flood hazard areas to identify sites that are in or near mapped floodplains. For sites determined to have some degree of flood risk, request that the LEPC use the information to inform owners/operators and encourage including flood threat recognition and protective measures into risk management plans. Continue public outreach and maintain awareness of the dam/levee break hazard; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of emergency management and representatives from USACE, smaller dam owners and members of the public, including nonprofit and neighborhood organizations and others, to evaluate existing outreach efforts and materials and propose improvements, if necessary. Provide training and emergency drills for operators of all essential facilities. Expand use of Augusta's website to make information readily available to the public. Evaluate dam/levee break warning systems. There are no known ponds within the City of Blythe as of 8-15-11.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)					E (Environmental)			
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Consistent Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

STAPLEE Criteria Package filled out by:

Loriann H. Chancey
Name

08/15/2011
Date:

City Clerk
Title

City of Blythe
Agency

Date: Monday, August 15, 2011

To: Hazard Mitigation Plan Update Planning Committee / Stakeholders Committee

Re: STAPLEE Process for Hazard Mitigation Plan Update – Mitigation Actions

In Chapter 2 of this Plan Update, members of the Augusta-Richmond County HMPC conducted quantitative and qualitative evaluation of the community's exposure to natural hazards through HRV process. As a direct result of the prevalent natural hazard evaluation, HMPC established the following 2011 mitigation goals and objectives:

Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to tornadoes, wind, storms, and hail.

Objective 1.1: Increase resilience of critical facilities (including shelters) to the effects of tornado winds, violent storms, and hail.

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of tornado winds, violent storms, and hail in Augusta-Richmond County.

Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to the riverine and localized flooding.

Objective 2.1: Increase resilience of building stock, critical infrastructure, and essential facilities to the effects of flooding.

Objective 2.2: Increase public awareness and increase level of protection to local population from the effects of flooding.

Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to drought and effects of extreme heat.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of drought and extreme heat in Augusta-Richmond County.

Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of winter storms.

Objective 4.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of winter storms.

Goal 5: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of wildfire.

Objective 5.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of wildfire in Augusta-Richmond County.

Goal 6: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of earthquakes.

Objective 6.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of seismic activity.

Mitigation Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to tornadoes, wind, storms, and hail.

Objective 1.1: Increase resilience of critical facilities (including shelters) to the effects of tornado winds, violent storms, and hail.

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.1 (Multi Jurisdictional)

Review capacity of the existing tornado shelters and construct new ones if needed

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	−	+	−	−	−	+	+	+	+	+	−	+	−	−	+	+	+	−	−	+

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.2 (Multi Jurisdictional)

Debris Management Plan - Work with the cities, Georgia Forestry Commission, power companies, and other entities to develop a Debris Management Plan. Note: FEMA has a guidebook for developing debris management strategies and examples from other jurisdictions are available.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	−	−	−	+	+	+	+	+	+	+	−	+	+	+	+	+	+	+

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.3

Augusta Public Tree Maintenance - Continue tree maintenance on city streets and city-owned property (reduce debris, impacts of falling).

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	−	−	−	+	+	+	+	+	−	+	−	+	+	+	−	−	−	+

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.4

Promote Enhanced Anchoring of Manufactured Homes – making them less susceptible to tornado damages and detachment from the pad.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	-	+	-	-	+	-	-	-	-	+	/	+	+	+	+	-	+	-	-	-	-	+	/

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of tornado winds, violent storms, and hail in Augusta-Richmond County.

GOAL 1 – Objective 1.2 – Mitigation Action 1.2.1 (Multi Jurisdictional)

Severe Storm Awareness - Continue public outreach on severe storm and tornado risks; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of representatives from Augusta, Blythe, Hephzibah, and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the National Weather Service, FEMA, the American Red Cross, and others and determine whether changes are appropriate. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	+	+	+	+	+	+	+	+	−	+	?	−	?	+	+	+

Mitigation Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to the riverine and localized flooding.

Objective 2.1: Increase resilience of building stock, critical infrastructure, and essential facilities to the effects of flooding.

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.1

Drainage and Stormwater Management. Implement central database for staff to record drainage and flooding problems (build on existing software). Train staff of all departments that receive citizen calls to use the database to register appropriate information to ensure quality data. Develop method to consider the database contents in setting priorities for drainage projects and to support identification of flood mitigation opportunities. Formalize detention basin maintenance procedures and system to prioritize maintenance.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	-	+	+	-	-	-	+	+	+	+	+	+	+	+	-	-	-	-	-	+	-	+

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.2

Sewer Line Infiltration and Inflow. Continue to undertake projects to identify and resolve infiltration and inflow. During wet weather and flooding conditions, water infiltrates into sewer lines and flows into the system through submerged manhole covers, based on qualitative assessment of cost/effort and long-term benefits

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	-	-	-	+	+	+	+	+	+	+	-	+	-	-	-	+	+	+

1 2 3 4 5 6 7 8

11 11 11 11 11 11 11 11

8 8 8 3 4 1 7 3

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.3

Soil Erosion and Sediment Control Sedimentation in waterways may be contributing to drainage problems and flooding Due to the significant size and duration of four projects proposed by Georgia DOT for the upper part of the Crane Creek basin, and the high visibility of downstream flooding, request GDOT's continued attention to exemplary sediment and erosion control practices. Communicate with City crews and contractors that City projects are to be undertaken with exemplary sediment and erosion control practices. Examine the feasibility of offering training for local contractors to reinforce proper installation and maintenance of sediment control measures; seek cooperative partners, including the District Soil Conservation Office, Georgia DOT, and GA Department of Natural Resources. Increase frequency of inspections of sediment control measures and work with project owner/contractor to maintain effective measures throughout construction.

Continue cooperative efforts with Columbia County regarding installation and maintenance of sediment and erosion control measures on active construction sites in the upper portions of waterways that drain into Augusta, with particular attention to Crane Creek, Rae's Creek, and Butler Creek

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	−	−	−	+	+	+	+	+	+	+	+	−	+	−	−	−	−	+	+

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.4

Flood Hazard Map Revisions and Updates Pursue City-wide revision of the Flood Insurance Rate Maps, building on the City's new digital topography and work underway by the U.S. Army Corps of Engineers to prepare flood studies as part of the *Flood Reduction Study* (including Rocky Creek, Rae's Creek, Crane Creek, Augusta Canal and Phinizy Swamp), and including other studies and identified watersheds. Communicate to the Georgia Department of Natural Resources and FEMA Region IV the importance of receiving revised maps in the Digital Flood Insurance Rate Map format. When available for local use, annotate digital map with the "lower floodway fringe" delineation to facilitate awareness of and application of the Flood Damage Prevention Ordinance and to more clearly identify areas targeted for greenspace purposes. Incorporate new flood maps into the City's GIS. Develop a database of property owners for use in public awareness activities.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	−	−	+	+	+	+	+	+	−	−	−	+	−	+	−	−	+	+

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.5

Economic Analysis related to Flood Hazard and critical facilities Perform economic analysis related to identifying the most effective flood mitigation projects. Utilize newly developed FEMA DFIRMs and new topography to ascertain economic impact of flooding at various frequencies. Develop several scenarios and identify the most cost-beneficial mitigation measures or the most exposed industrial facility in downtown Augusta.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	-	+	+	+	-	-	+	+	+	+	-	+	+	-	-	-	-	+	-	+	+	+

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.6

Policies & Procedures for Flood Mitigation Projects. Develop Flood Mitigation Project Policies and Procedures Manual. Establish systematic method for using and prioritizing funds, including a mechanism to account for changes in priorities as a function of several variables (such as the funding agency's priorities, recent flooding, degree of damage, damage history, predicted depth of flooding, existing drainage problems, sewer infiltration, proximity to other public open space/ greenspace, etc.). Gather data on buildings in FEMA-mapped floodways and repetitive loss areas to have available in the post-flood period; use to target efforts for recovery, permitting, and grant application development. Obtain FEMA's Residential Substantial Damage Estimator software and maintain ability to use it to facilitate damage estimates and substantial damage determinations. Develop policy on abandoned homes in SFHA (donations, condemn, demolish, HUD funds). Examine the Corps' database of buildings in the SFHA and pre-identify those most likely to sustain significant damage if floods equivalent to the SFHA or greater occur, i.e., those predicted to have more than 2-feet of water above the lowest floor.

Use the identified list to target post-flood inspections. Maintain awareness of different sources of mitigation funding (pre-disaster, post-disaster, CDBG/HOME, NFIP flood insurance claims payments, etc). Continue to seek mitigation grant funds to implement mitigation in high priority actions. Explore with GDOT if, as part of its environmental enhancement and wetlands mitigation requirements, funding could support additional buyouts areas where the frequency of flooding indicates the hydrology would support allowing areas to return to wetland functions. Include consideration of flood mitigation opportunities in the City's identification of projects for which ISTEA applications will be prepared, which may include projects to preserve floodway greenspace or floodplain buyouts in areas where detention is required or wetlands are desirable.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	-	+	+	-	-	+	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.7

The National Flood Insurance Program's (NFIP) Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS: 1) Reduce flood losses; 2)Facilitate accurate insurance rating; and 3)Promote the awareness of flood insurance.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	−	−	+	−	−	−	+	+	+	+	+	+	+	+	−	+	−	+	−	−	−	+

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.8

Dam Safety. For State-designated Category I dams that are located in the City or on waterways that drain through the City, estimate potential impacts and determine if the downstream risks are sufficient to contact owners to encourage their development of limited emergency action plan procedures, and periodic inspections, that are coordinated with the City.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	−	+	+	+	−	−	−	+	+	+	+	+	+	−	−	−	−	+	−	+	+	+

Objective 2.2: Increase public awareness and increase level of protection to local population from the effects of flooding

GOAL 2 – Objective 2.2 – Mitigation Action 2.2.1

Public Awareness Initiative. Mitigation is a partnership and citizens are both obligated and responsible for certain actions to help reduce exposure to flooding and to improve the City's ability to recover from flooding. To increase public awareness and responsibility, convene a work group (e.g., City departments, neighborhood associations, NRCS/SCS, Corps of Engineers, others) to prepare and implement a multi-year plan for public awareness. The Plan may contain the following actions: Encourage property owner purchase of flood insurance to provide financial protection that helps personal recovery; Encourage property owner purchase of flood insurance to increase options for post-flood mitigation (because of Increased Cost of Compliance insurance coverage). Prepare articles for publication emphasizing what property owners can do to plan and prepare for floods and to reduce losses (flooded road safety, low cost mitigation measures, insurance, the automated 911 Message flood warning alerts). Coordinate with campaigns undertaken by the State (flood awareness, winter storm awareness, etc.). Develop web-based materials; link to other sites (GEMA, FEMA, Red Cross, Extension Service). Co-op with stormwater management initiative to distribute periodic mailing to property owners along waterways to inform them of their responsibility to keep drainageways clear (don't dump debris, yard clippings, tree limbs, etc.). Develop materials for the Planning Commission and License and Inspections to handout with permits or mailings (tailored for homeowners, business owners, and owners of vacant lands). Topics to include flood insurance, mitigation options, flood safety, permit requirements, etc. Improve consistency of communication to the public regarding flooding, prepare briefing of basic information for City staff who field calls or meet with citizens groups. Establish a hotline for citizen reports of flooding and drainage problems. Request and sponsor periodic NFIP workshops provided by others (GADNR, FEMA) for lenders, insurance agents, real estate professionals and others. To facilitate preparation of Elevation Certificates and other uses, post database of elevation benchmarks and reference marks on the City's webpage and notify local surveyors and engineers of its availability. Research options to improve disclosure of flood hazards as part of the property transfer process.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	+	+	+	+	+	+	+	+	−	+	−	−	−	+	+	+

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GOAL 2 – Objective 2.2 – Mitigation Action 2.2.2

Flood Mitigation/Hazard Mitigation Staffing. Seek new staff position to coordinate the City's floodplain management and mitigation efforts. Functions would include: leadership for implementation and tracking of priority action items identified in the Plan; provide staff review of permit applications for floodplain development; function as the City's Community Rating System Coordinator; develop flood mitigation policies and procedures; apply for and administer mitigation grants; coordinate the City's interaction with the U.S. Army Corps of Engineers; coordinate multi-year effort to revise FIRMs; coordinate the Flood Damage Assessment Team (with L&I) for substantial damage determinations; serve as liaison with press and the public on matters related to flooding.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+ −	+	+	+	+	−	+	+	+	+	+	+	+	+	−	+	−	+	−	+	+	+

GOAL 2 – Objective 2.2 – Mitigation Action 2.2.3

Savannah River Flood Protection and Awareness. Although there is a very low probability that flood levels on the Savannah River would prompt closure of the eight breaches in the Levee, the consequences of such flooding would be catastrophic. Residential and nonresidential uses exist on the riverside of the levee (some on City-owned land) and may be subject to damage at different floodwater levels. To enhance protection and awareness: Convene a City work group to review and revise the Emergency Levee Closure Plan. For City-owned property on the riverside of the Levee that is leased to private entities, examine lease conditions with respect to adequate advisory language to protect the City. Consider whether lessees should be notified of the risk of flooding; that the City periodically conducts a levee closing exercise; and that certain conditions of flooding predicted by the U.S. Army Corps of Engineers may prompt the City to require evacuation. Other topics for consideration: the availability of flood insurance to cover losses (for both structure and contents); the requirement to obtain permits for building improvements, additions, and repair of damage; termination of leases under certain circumstances (e.g., if buildings are substantially damaged by any cause (e.g., flood or fire); etc. Notify owners of private property on the river side of the Levee about the risk of flooding, levee closing procedures, requirements to evacuate, availability of flood insurance, and the requirement to obtain permits. Continue to exercise the Emergency Levee Closure Plan every two years.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	−	−	+	+	−	−	+	+	+	+	+	+	+	+	−	+	−	−	−	+	−	+

GOAL 2 – Objective 2.2 – Mitigation Action 2.2.4

Flood Warning - Augusta's watersheds are relatively small and tend to respond rapidly to heavy rainfall, making it difficult to use the traditional door-to-door notification to adequately warn residents to evacuate. For the same reason, placing barricades or stationing City personnel at flood-prone roads is problematic, especially in the upper reaches of watersheds. To enhance flood safety: Use GIS and flood maps to identify buildings within flood hazard areas and develop phone groups for automated, generalized flood warning announcements through 911 Message; exercise the announcement system periodically. Explore if the automated rain gages that may be installed by Augusta Utilities as part of watershed assessments can be used to augment the City's preparations during times when flooding is likely. Improve the list of flood-prone roads; evaluate whether the most frequently flooded areas warrant signs to alert the traveling public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	+	+	+	+	+	+	+	+	−	+	−	−	−	+	−	+

Mitigation Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to drought and effects of extreme heat.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of drought and extreme heat in Augusta-Richmond County.

GOAL 3 – Objective 3.1 – Mitigation Action 3.1.1 (Multi Jurisdictional)
Water Conservation Awareness. Augusta Utilities to continue implementation of the Water Conservation Plan; continue to comment on proposed development site and landscaping plans; continue to report on and encourage conservation in The H2O Newsletter and to highlight water conservation tips on its web page. The City of Hephzibah will continue to follow and implement the State's water conservation guidelines.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	-	+	+	-	-	-	+	+	+	+	+	+	+	-	+	-	+	-	+	+	+

Mitigation Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of winter storms.

Objective 4.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of ice and winter storms.

GOAL 4 – Objective 4.1 – Mitigation Action 4.1.1 (Multi Jurisdictional)

Severe Winter Storm Awareness - Continue public outreach on severe winter storm and ice; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of representatives from Augusta, Blythe, Hephzibah, and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the National Weather Service, FEMA, the American Red Cross, and others and determine whether changes are appropriate. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	-	-	+	-	-	-	-	+	+	+	+	+	+	+	-	-	-	-	-	+	+	+

GOAL 4 – Objective 4.1 – Mitigation Action 4.1.2

Augusta Public Tree Maintenance - Continue tree maintenance on city streets and city-owned property (reduce debris, impacts of falling).

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	-	+	-	-	-	+	+	+	+	+	+	+	+	-	-	-	+	-	-	+	+

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GOAL 4 – Objective 4.1 – Mitigation Action 4.1.3 (Multi Jurisdictional)

Debris Management Plan - Work with the cities, Georgia Forestry Commission, power companies, and other entities to develop a Debris Management Plan. Note: FEMA has a guidebook for developing debris management strategies and examples from other jurisdictions are available.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	+	+	+	+	+	+	+	+	−	+	−	+	−	+	+	+

Mitigation Goal 5: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of wildfire.

Objective 5.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of wildfire in Augusta-Richmond County.

GOAL 5 – Objective 5.1 – Mitigation Action 5.1.1

Pre-Suppression Planning for City-Owned Lands. Request assistance from the Georgia Forestry Commission to evaluate fire risks on City-owned parks and greenspace to develop prevention plans to improve forest health.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	-	-	+	+	+	+	+	+	-	+	-	+	-	+	-	≤	+	+

GOAL 5 – Objective 5.1 – Mitigation Action 5.1.2

Subdivisions & Driveway Access for Fire Vehicles. Request that the Quarterly Subdivision Regulations Review Committee consider new standards for widths of subdivision roads and shoulders, and for common driveways for multiple flagpole lots to provide safer access by larger fire trucks.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	-	-	-	-	+	+	+	+	+	+	+	-	-	-	-	-	+	+	+

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Mitigation Goal 6: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of earthquakes.

Objective 6.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of seismic activity.

GOAL 6 – Objective 6.1 – Mitigation Action 6.1.1
Outreach and seismic inspection Request that the building inspectors conduct field verification of the building's overall health and field operators Seismic inspection of the residential structure.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	-	+	+	-	-	+	+	+	+	+	+	+	+	-	-	-	-	-	+	+	+

In Chapter 3 of this Plan Update, members of the Augusta-Richmond County HMPC conducted quantitative and qualitative evaluation of the community's exposure to technological hazards through HRV process. As a direct result of the prevalent technological hazard evaluation, HMPC established the following 2011 mitigation goals and objectives:

Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to chemical spills / airborne release.

Objective 1.1: Increase environmental safety with respect to flood hazards and downtown Augusta railroad infrastructure.

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of chemical spills / airborne release.

Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to terrorism.

Objective 2.1: Increase public awareness and increase level of protection to local population from the effects of terrorism.

Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to nuclear plant incident.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of nuclear plant incident.

Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to dam / levee break.

Objective 4.1 (in conjunction with Objective 1.1): Maintain public awareness and increase level of protection to critical infrastructure and local population from the effects of dam / levee break.

Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to chemical spills / airborne release.

Objective 1.1: Increase environmental safety with respect to flood hazards and downtown Augusta railroad infrastructure.

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.1

Environmental Safety and Flood Hazards. Improve geo-location data for the actual physical locations of hazardous materials and use the GIS-based mapped flood hazard areas to identify sites that are in or near mapped floodplains. Flood hazards should be identified both from FEMA DFIRMs and USACE inundation maps. For sites determined to have some degree of flood risk, request that the LEPC use the information to inform owners/operators and encourage including flood threat recognition and protective measures into risk management plans.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	-	+	-	-	-	+	+	+	+	+	+	+	+	-	+	-	-	-	+	+	+

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.2

Downtown Railroad Safety. Continue to pursue activities (engineering, land acquisition, etc.) related to relocating railroads from downtown Augusta; in particular, NS Railroad mainline o ff of 6th Street right-of-way. This action is contained in the Augusta-Richmond County Comprehensive Plan.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	-	-	+	+	+	+	+	+	+	+	-	+	-	-	-	+	+	+

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Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of chemical spills / airborne release.

GOAL 1 – Objective 1.2 – Mitigation Action 1.2.1
Chemical Spill Awareness - Continue public outreach on chemical spills and airborne release; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of representatives from Augusta, LEPC, and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the National Weather Service, FEMA, the American Red Cross, and others and determine whether changes are appropriate. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	+	+	+	+	+	+	+	+	−	+	+	−	+	+	+	+

Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to terrorism.

Objective 2.1: Increase public awareness and increase level of protection to local population from the effects of terrorism.

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.1
Terrorism Awareness - Continue public outreach on terrorism; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of emergency management and law enforcement representatives from Augusta, Blythe, Hephzibah, LEPC and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the Department of Homeland Security, Georgia Bureau of Investigation (GBI), and GEMA. Ensure that all essential facilities have threat of terrorism evaluated and provided for in their contingency plans. Provide training and emergency drills for operators of all essential facilities. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	−	+	+	+	+	+	+	+	−	+	+	+	+	+	+	+

Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to nuclear plant incident.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of nuclear plant incident.

GOAL 3 – Objective 3.1 – Mitigation Action 3.1.1

Nuclear Plant Incident Awareness - Continue public outreach on nuclear hazard; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of emergency management and representatives from Augusta, Blythe, Hephzibah, LEPC, SRNS, Southern Company and members of the public, including nonprofit and neighborhood organizations and others, to evaluate existing outreach efforts and materials and propose improvements, if necessary. Provide training and emergency drills for operators of all essential facilities. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	-	-	+	+	-	-	+	+	+	+	+	+	+	+	-	+	+	+	+	+	+	-

Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to dam / levee break.

Objective 4.1 (in conjunction with Objective 1.1): Maintain public awareness and increase level of protection to critical infrastructure and local population from the effects of dam / levee break.

GOAL 4 – Objective 4.1 – Mitigation Action 4.1.1

Dam / levee Break Flood Hazard Considerations. . Improve geo-location data for the actual physical locations of hazardous materials and use the GIS-based mapped flood hazard areas to identify sites that are in or near mapped floodplains. For sites determined to have some degree of flood risk, request that the LEPC use the information to inform owners/operators and encourage including flood threat recognition and protective measures into risk management plans. Continue public outreach and maintain awareness of the dam/levee break hazard; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of emergency management and representatives from USACE, smaller dam owners and members of the public, including nonprofit and neighborhood organizations and others, to evaluate existing outreach efforts and materials and propose improvements, if necessary. Provide training and emergency drills for operators of all essential facilities. Expand use of Augusta's website to make information readily available to the public. Evaluate dam/levee break warning systems.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	+	+	+	+	+	+	+	+	−	+	+	−	+	+	+	+

STAPLEE Criteria Package filled out by:

Bill Shanahan
Name

Aug 11, 2011
Date:

Deputy Administrator
Title

City of Augusta
Agency

FLOOD PERMIT # 2011-148 TPN# 110-4-193-00-0

FLOOD HAZARD AREA
DEVELOPMENT PERMIT APPLICATION
AUGUSTA-RICHMOND COUNTY PLANNING COMMISSION

NAME OF DEVELOPMENT 1907 Regis Ct.

DEVELOPER William Firm

ADDRESS _____ PHONE 803.564.0900

ENGINEER OR ARCHITECT _____

ADDRESS _____ PHONE _____

PETITIONER/OWNER _____

ADDRESS _____ PHONE _____

Requirements for development permit approval:

Roof replacement

No EC Required

$ 4,000.00

Compliance with all of the criteria of the Flood Damage Prevention Ordinance including but not limited to plans in duplicate drawn to scale showing the nature, location, dimensions, proposed and existing elevations to mean sea level of the area in question, existing or proposed structures, fill, storage of materials, drainage facilities, and the location of the foregoing

Current bldg. value

$ 62,832.00

Specifically the following information is required:

1. Elevation in relation to mean sea level of the lowest floor (including basement) of all structures
2. Elevation in relation to mean sea level to which any non-residential structure has been flood-proofed
3. Provide certificate from a registered professional engineer or architect that the non-residential flood-proofed structure meets the flood – proofing criteria in Article 5, Section B (2) of the Flood Damage Prevention Ordinance.
4. Description of the extent to which any watercourse will be altered or relocated as a result of proposed development.

PETITIONER'S SIGNATURE N/A DATE _____

Development Permit Application is

✓ Approved

___ Disapproved for the following reasons

_____

_____

_____

_____

George Patty SIK DATE 8/19/11

Executive Director
Augusta-Richmond County Planning Commission

Date: Monday, August 15, 2011

To: Hazard Mitigation Plan Update Planning Committee / Stakeholders Committee

Re: STAPLEE Process for Hazard Mitigation Plan Update – Mitigation Actions

In Chapter 2 of this Plan Update, members of the Augusta-Richmond County HMPC conducted quantitative and qualitative evaluation of the community's exposure to natural hazards through HRV process. As a direct result of the prevalent natural hazard evaluation, HMPC established the following 2011 mitigation goals and objectives:

Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to tornadoes, wind, storms, and hail.

Objective 1.1: Increase resilience of critical facilities (including shelters) to the effects of tornado winds, violent storms, and hail.

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of tornado winds, violent storms, and hail in Augusta-Richmond County.

Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to the riverine and localized flooding.

Objective 2.1: Increase resilience of building stock, critical infrastructure, and essential facilities to the effects of flooding.

Objective 2.2: Increase public awareness and increase level of protection to local population from the effects of flooding.

Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to drought and effects of extreme heat.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of drought and extreme heat in Augusta-Richmond County.

Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of winter storms.

Objective 4.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of winter storms.

Goal 5: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of wildfire.

Objective 5.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of wildfire in Augusta-Richmond County.

Goal 6: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of earthquakes.

Objective 6.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of seismic activity.

Mitigation Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to tornadoes, wind, storms, and hail.

Objective 1.1: Increase resilience of critical facilities (including shelters) to the effects of tornado winds, violent storms, and hail.

3

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.1 (Multi Jurisdictional)

Review capacity of the existing tornado shelters and construct new ones if needed

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	−	+	−	−	−	+	+	+	+	+	−	+	−	−	+	+	+	+	+	+

1

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.2 (Multi Jurisdictional)

Debris Management Plan - Work with the cities, Georgia Forestry Commission, power companies, and other entities to develop a Debris Management Plan. Note: FEMA has a guidebook for developing debris management strategies and examples from other jurisdictions are available.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
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	+	+	+	+	+	−	−	−	+	+	+	+	+	−	+	−	+	+	+	+	+	+	+

2

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.3

Augusta Public Tree Maintenance - Continue tree maintenance on city streets and city-owned property (reduce debris, impacts of falling).

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	−	+	+	+	+	+	−	+	−	+	+	+	+	+	+	+

4

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.4

Promote Enhanced Anchoring of Manufactured Homes – making them less susceptible to tornado damages and detachment from the pad.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
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	−	+	+	+	+	−	−	−	−	+	−	+	+	−	+	−	+	+	+	+	+	+	+

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of tornado winds, violent storms, and hail in Augusta-Richmond County.

GOAL 1 – Objective 1.2 – Mitigation Action 1.2.1 (Multi Jurisdictional)

Severe Storm Awareness - Continue public outreach on severe storm and tornado risks; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of representatives from Augusta, Blythe, Hephzibah, and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the National Weather Service, FEMA, the American Red Cross, and others and determine whether changes are appropriate. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
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	+	+	+	+		+		+	+	+	+	+	+	+	+		+		+	+		+	+
					/		/									/		/			/		

Mitigation Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to the riverine and localized flooding.

DATA BASE

Objective 2.1: Increase resilience of building stock, critical infrastructure, and essential facilities to the effects of flooding.

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.1

6

Drainage and Stormwater Management. Implement central database for staff to record drainage and flooding problems (build on existing software). Train staff of all departments that receive citizen calls to use the database to register appropriate information to ensure quality data. Develop method to consider the database contents in setting priorities for drainage projects and to support identification of flood mitigation opportunities. Formalize detention basin maintenance procedures and system to prioritize maintenance.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	−	−	−	−	−	−	−	−	−	+	−	−	+	+	−	+	−	−	−	[redacted]	+	+	+

2

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.2

Sewer Line Infiltration and Inflow. Continue to undertake projects to identify and resolve infiltration and inflow. During wet weather and flooding conditions, water infiltrates into sewer lines and flows into the system through submerged manhole covers, based on qualitative assessment of cost/effort and long-term benefits

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
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	+	+	−	+	+	−	−	−	+	+	+	+	+	−	+	−	+	+	+	+	+	+	+

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.3

Soil Erosion and Sediment Control Sedimentation in waterways may be contributing to drainage problems and flooding Due to the significant size and duration of four projects proposed by Georgia DOT for the upper part of the Crane Creek basin, and the high visibility of downstream flooding, request GDOT's continued attention to exemplary sediment and erosion control practices. Communicate with City crews and contractors that City projects are to be undertaken with exemplary sediment and erosion control practices. Examine the feasibility of offering training for local contractors to reinforce proper installation and maintenance of sediment control measures; seek cooperative partners, including the District Soil Conservation Office, Georgia DOT, and GA Department of Natural Resources. Increase frequency of inspections of sediment control measures and work with project owner/contractor to maintain effective measures throughout construction.

Continue cooperative efforts with Columbia County regarding installation and maintenance of sediment and erosion control measures on active construction sites in the upper portions of waterways that drain into Augusta, with particular attention to Crane Creek, Rae's Creek, and Butler Creek

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
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	[illegible]	+	–	+	–	–	–	–	–	+	–	–	+	–	–	+	–	–	+	–	–	–	–

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.4

Flood Hazard Map Revisions and Updates Pursue City-wide revision of the Flood Insurance Rate Maps, building on the City's new digital topography and work underway by the U.S. Army Corps of Engineers to prepare flood studies as part of the *Flood Reduction Study* (including Rocky Creek, Rae's Creek, Crane Creek, Augusta Canal and Phinizy Swamp), and including other studies and identified watersheds. Communicate to the Georgia Department of Natural Resources and FEMA Region IV the importance of receiving revised maps in the Digital Flood Insurance Rate Map format. When available for local use, annotate digital map with the "lower floodway fringe" delineation to facilitate awareness of and application of the Flood Damage Prevention Ordinance and to more clearly identify areas targeted for greenspace purposes. Incorporate new flood maps into the City's GIS. Develop a database of property owners for use in public awareness activities.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
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	+	+	–	–	+	–	–	–	+	+	+	+	+	–	+	–	–	+	+	+	+	+	+

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.5

Economic Analysis related to Flood Hazard and critical facilities Perform economic analysis related to identifying the most effective flood mitigation projects. Utilize newly developed FEMA DFIRMs and new topography to ascertain economic impact of flooding at various frequencies. Develop several scenarios and identify the most cost-beneficial mitigation measures or the most exposed industrial facility in downtown Augusta.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
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	−	+	+	+	+	−	−	−	−	+	−	+	+	−	+	−	+	+	+	+	+	+	+

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.6

Policies & Procedures for Flood Mitigation Projects. Develop Flood Mitigation Project Policies and Procedures Manual. Establish systematic method for using and prioritizing funds, including a mechanism to account for changes in priorities as a function of several variables (such as the funding agency's priorities, recent flooding, degree of damage, damage history, predicted depth of flooding, existing drainage problems, sewer infiltration, proximity to other public open space/ greenspace, etc.). Gather data on buildings in FEMA-mapped floodways and repetitive loss areas to have available in the post-flood period; use to target efforts for recovery, permitting, and grant application development. Obtain FEMA's Residential Substantial Damage Estimator software and maintain ability to use it to facilitate damage estimates and substantial damage determinations. Develop policy on abandoned homes in SFHA (donations, condemn, demolish, HUD funds). Examine the Corps' database of buildings in the SFHA and pre-identify those most likely to sustain significant damage if floods equivalent to the SFHA or greater occur, i.e., those predicted to have more than 2-feet of water above the lowest floor.

Use the identified list to target post-flood inspections. Maintain awareness of different sources of mitigation funding (pre-disaster, post-disaster, CDBG/HOME, NFIP flood insurance claims payments, etc). Continue to seek mitigation grant funds to implement mitigation in high priority actions. Explore with GDOT if, as part of its environmental enhancement and wetlands mitigation requirements, funding could support additional buyouts areas where the frequency of flooding indicates the hydrology would support allowing areas to return to wetland functions. Include consideration of flood mitigation opportunities in the City's identification of projects for which ISTEA applications will be prepared, which may include projects to preserve floodway greenspace or floodplain buyouts in areas where detention is required or wetlands are desirable.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
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	+	+	+	+	+	0 −	−	−	+	+	+	+	+	−	+	−	+	+	+	+	+	+	+

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.7

(8)

The National Flood Insurance Program's (NFIP) Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS: 1) Reduce flood losses; 2)Facilitate accurate insurance rating; and 3)Promote the awareness of flood insurance.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
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	+	+	−	+	−	−	−	−	−	+	+	−	−	−	−	−	−	−	−	−	−	−	+

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.8

(5)

Dam Safety. For State-designated Category I dams that are located in the City or on waterways that drain through the City, estimate potential impacts and determine if the downstream risks are sufficient to contact owners to encourage their development of limited emergency action plan procedures, and periodic inspections, that are coordinated with the City.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
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	−	−	−	+	−	−	−	−	−	+	−	+	+	−	+	−	−	−	+	−	+	+	+

Objective 2.2: Increase public awareness and increase level of protection to local population from the effects of flooding

2

GOAL 2 – Objective 2.2 – Mitigation Action 2.2.1

Public Awareness Initiative. Mitigation is a partnership and citizens are both obligated and responsible for certain actions to help reduce exposure to flooding and to improve the City's ability to recover from flooding. To increase public awareness and responsibility, convene a work group (e.g., City departments, neighborhood associations, NRCS/SCS, Corps of Engineers, others) to prepare and implement a multi-year plan for public awareness. The Plan may contain the following actions: Encourage property owner purchase of flood insurance to provide financial protection that helps personal recovery; Encourage property owner purchase of flood insurance to increase options for post-flood mitigation (because of Increased Cost of Compliance insurance coverage). Prepare articles for publication emphasizing what property owners can do to plan and prepare for floods and to reduce losses (flooded road safety, low cost mitigation measures, insurance, the automated 911 Message flood warning alerts). Coordinate with campaigns undertaken by the State (flood awareness, winter storm awareness, etc.). Develop web-based materials; link to other sites (GEMA, FEMA, Red Cross, Extension Service). Co-op with stormwater management initiative to distribute periodic mailing to property owners along waterways to inform them of their responsibility to keep drainageways clear (don't dump debris, yard clippings, tree limbs, etc.). Develop materials for the Planning Commission and License and Inspections to handout with permits or mailings (tailored for homeowners, business owners, and owners of vacant lands). Topics to include flood insurance, mitigation options, flood safety, permit requirements, etc. Improve consistency of communication to the public regarding flooding, prepare briefing of basic information for City staff who field calls or meet with citizens groups. Establish a hotline for citizen reports of flooding and drainage problems. Request and sponsor periodic NFIP workshops provided by others (GADNR, FEMA) for lenders, insurance agents, real estate professionals and others. To facilitate preparation of Elevation Certificates and other uses, post database of elevation benchmarks and reference marks on the City's webpage and notify local surveyors and engineers of its availability. Research options to improve disclosure of flood hazards as part of the property transfer process.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
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	+	–	–	+	–	–	–	+	+	+	+	–	+	–	+	–	+	–	+	+	+	+	+

GOAL 2 – Objective 2.2 – Mitigation Action 2.2.2

1

Flood Mitigation/Hazard Mitigation Staffing. Seek new staff position to coordinate the City's floodplain management and mitigation efforts. Functions would include: leadership for implementation and tracking of priority action items identified in the Plan; provide staff review of permit applications for floodplain development; function as the City's Community Rating System Coordinator; develop flood mitigation policies and procedures; apply for and administer mitigation grants; coordinate the City's interaction with the U.S. Army Corps of Engineers; coordinate multi-year effort to revise FIRMs; coordinate the Flood Damage Assessment Team (with L&I) for substantial damage determinations; serve as liaison with press and the public on matters related to flooding.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
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	+	+	+	+	−	−	−	−	+	+	+	+	+	−	+	+	+	−	+	+	+	+	+

GOAL 2 – Objective 2.2 – Mitigation Action 2.2.3

4

Savannah River Flood Protection and Awareness. Although there is a very low probability that flood levels on the Savannah River would prompt closure of the eight breaches in the Levee, the consequences of such flooding would be catastrophic. Residential and nonresidential uses exist on the riverside of the levee (some on City-owned land) and may be subject to damage at different floodwater levels. To enhance protection and awareness: Convene a City work group to review and revise the Emergency Levee Closure Plan. For City-owned property on the riverside of the Levee that is leased to private entities, examine lease conditions with respect to adequate advisory language to protect the City. Consider whether lessees should be notified of the risk of flooding; that the City periodically conducts a levee closing exercise; and that certain conditions of flooding predicted by the U.S. Army Corps of Engineers may prompt the City to require evacuation. Other topics for consideration: the availability of flood insurance to cover losses (for both structure and contents); the requirement to obtain permits for building improvements, additions, and repair of damage; termination of leases under certain circumstances (e.g., if buildings are substantially damaged by any cause (e.g., flood or fire); etc. Notify owners of private property on the river side of the Levee about the risk of flooding, levee closing procedures, requirements to evacuate, availability of flood insurance, and the requirement to obtain permits. Continue to exercise the Emergency Levee Closure Plan every two years.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	−	−	−	−	−	−	−	+	+	+	+	+	−	−	−	−	−	−	−	−	−	−

GOAL 2 – Objective 2.2 – Mitigation Action 2.2.4

3

Flood Warning - Augusta's watersheds are relatively small and tend to respond rapidly to heavy rainfall, making it difficult to use the traditional door-to-door notification to adequately warn residents to evacuate. For the same reason, placing barricades or stationing City personnel at flood-prone roads is problematic, especially in the upper reaches of watersheds. To enhance flood safety: Use GIS and flood maps to identify buildings within flood hazard areas and develop phone groups for automated, generalized flood warning announcements through 911 Message; exercise the announcement system periodically. Explore if the automated rain gages that may be installed by Augusta Utilities as part of watershed assessments can be used to augment the City's preparations during times when flooding is likely. Improve the list of flood-prone roads; evaluate whether the most frequently flooded areas warrant signs to alert the traveling public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	−	−	+	−	+	−	−	+	+	+	−	+	−	−	−	+	−	+	+	+	−	+

Mitigation Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to drought and effects of extreme heat.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of drought and extreme heat in Augusta-Richmond County.

GOAL 3 – Objective 3.1 – Mitigation Action 3.1.1 (Multi Jurisdictional)
Water Conservation Awareness. Augusta Utilities to continue implementation of the Water Conservation Plan; continue to comment on proposed development site and landscaping plans; continue to report on and encourage conservation in The H2O Newsletter and to highlight water conservation tips on its web page. The City of Hephzibah will continue to follow and implement the State's water conservation guidelines.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	–	+	+	–	+	–	+	+	+	+	+	+	+	+	–	+	–	+	+	+	+	+

Mitigation Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of winter storms.

Objective 4.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of ice and winter storms.

GOAL 4 – Objective 4.1 – Mitigation Action 4.1.1 (Multi Jurisdictional)

Severe Winter Storm Awareness - Continue public outreach on severe winter storm and ice; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of representatives from Augusta, Blythe, Hephzibah, and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the National Weather Service, FEMA, the American Red Cross, and others and determine whether changes are appropriate. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	−	−	−	+	+	+	−	+	−	−	−	−	−	−	−	+	+	+

GOAL 4 – Objective 4.1 – Mitigation Action 4.1.2

Augusta Public Tree Maintenance - Continue tree maintenance on city streets and city-owned property (reduce debris, impacts of falling).

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	−	+	+	+	−	+	−	−	−	−	−	−	+	+	+	+

GOAL 4 – Objective 4.1 – Mitigation Action 4.1.3 (Multi Jurisdictional)

Debris Management Plan - Work with the cities, Georgia Forestry Commission, power companies, and other entities to develop a Debris Management Plan. Note: FEMA has a guidebook for developing debris management strategies and examples from other jurisdictions are available.

1

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
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	+	+	−	+	+	−	−	−	+	+	+	+	+	−	−	−	+	−	+	−	+	+	+

Mitigation Goal 5: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of wildfire.

Objective 5.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of wildfire in Augusta-Richmond County.

1

GOAL 5 – Objective 5.1 – Mitigation Action 5.1.1

Pre-Suppression Planning for City-Owned Lands. Request assistance from the Georgia Forestry Commission to evaluate fire risks on City-owned parks and greenspace to develop prevention plans to improve forest health.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	−	−	−	+	+	+	+	+	+	+	+	+	−	+	+	+	+	+

2

GOAL 5 – Objective 5.1 – Mitigation Action 5.1.2

Subdivisions & Driveway Access for Fire Vehicles. Request that the Quarterly Subdivision Regulations Review Committee consider new standards for widths of subdivision roads and shoulders, and for common driveways for multiple flagpole lots to provide safer access by larger fire trucks.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	+	−	+	+	+	+	+	+	−	+	−	−	−	+	+	+	+	+

Mitigation Goal 6: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of earthquakes.

Objective 6.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of seismic activity.

GOAL 6 – Objective 6.1 – Mitigation Action 6.1.1

Outreach and seismic inspection Request that the building inspectors conduct field verification of the building's overall health and field operators Seismic inspection of the residential structure.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	−	+	−	+	+	+	+	+	+	+	+	−	+	−	+	+	+	+	+

In Chapter 3 of this Plan Update, members of the Augusta-Richmond County HMPC conducted quantitative and qualitative evaluation of the community's exposure to technological hazards through HRV process. As a direct result of the prevalent technological hazard evaluation, HMPC established the following 2011 mitigation goals and objectives:

Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to chemical spills / airborne release.

Objective 1.1: Increase environmental safety with respect to flood hazards and downtown Augusta railroad infrastructure.

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of chemical spills / airborne release.

Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to terrorism.

Objective 2.1: Increase public awareness and increase level of protection to local population from the effects of terrorism.

Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to nuclear plant incident.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of nuclear plant incident.

Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to dam / levee break.

Objective 4.1 (in conjunction with Objective 1.1): Maintain public awareness and increase level of protection to critical infrastructure and local population from the effects of dam / levee break.

Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to chemical spills / airborne release.

Objective 1.1: Increase environmental safety with respect to flood hazards and downtown Augusta railroad infrastructure.

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.1

2

Environmental Safety and Flood Hazards. Improve geo-location data for the actual physical locations of hazardous materials and use the GIS-based mapped flood hazard areas to identify sites that are in or near mapped floodplains. Flood hazards should be identified both from FEMA DFIRMs and USACE inundation maps. For sites determined to have some degree of flood risk, request that the LEPC use the information to inform owners/operators and encourage including flood threat recognition and protective measures into risk management plans.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	−	−	−	−	−	+	+	+	+	+	−	−	−	−	+	+	+	+	+	+

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.2

1

Downtown Railroad Safety. Continue to pursue activities (engineering, land acquisition, etc.) related to relocating railroads from downtown Augusta; in particular, NS Railroad mainline o ff of 6th Street right-of-way. This action is contained in the Augusta-Richmond County Comprehensive Plan.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	−	−	−	−	+	+	+	+	+	−	+	−	−	+	+	+	+	+	+

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of chemical spills / airborne release.

GOAL 1 – Objective 1.2 – Mitigation Action 1.2.1
Chemical Spill Awareness - Continue public outreach on chemical spills and airborne release; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of representatives from Augusta, LEPC, and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the National Weather Service, FEMA, the American Red Cross, and others and determine whether changes are appropriate. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	−	−	+	−	+	+	+	+	+	+	+	+	−	+	−	+	+	+	+	+

Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to terrorism.

Objective 2.1: Increase public awareness and increase level of protection to local population from the effects of terrorism.

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.1
Terrorism Awareness - Continue public outreach on terrorism; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of emergency management and law enforcement representatives from Augusta, Blythe, Hephzibah, LEPC and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the Department of Homeland Security, Georgia Bureau of Investigation (GBI), and GEMA. Ensure that all essential facilities have threat of terrorism evaluated and provided for in their contingency plans. Provide training and emergency drills for operators of all essential facilities. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
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	+	+	+	+	+	–	–	+	+	+	+	+	+	–	+		+	–	+	+	+	+	+

Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to nuclear plant incident.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of nuclear plant incident.

GOAL 3 – Objective 3.1 – Mitigation Action 3.1.1
Nuclear Plant Incident Awareness - Continue public outreach on nuclear hazard; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of emergency management and representatives from Augusta, Blythe, Hephzibah, LEPC, SRNS, Southern Company and members of the public, including nonprofit and neighborhood organizations and others, to evaluate existing outreach efforts and materials and propose improvements, if necessary. Provide training and emergency drills for operators of all essential facilities. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
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	+	+	−	+	+	−	−	+	+	+	+	+	+	−	+	−	+	−	+	+	+	+	+

Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to dam / levee break.

Objective 4.1 (in conjunction with Objective 1.1): Maintain public awareness and increase level of protection to critical infrastructure and local population from the effects of dam / levee break.

GOAL 4 – Objective 4.1 – Mitigation Action 4.1.1

Dam / levee Break Flood Hazard Considerations. . Improve geo-location data for the actual physical locations of hazardous materials and use the GIS-based mapped flood hazard areas to identify sites that are in or near mapped floodplains. For sites determined to have some degree of flood risk, request that the LEPC use the information to inform owners/operators and encourage including flood threat recognition and protective measures into risk management plans. Continue public outreach and maintain awareness of the dam/levee break hazard; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of emergency management and representatives from USACE, smaller dam owners and members of the public, including nonprofit and neighborhood organizations and others, to evaluate existing outreach efforts and materials and propose improvements, if necessary. Provide training and emergency drills for operators of all essential facilities. Expand use of Augusta's website to make information readily available to the public. Evaluate dam/levee break warning systems.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	+	+	+	+	+	+	+	−	−	+	−	+	+	+	+	+

STAPLEE Criteria Package filled out by:

Sharon W. Bennett
Name

August 15, 2011
Date:

Deputy Director (EMA)
Title

EMA
Agency

Date: Monday, August 15, 2011

To: Hazard Mitigation Plan Update Planning Committee / Stakeholders Committee

Re: STAPLEE Process for Hazard Mitigation Plan Update – Mitigation Actions

In Chapter 2 of this Plan Update, members of the Augusta-Richmond County HMPC conducted quantitative and qualitative evaluation of the community's exposure to natural hazards through HRV process. As a direct result of the prevalent natural hazard evaluation, HMPC established the following 2011 mitigation goals and objectives:

Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to tornadoes, wind, storms, and hail.

Objective 1.1: Increase resilience of critical facilities (including shelters) to the effects of tornado winds, violent storms, and hail.

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of tornado winds, violent storms, and hail in Augusta-Richmond County.

Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to the riverine and localized flooding.

Objective 2.1: Increase resilience of building stock, critical infrastructure, and essential facilities to the effects of flooding.

Objective 2.2: Increase public awareness and increase level of protection to local population from the effects of flooding.

Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to drought and effects of extreme heat.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of drought and extreme heat in Augusta-Richmond County.

Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of winter storms.

Objective 4.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of winter storms.

Goal 5: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of wildfire.

Objective 5.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of wildfire in Augusta-Richmond County.

Goal 6: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of earthquakes.

Objective 6.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of seismic activity.

Mitigation Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to tornadoes, wind, storms, and hail.

Objective 1.1: Increase resilience of critical facilities (including shelters) to the effects of tornado winds, violent storms, and hail.

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.1 (Multi Jurisdictional)

Review capacity of the existing tornado shelters and construct new ones if needed

3)

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	−	−	−	−	−	+	+	+	+	+	−	+	−	−	−	+	+	+	+	+

(−) 10

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.2 (Multi Jurisdictional)

1)

Debris Management Plan - Work with the cities, Georgia Forestry Commission, power companies, and other entities to develop a Debris Management Plan. Note: FEMA has a guidebook for developing debris management strategies and examples from other jurisdictions are available.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
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	+	+	+	+	+	−	−	+ Neg	+	+	+	+	+	−	+	−	+	+	+	+	+	+	+

(−) 5

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.3

Augusta Public Tree Maintenance - Continue tree maintenance on city streets and city-owned property (reduce debris, impacts of falling).

2)

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	−	+	+	+	+	+	−	+	−	+	+	+	+	+	+	+

(−) 6

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.4
Promote Enhanced Anchoring of Manufactured Homes – making them less susceptible to tornado damages and detachment from the pad.

Scoring: For each consideration, indicate a plus (+) for benefit and a negative (-) for less benefit.

STAPLE Criteria	S Social	T Technical	A Administrative	P Political	L Legal	E Economic	E Environmental
Considerations – for Manufactured Homes	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	− + + + + − − − − − − + + − + − + − + + + + +						

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Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of tornado winds, violent storms, and hail in Augusta-Richmond County.

GOAL 1 – Objective 1.2 – Mitigation Action 1.2.1 (Multi Jurisdictional)
Severe Storm Awareness - Continue public outreach on severe storm and tornado risks; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of representatives from Augusta, Blythe, Hephzibah, and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the National Weather Service, FEMA, the American Red Cross, and others and determine whether changes are appropriate. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLE Criteria	S Social		T Technical		A Administrative		P Political		L Legal		E Economic		E Environmental	
Considerations – for Mitigation Actions	Cost Effectiveness	Contribution to Community Goals	Technical Feasibility	Maintenance Requirements	Administrative Capability	Staff Resources	Political Feasibility	Public Support	Legal Authority	Legal Liability	Cost Benefit Analysis	Funding Availability	Environmental Impacts	Sustainability
	+	–	+	+	–	–	–	+	+	+	+	–	+	–

(–) 8

Mitigation Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to the riverine and localized flooding.

Objective 2.1: Increase resilience of building stock, critical infrastructure, and essential facilities to the effects of flooding.

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.1
Drainage and Stormwater Management. Implement central database for staff to record drainage and flooding problems (build on existing software). Train staff of all departments that receive citizen calls to use the database to register appropriate information to ensure quality data. Develop method to consider the database contents in setting priorities for drainage projects and to support identification of flood mitigation opportunities. Formalize detention basin maintenance procedures and system to prioritize maintenance.

8)

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

Criteria	Social			Technical			Administrative			Political			Legal			Economic			Environmental					
Considerations – for Mitigation Actions	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	+	+	-	+		-	-	+	+	+	+	-	+	-	+	-	+	-	+	+	+	+	-

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2)

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.2
Sewer Line Infiltration and Inflow. Continue to undertake projects to identify and resolve infiltration and inflow. During wet weather and flooding conditions, water infiltrates into sewer lines and flows into the system through submerged manhole covers, based on qualitative assessment of cost/effort and long-term benefits

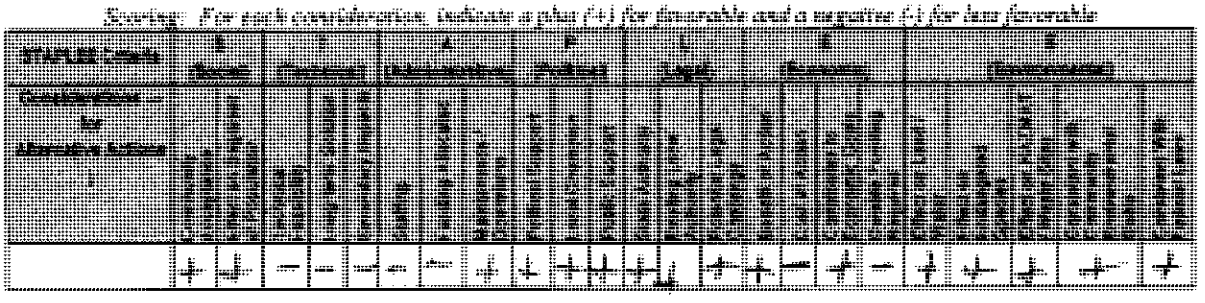
Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

Criteria	Social			Technical			Administrative			Political			Legal			Economic			Environmental					
Considerations – for Mitigation Actions	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	+	+	+	+	+	-	-	-	+	-	+	+	+	+	+	-	+	-	-	+	-	+	+

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.3

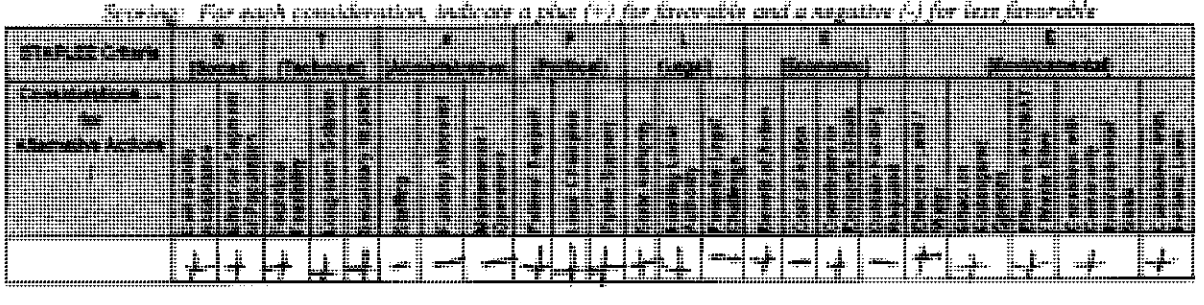
Soil Erosion and Sediment Control Sedimentation in waterways may be contributing to drainage problems and flooding Due to the significant size and duration of four projects proposed by Georgia DOT for the upper part of the Crane Creek basin, and the high visibility of downstream flooding, request GDOT's continued attention to exemplary sediment and erosion control practices. Communicate with City crews and contractors that City projects are to be undertaken with exemplary sediment and erosion control practices. Examine the feasibility of offering training for local contractors to reinforce proper installation and maintenance of sediment control measures; seek cooperative partners, including the District Soil Conservation Office, Georgia DOT, and GA Department of Natural Resources. Increase frequency of inspections of sediment control measures and work with project owner/contractor to maintain effective measures throughout construction.

Continue cooperative efforts with Columbia County regarding installation and maintenance of sediment and erosion control measures on active construction sites in the upper portions of waterways that drain into Augusta, with particular attention to Crane Creek, Rae's Creek, and Butler Creek



GOAL 2 – Objective 2.1 – Mitigation Action 2.1.4

Flood Hazard Map Revisions and Updates Pursue City-wide revision of the Flood Insurance Rate Maps, building on the City's new digital topography and work underway by the U.S. Army Corps of Engineers to prepare flood studies as part of the *Flood Reduction Study* (including Rocky Creek, Rae's Creek, Crane Creek, Augusta Canal and Phinizy Swamp), and including other studies and identified watersheds. Communicate to the Georgia Department of Natural Resources and FEMA Region IV the importance of receiving revised maps in the Digital Flood Insurance Rate Map format. When available for local use, annotate digital map with the "lower floodway fringe" delineation to facilitate awareness of and application of the Flood Damage Prevention Ordinance and to more clearly identify areas targeted for greenspace purposes. Incorporate new flood maps into the City's GIS. Develop a database of property owners for use in public awareness activities.



4)

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.5

Economic Analysis related to Flood Hazard and critical facilities Perform economic analysis related to identifying the most effective flood mitigation projects. Utilize newly developed FEMA DFIRMs and new topography to ascertain economic impact of flooding at various frequencies. Develop several scenarios and identify the most cost-beneficial mitigation measures or the most exposed industrial facility in downtown Augusta.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

Criteria	S		T		A		P		L		E		N			
Considerations – by Identified Action	Social		Technical		Administrative		Political		Legal		Economic		Environmental			
	+	+	+	+	+	–	–	–	+	+	+	+	+	–	+	–	+	–	+	+	+	–	+	+

1)

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.6

Policies & Procedures for Flood Mitigation Projects. Develop Flood Mitigation Project Policies and Procedures Manual. Establish systematic method for using and prioritizing funds, including a mechanism to account for changes in priorities as a function of several variables (such as the funding agency's priorities, recent flooding, degree of damage, damage history, predicted depth of flooding, existing drainage problems, sewer infiltration, proximity to other public open space/ greenspace, etc.). Gather data on buildings in FEMA-mapped floodways and repetitive loss areas to have available in the post-flood period; use to target efforts for recovery, permitting, and grant application development. Obtain FEMA's Residential Substantial Damage Estimator software and maintain ability to use it to facilitate damage estimates and substantial damage determinations. Develop policy on abandoned homes in SFHA (donations, condemn, demolish, HUD funds). Examine the Corps' database of buildings in the SFHA and pre-identify those most likely to sustain significant damage if floods equivalent to the SFHA or greater occur, i.e., those predicted to have more than 2-feet of water above the lowest floor.

Use the identified list to target post-flood inspections. Maintain awareness of different sources of mitigation funding (pre-disaster, post-disaster, CDBG/HOME, NFIP flood insurance claims payments, etc). Continue to seek mitigation grant funds to implement mitigation in high priority actions. Explore with GDOT if, as part of its environmental enhancement and wetlands mitigation requirements, funding could support additional buyouts areas where the frequency of flooding indicates the hydrology would support allowing areas to return to wetland functions. Include consideration of flood mitigation opportunities in the City's identification of projects for which ISTEA applications will be prepared, which may include projects to preserve floodway greenspace or floodplain buyouts in areas where detention is required or wetlands are desirable.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

Criteria	S		T		A		P		L		E		N			
Considerations – by Identified Action	Social		Technical		Administrative		Political		Legal		Economic		Environmental			
	+	+	+	+	+	–	–	+	+	+	+	+	+	–	+	–	+	–	+	+	+	–	+	+

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.7

The National Flood Insurance Program's (NFIP) Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS: 1) Reduce flood losses; 2)Facilitate accurate insurance rating; and 3)Promote the awareness of flood insurance.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

Criteria	Social	Technical	Administrative	Political	Legal	Economic	Environmental	
Consideration of Mitigation Actions	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	+	+	+	+	+	-	-	+

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.8

Dam Safety. For State-designated Category I dams that are located in the City or on waterways that drain through the City, estimate potential impacts and determine if the downstream risks are sufficient to contact owners to encourage their development of limited emergency action plan procedures, and periodic inspections, that are coordinated with the City.

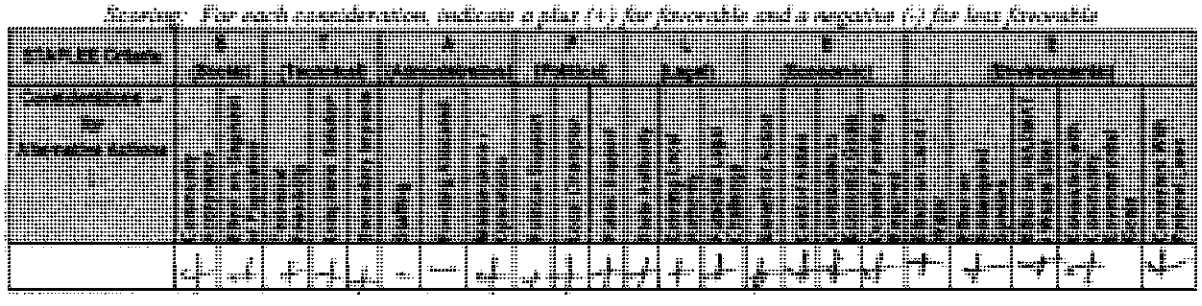
Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

Criteria	Social	Technical	Administrative	Political	Legal	Economic	Environmental	
Consideration of Mitigation Actions	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	+	+	+	+	-	+	+	+

Objective 2.2: Increase public awareness and increase level of protection to local population from the effects of flooding

2)

GOAL 2 – Objective 2.2 – Mitigation Action 2.2.1
Public Awareness Initiative. Mitigation is a partnership and citizens are both obligated and responsible for certain actions to help reduce exposure to flooding and to improve the City's ability to recover from flooding. To increase public awareness and responsibility, convene a work group (e.g., City departments, neighborhood associations, NRCS/SCS, Corps of Engineers, others) to prepare and implement a multi-year plan for public awareness. The Plan may contain the following actions: Encourage property owner purchase of flood insurance to provide financial protection that helps personal recovery; Encourage property owner purchase of flood insurance to increase options for post-flood mitigation (because of Increased Cost of Compliance insurance coverage). Prepare articles for publication emphasizing what property owners can do to plan and prepare for floods and to reduce losses (flooded road safety, low cost mitigation measures, insurance, the automated 911 Message flood warning alerts). Coordinate with campaigns undertaken by the State (flood awareness, winter storm awareness, etc.). Develop web-based materials; link to other sites (GEMA, FEMA, Red Cross, Extension Service). Co-op with stormwater management initiative to distribute periodic mailing to property owners along waterways to inform them of their responsibility to keep drainageways clear (don't dump debris, yard clippings, tree limbs, etc.). Develop materials for the Planning Commission and License and Inspections to handout with permits or mailings (tailored for homeowners, business owners, and owners of vacant lands). Topics to include flood insurance, mitigation options, flood safety, permit requirements, etc. Improve consistency of communication to the public regarding flooding, prepare briefing of basic information for City staff who field calls or meet with citizens groups. Establish a hotline for citizen reports of flooding and drainage problems. Request and sponsor periodic NFIP workshops provided by others (GADNR, FEMA) for lenders, insurance agents, real estate professionals and others. To facilitate preparation of Elevation Certificates and other uses, post database of elevation benchmarks and reference marks on the City's webpage and notify local surveyors and engineers of its availability. Research options to improve disclosure of flood hazards as part of the property transfer process.



GOAL 2 – Objective 2.2 – Mitigation Action 2.2.2

Flood Mitigation/Hazard Mitigation Staffing. Seek new staff position to coordinate the City's floodplain management and mitigation efforts. Functions would include: leadership for implementation and tracking of priority action items identified in the Plan; provide staff review of permit applications for floodplain development; function as the City's Community Rating System Coordinator; develop flood mitigation policies and procedures; apply for and administer mitigation grants; coordinate the City's interaction with the U.S. Army Corps of Engineers; coordinate multi-year effort to revise FIRMs; coordinate the Flood Damage Assessment Team (with L&I) for substantial damage determinations; serve as liaison with press and the public on matters related to flooding.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLE Criteria	S	T	A	P	L	E	E
Considerations for Alternative Actions	Social	Technical	Administrative	Political	Legal	Economic	Environmental
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

GOAL 2 – Objective 2.2 – Mitigation Action 2.2.3

Savannah River Flood Protection and Awareness. Although there is a very low probability that flood levels on the Savannah River would prompt closure of the eight breaches in the Levee, the consequences of such flooding would be catastrophic. Residential and nonresidential uses exist on the riverside of the levee (some on City-owned land) and may be subject to damage at different floodwater levels. To enhance protection and awareness: Convene a City work group to review and revise the Emergency Levee Closure Plan. For City-owned property on the riverside of the Levee that is leased to private entities, examine lease conditions with respect to adequate advisory language to protect the City. Consider whether lessees should be notified of the risk of flooding; that the City periodically conducts a levee closing exercise; and that certain conditions of flooding predicted by the U.S. Army Corps of Engineers may prompt the City to require evacuation. Other topics for consideration: the availability of flood insurance to cover losses (for both structure and contents); the requirement to obtain permits for building improvements, additions, and repair of damage; termination of leases under certain circumstances (e.g., if buildings are substantially damaged by any cause (e.g., flood or fire); etc. Notify owners of private property on the river side of the Levee about the risk of flooding, levee closing procedures, requirements to evacuate, availability of flood insurance, and the requirement to obtain permits. Continue to exercise the Emergency Levee Closure Plan every two years.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLE Criteria	S	T	A	P	L	E	E
Considerations for Alternative Actions	Social	Technical	Administrative	Political	Legal	Economic	Environmental
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

3)

GOAL 2 – Objective 2.2 – Mitigation Action 2.2.4
Flood Warning - Augusta's watersheds are relatively small and tend to respond rapidly to heavy rainfall, making it difficult to use the traditional door-to-door notification to adequately warn residents to evacuate. For the same reason, placing barricades or stationing City personnel at flood-prone roads is problematic, especially in the upper reaches of watersheds. To enhance flood safety: Use GIS and flood maps to identify buildings within flood hazard areas and develop phone groups for automated, generalized flood warning announcements through 911 Message; exercise the announcement system periodically. Explore if the automated rain gages that may be installed by Augusta Utilities as part of watershed assessments can be used to augment the City's preparations during times when flooding is likely. Improve the list of flood-prone roads; evaluate whether the most frequently flooded areas warrant signs to alert the traveling public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLE CRITERIA	S Social				T Technical				A Administrative				P Political				L Legal				E Economic				E Environmental					
Considerations – for Mitigation Actions	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	+	+	+	+	+	–	–	+	+	+	+	+	+	+	+	+	+	+	+	+	–	+	+	+	+	+	+	+	+	+

Mitigation Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to drought and effects of extreme heat.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of drought and extreme heat in Augusta-Richmond County.

GOAL 3 – Objective 3.1 – Mitigation Action 3.1.1 (Multi Jurisdictional)
Water Conservation Awareness. Augusta Utilities to continue implementation of the Water Conservation Plan; continue to comment on proposed development site and landscaping plans; continue to report on and encourage conservation in The H2O Newsletter and to highlight water conservation tips on its web page. The City of Hephzibah will continue to follow and implement the State's water conservation guidelines.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLE Criteria	S		T		A				P			L			E				E					
	Social		Technical		Administrative				Political			Legal			Economic				Environmental					
Considerations – for Alternative Actions	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	+	+	+	+	-	-	-	-	+	+	+	-	+	-	+	-	+	+	+	+	+	+	+	+

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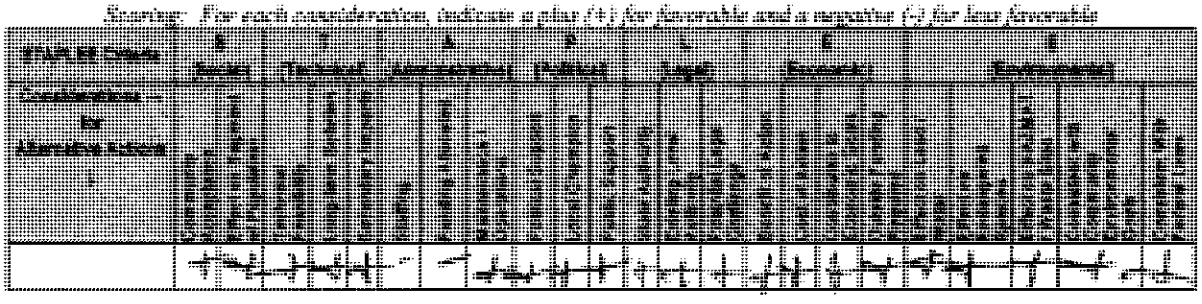
Mitigation Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of winter storms.

Objective 4.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of ice and winter storms.

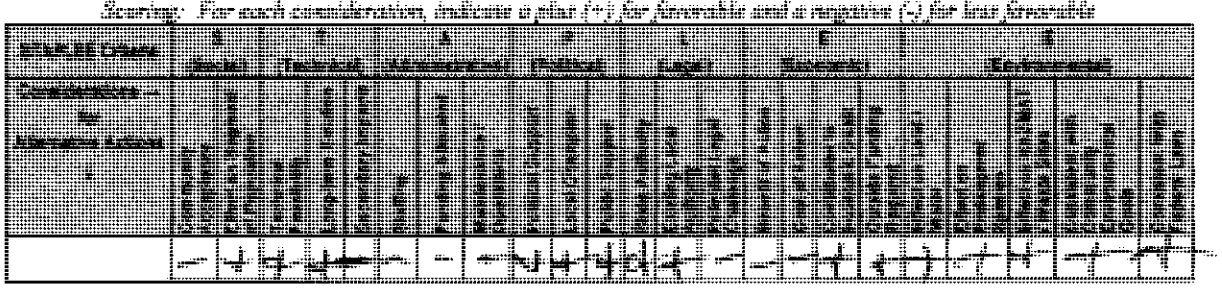
GOAL 4 – Objective 4.1 – Mitigation Action 4.1.1 (Multi Jurisdictional)
Severe Winter Storm Awareness - Continue public outreach on severe winter storm and ice; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of representatives from Augusta, Blythe, Hephzibah, and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the National Weather Service, FEMA, the American Red Cross, and others and determine whether changes are appropriate. Expand use of Augusta's website to make information readily available to the public.

3)

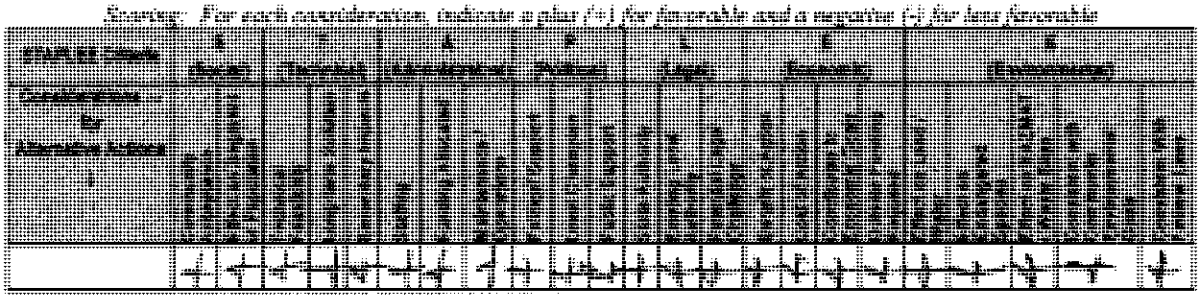


GOAL 4 – Objective 4.1 – Mitigation Action 4.1.2
Augusta Public Tree Maintenance - Continue tree maintenance on city streets and city-owned property (reduce debris, impacts of falling).

2)



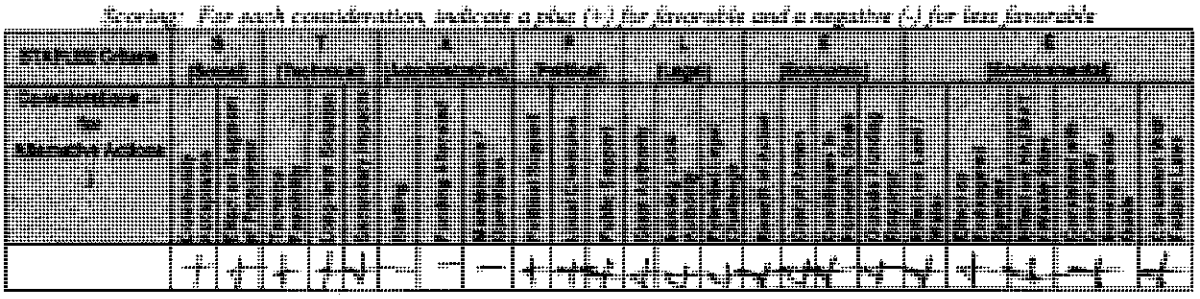
GOAL 4 – Objective 4.1 – Mitigation Action 4.1.3 (Multi Jurisdictional)
Debris Management Plan - Work with the cities, Georgia Forestry Commission, power companies, and other entities to develop a Debris Management Plan. Note: FEMA has a guidebook for developing debris management strategies and examples from other jurisdictions are available.



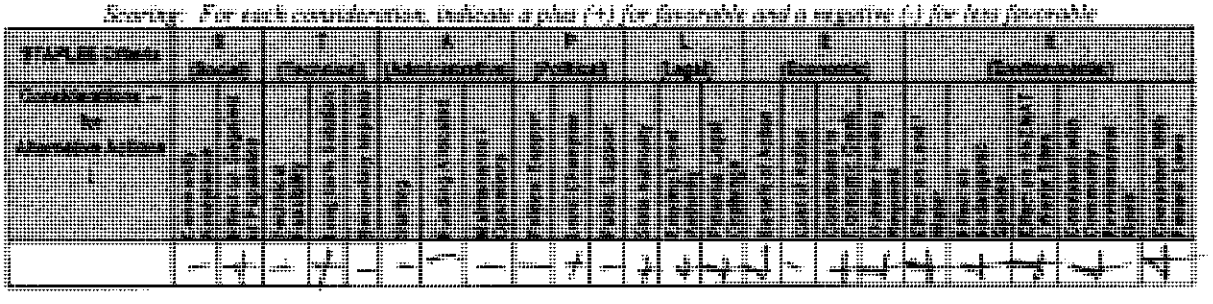
Mitigation Goal 5: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of wildfire.

Objective 5.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of wildfire in Augusta-Richmond County.

GOAL 5 – Objective 5.1 – Mitigation Action 5.1.1
Pre-Suppression Planning for City-Owned Lands. Request assistance from the Georgia Forestry Commission to evaluate fire risks on City-owned parks and greenspace to develop prevention plans to improve forest health.



GOAL 5 – Objective 5.1 – Mitigation Action 5.1.2
Subdivisions & Driveway Access for Fire Vehicles. Request that the Quarterly Subdivision Regulations Review Committee consider new standards for widths of subdivision roads and shoulders, and for common driveways for multiple flagpole lots to provide safer access by larger fire trucks.



Mitigation Goal 6: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of earthquakes.

Objective 6.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of seismic activity.

GOAL 6 – Objective 6.1 – Mitigation Action 6.1.1
Outreach and seismic inspection Request that the building inspectors conduct field verification of the building's overall health and field operators Seismic inspection of the residential structure.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

Evaluation Criteria	B (Social)		F (Technical)		A (Administrative)		P (Political)		L (Legal)		E (Economic)		E (Environmental)	
Consideration for Mitigation Actions	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	-	-	-	-	-	-	-	-	+	-	+	-	-	-	-	-	+	+	-	-	-	+	+	-

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In Chapter 3 of this Plan Update, members of the Augusta-Richmond County HMPC conducted quantitative and qualitative evaluation of the community's exposure to technological hazards through HRV process. As a direct result of the prevalent technological hazard evaluation, HMPC established the following 2011 mitigation goals and objectives:

Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to chemical spills / airborne release.

Objective 1.1: Increase environmental safety with respect to flood hazards and downtown Augusta railroad infrastructure.

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of chemical spills / airborne release.

Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to terrorism.

Objective 2.1: Increase public awareness and increase level of protection to local population from the effects of terrorism.

Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to nuclear plant incident.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of nuclear plant incident.

Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to dam / levee break.

Objective 4.1 (in conjunction with Objective 1.1): Maintain public awareness and increase level of protection to critical infrastructure and local population from the effects of dam / levee break.

Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to chemical spills / airborne release.

Objective 1.1: Increase environmental safety with respect to flood hazards and downtown Augusta railroad infrastructure.

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.1
Environmental Safety and Flood Hazards. Improve geo-location data for the actual physical locations of hazardous materials and use the GIS-based mapped flood hazard areas to identify sites that are in or near mapped floodplains. Flood hazards should be identified both from FEMA DFIRMs and USACE inundation maps. For sites determined to have some degree of flood risk, request that the LEPC use the information to inform owners/operators and encourage including flood threat recognition and protective measures into risk management plans.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLE Criteria	S Social	T Technical	A Administrative	P Political	L Legal	E Economic	E Environmental
Considerations – for Alternative Actions	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	+	+	+	+	+	+	+

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.2
Downtown Railroad Safety. Continue to pursue activities (engineering, land acquisition, etc.) related to relocating railroads from downtown Augusta; in particular, NS Railroad mainline o ff of 6th Street right-of-way. This action is contained in the Augusta-Richmond County Comprehensive Plan.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLE Criteria	S Social	T Technical	A Administrative	P Political	L Legal	E Economic	E Environmental
Considerations – for Alternative Actions	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	+	+	+	+	+	+	+

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of chemical spills / airborne release.

GOAL 1 – Objective 1.2 – Mitigation Action 1.2.1
Chemical Spill Awareness - Continue public outreach on chemical spills and airborne release; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of representatives from Augusta, LEPC, and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the National Weather Service, FEMA, the American Red Cross, and others and determine whether changes are appropriate. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

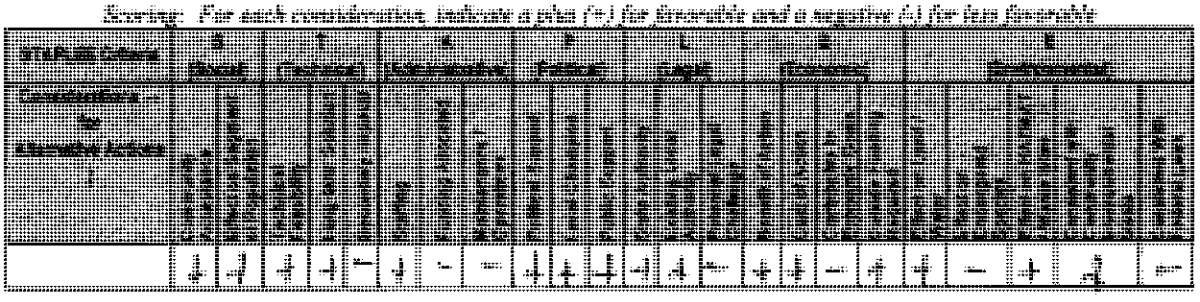
STAPLE/E Criteria	S		T		A		P		L		E		E											
	Social		Technical		Administrative		Political		Legal		Economic		Environmental											
Considerations – Is Mitigation Action:	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	+	+	+	+	-	+	-	+	+	+	+	-	+	+	+	+	+	+	+	+	-	+	+	-

(-)5

Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to terrorism.

Objective 2.1: Increase public awareness and increase level of protection to local population from the effects of terrorism.

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.1
Terrorism Awareness - Continue public outreach on terrorism; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of emergency management and law enforcement representatives from Augusta, Blythe, Hephzibah, LEPC and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the Department of Homeland Security, Georgia Bureau of Investigation (GBI), and GEMA. Ensure that all essential facilities have threat of terrorism evaluated and provided for in their contingency plans. Provide training and emergency drills for operators of all essential facilities. Expand use of Augusta's website to make information readily available to the public.



Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to nuclear plant incident.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of nuclear plant incident.

GOAL 3 – Objective 3.1 – Mitigation Action 3.1.1
Nuclear Plant Incident Awareness - Continue public outreach on nuclear hazard; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of emergency management and representatives from Augusta, Blythe, Hephzibah, LEPC, SRNS, Southern Company and members of the public, including nonprofit and neighborhood organizations and others, to evaluate existing outreach efforts and materials and propose improvements, if necessary. Provide training and emergency drills for operators of all essential facilities. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

FUTURE Criteria	S		T		A		P		L		E		E		E		E		E		E		E		E	
Considerations – Mitigation Actions	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	+	+	+	+	–	–	–	–	+	+	+	–	+	+	–	–	+	+	+	+	+	+	+	+	+	

(7)

Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to dam / levee break.

Objective 4.1 (in conjunction with Objective 1.1): Maintain public awareness and increase level of protection to critical infrastructure and local population from the effects of dam / levee break.

GOAL 4 – Objective 4.1 – Mitigation Action 4.1.1
Dam / levee Break Flood Hazard Considerations. . Improve geo-location data for the actual physical locations of hazardous materials and use the GIS-based mapped flood hazard areas to identify sites that are in or near mapped floodplains. For sites determined to have some degree of flood risk, request that the LEPC use the information to inform owners/operators and encourage including flood threat recognition and protective measures into risk management plans. Continue public outreach and maintain awareness of the dam/levee break hazard; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of emergency management and representatives from USACE, smaller dam owners and members of the public, including nonprofit and neighborhood organizations and others, to evaluate existing outreach efforts and materials and propose improvements, if necessary. Provide training and emergency drills for operators of all essential facilities. Expand use of Augusta's website to make information readily available to the public. Evaluate dam/levee break warning systems.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLE Criteria	S		T		A		P		L		E		E							
Considerations – by Mitigation Action	Social		Technical		Administrative		Political		Legal		Economic		Environmental							
	+	+	+	+	-	+	-	-	+	+	+	-	+	-	+	-	+	+	+	-

(-) 8

STAPLEE Criteria Package filled out by:

Howard Willis
Name

5/25/11
Date:

Director / Chief
Title

EMA / Fire
Agency

Date: Monday, August 15, 2011

To: Hazard Mitigation Plan Update Planning Committee / Stakeholders Committee

Re: STAPLEE Process for Hazard Mitigation Plan Update – Mitigation Actions

In Chapter 2 of this Plan Update, members of the Augusta-Richmond County HMPC conducted quantitative and qualitative evaluation of the community's exposure to natural hazards through HRV process. As a direct result of the prevalent natural hazard evaluation, HMPC established the following 2011 mitigation goals and objectives:

Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to tornadoes, wind, storms, and hail.

Objective 1.1: Increase resilience of critical facilities (including shelters) to the effects of tornado winds, violent storms, and hail.

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of tornado winds, violent storms, and hail in Augusta-Richmond County.

Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to the riverine and localized flooding.

Objective 2.1: Increase resilience of building stock, critical infrastructure, and essential facilities to the effects of flooding.

Objective 2.2: Increase public awareness and increase level of protection to local population from the effects of flooding.

Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to drought and effects of extreme heat.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of drought and extreme heat in Augusta-Richmond County.

Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of winter storms.

Objective 4.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of winter storms.

City of Blythe
294 Church Street
Blythe, GA 30805
(706)592-6255 – Phone
(706) 592-0511 – Fax
cityofblythe@comcast.net

facsimile transmittal

To:	Terri Turner	**Fax:**	706-821-1806
From:	Loriann H. Chancey	**Date:**	08/16/11
Re:	STAPLEE Process for Hazard Mitigation Plan Update – Mitigation Actions	**Pages:**	24
CC:			

☐ Urgent ☒ For Review ☐ Please Comment ☐ Please Reply ☐ Please Recycle

Terri,

If you can't read the fax let me know & I'll have the packet delivered.

THIS MESSAGE IS INTENDED ONLY FOR THE USE OF THE INDIVIDUAL OR ENTITY TO WHICH IT IS ADDRESSED AND MAY CONTAIN INFORMATION THAT IS PRIVILEGED, CONFIDENTIAL AND EXEMPT FROM DISCLOSURE UNDER APPLICABLE LAW. IF THE READER OF THIS MESSAGE IS NOT THE INTENDED RECIPIENT OR THE EMPLOYEE OR AGENT RESPONSIBLE FOR DELIVERING THE MESSAGE TO THE INTENDED RECIPIENT, YOU ARE HEREBY NOTIFIED THAT ANY DISSEMINATION, DISTRIBUTION OR COPYING OF THIS COMMUNICATION IS STRICTLY PROHIBITED. IF YOU HAVE RECEIVED THIS COMMUNICATION IN ERROR, PLEASE NOTIFY US IMMEDIATELY BY TELEPHONE AND RETURN THE ORIGINAL MESSAGE TO US AT THE ABOVE ADDRESS VIA U.S. POSTAL SERVICE. THANK YOU.

Blythe

Date: Monday, August 15, 2011

To: Hazard Mitigation Plan Update Planning Committee / Stakeholders Committee

Re: STAPLEE Process for Hazard Mitigation Plan Update – Mitigation Actions

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Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to tornadoes, wind, storms, and hail.

Objective 1.1: Increase resilience of critical facilities (including shelters) to the effects of tornado winds, violent storms, and hail.

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of tornado winds, violent storms, and hail in Augusta-Richmond County.

Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to the riverine and localized flooding.

Objective 2.1: Increase resilience of building stock, critical infrastructure, and essential facilities to the effects of flooding.

Objective 2.2: Increase public awareness and increase level of protection to local population from the effects of flooding.

Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to drought and effects of extreme heat.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of drought and extreme heat in Augusta-Richmond County.

Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of winter storms.

Objective 4.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of winter storms.

Blythe

Goal 5: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of wildfire.

Objective 5.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of wildfire in Augusta-Richmond County.

Goal 6: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of earthquakes.

Objective 6.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of seismic activity.

Blythe

Mitigation Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to tornadoes, wind, storms, and hail.

Objective 1.1: Increase resilience of critical facilities (including shelters) to the effects of tornado winds, violent storms, and hail.

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.1 (Multi Jurisdictional)

Review capacity of the existing tornado shelters and construct new ones if needed #3

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

15

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.2 (Multi Jurisdictional)

#1 **Debris Management Plan** - Work with the cities, Georgia Forestry Commission, power companies, and other entities to develop a Debris Management Plan. Note: FEMA has a guidebook for developing debris management strategies and examples from other jurisdictions are available.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

18

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.3

#2 **Augusta Public Tree Maintenance** - Continue tree maintenance on city streets and city-owned property (reduce debris, impacts of falling).

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

17

Blythe

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.4

Promote Enhanced Anchoring of Manufactured Homes – making them less susceptible to tornado damages and detachment from the pad. ## 4

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)					E (Environmental)			
Considerations – for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

16

Blythe

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of tornado winds, violent storms, and hail in Augusta-Richmond County.

GOAL 1 – Objective 1.2 – Mitigation Action 1.2.1 (Multi Jurisdictional)

Severe Storm Awareness - Continue public outreach on severe storm and tornado risks; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of representatives from Augusta, Blythe, Hephzibah, and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the National Weather Service, FEMA, the American Red Cross, and others and determine whether changes are appropriate. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)		A (Administrative)			P (Political)			L (Legal)			E (Economic)			E (Environmental)					
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Available	Maintenance/ Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Continues Economic Goals	Outside Funding Required	Effect on Land/ Water	Effect on Endangered Species	Effect on HAZMAT/ Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	-	-	+	+	+	+	+	+	-	+	-	-	-	+	+	+	+	+

Blythe

Mitigation Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to the riverine and localized flooding.

Objective 2.1: Increase resilience of building stock, critical infrastructure, and essential facilities to the effects of flooding.

* To Develope a Data Base

#5

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.1

Drainage and Stormwater Management. Implement central database for staff to record drainage and flooding problems (build on existing software). Train staff of all departments that receive citizen calls to use the database to register appropriate information to ensure quality data. Develop method to consider the database contents in setting priorities for drainage projects and to support identification of flood mitigation opportunities. Formalize detention basin maintenance procedures and system to prioritize maintenance.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contribute to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
						/	/	/															

#2

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.2

Sewer Line Infiltration and Inflow. Continue to undertake projects to identify and resolve infiltration and inflow. During wet weather and flooding conditions, water infiltrates into sewer lines and flows into the system through submerged manhole covers, based on qualitative assessment of cost/effort and long-term benefits

N/A Blythe - No sewer lines in Blythe

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contribute to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
						/	/	/															

Blythe

#6

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.3

Soil Erosion and Sediment Control Sedimentation in waterways may be contributing to drainage problems and flooding Due to the significant size and duration of four projects proposed by Georgia DOT for the upper part of the Crane Creek basin, and the high visibility of downstream flooding, request GDOT's continued attention to exemplary sediment and erosion control practices. Communicate with City crews and contractors that City projects are to be undertaken with exemplary sediment and erosion control practices. Examine the feasibility of offering training for local contractors to reinforce proper installation and maintenance of sediment control measures; seek cooperative partners, including the District Soil Conservation Office, Georgia DOT, and GA Department of Natural Resources. Increase frequency of inspections of sediment control measures and work with project owner/contractor to maintain effective measures throughout construction.

Continue cooperative efforts with Columbia County regarding installation and maintenance of sediment and erosion control measures on active construction sites in the upper portions of waterways that drain into Augusta, with particular attention to Crane Creek, Rae's Creek, and Butler Creek

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefits of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent With Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+		/	/	/	+	+	+	+	+	/	+	/	+	+	+	+	+	+	+

15

* Blythe has no bodies of water

#3

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.4

Flood Hazard Map Revisions and Updates Pursue City-wide revision of the Flood Insurance Rate Maps, building on the City's new digital topography and work underway by the U.S. Army Corps of Engineers to prepare flood studies as part of the *Flood Reduction Study* (including Rocky Creek, Rae's Creek, Crane Creek, Augusta Canal and Phinizy Swamp), and including other studies and identified watersheds. Communicate to the Georgia Department of Natural Resources and FEMA Region IV the importance of receiving revised maps in the Digital Flood Insurance Rate Map format. When available for local use, annotate digital map with the "lower floodway fringe" delineation to facilitate awareness of and application of the Flood Damage Prevention Ordinance and to more clearly identify areas targeted for greenspace purposes. Incorporate new flood maps into the City's GIS. Develop a database of property owners for use in public awareness activities.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefits of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent With Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+		/	/	/	+	+	+	+	+	/	+	+	+	+	+	+	+	+	+

16

Blythe

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.5

Economic Analysis related to Flood Hazard and critical facilities Perform economic analysis related to identifying the most effective flood mitigation projects. Utilize newly developed FEMA DFIRMs and new topography to ascertain economic impact of flooding at various frequencies. Develop several scenarios and identify the most cost-beneficial mitigation measures or the most exposed industrial facility in downtown Augusta.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)		A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations – for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefits of Action	Cost of Action	Contribution to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+		/	/	/	+	+	+	+	+	/	+	/	+	+	+	+	+	+	+

17

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.6

Policies & Procedures for Flood Mitigation Projects. Develop Flood Mitigation Project Policies and Procedures Manual. Establish systematic method for using and prioritizing funds, including a mechanism to account for changes in priorities as a function of several variables (such as the funding agency's priorities, recent flooding, degree of damage, damage history, predicted depth of flooding, existing drainage problems, sewer infiltration, proximity to other public open space/ greenspace, etc.). Gather data on buildings in FEMA-mapped floodways and repetitive loss areas to have available in the post-flood period; use to target efforts for recovery, permitting, and grant application development. Obtain FEMA's Residential Substantial Damage Estimator software and maintain ability to use it to facilitate damage estimates and substantial damage determinations. Develop policy on abandoned homes in SFHA (donations, condemn, demolish, HUD funds). Examine the Corps' database of buildings in the SFHA and pre-identify those most likely to sustain significant damage if floods equivalent to the SFHA or greater occur, i.e., those predicted to have more than 2-feet of water above the lowest floor.

Use the identified list to target post-flood inspections. Maintain awareness of different sources of mitigation funding (pre-disaster, post-disaster, CDBG/HOME, NFIP flood insurance claims payments, etc). Continue to seek mitigation grant funds to implement mitigation in high priority actions. Explore with GDOT if, as part of its environmental enhancement and wetlands mitigation requirements, funding could support additional buyouts areas where the frequency of flooding indicates the hydrology would support allowing areas to return to wetland functions. Include consideration of flood mitigation opportunities in the City's identification of projects for which ISTEA applications will be prepared, which may include projects to preserve floodway greenspace or floodplain buyouts in areas where detention is required or wetlands are desirable.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)		A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations – for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefits of Action	Cost of Action	Contribution to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	/	/	/	+	+	+	+	+	+	+	/	+	+	+	+	+	+	+

19

Blythe

#7

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.7

The National Flood Insurance Program's (NFIP) Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS: 1) Reduce flood losses; 2)Facilitate accurate insurance rating; and 3)Promote the awareness of flood insurance.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Conformity to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

14

#5

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.8

Dam Safety. For State-designated Category I dams that are located in the City or on waterways that drain through the City, estimate potential impacts and determine if the downstream risks are sufficient to contact owners to encourage their development of limited emergency action plan procedures, and periodic inspections, that are coordinated with the City. Down stream risk

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Conformity to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

16

Blythe

Objective 2.2: Increase public awareness and increase level of protection to local population from the effects of flooding

#2

GOAL 2 – Objective 2.2 – Mitigation Action 2.2.1

Public Awareness Initiative. Mitigation is a partnership and citizens are both obligated and responsible for certain actions to help reduce exposure to flooding and to improve the City's ability to recover from flooding. To increase public awareness and responsibility, convene a work group (e.g., City departments, neighborhood associations, NRCS/SCS, Corps of Engineers, others) to prepare and implement a multi-year plan for public awareness. The Plan may contain the following actions: Encourage property owner purchase of flood insurance to provide financial protection that helps personal recovery; Encourage property owner purchase of flood insurance to increase options for post-flood mitigation (because of Increased Cost of Compliance insurance coverage). Prepare articles for publication emphasizing what property owners can do to plan and prepare for floods and to reduce losses (flooded road safety, low cost mitigation measures, insurance, the automated 911 Message flood warning alerts). Coordinate with campaigns undertaken by the State (flood awareness, winter storm awareness, etc.). Develop web-based materials; link to other sites (GEMA, FEMA, Red Cross, Extension Service). Co-op with stormwater management initiative to distribute periodic mailing to property owners along waterways to inform them of their responsibility to keep drainageways clear (don't dump debris, yard clippings, tree limbs, etc.). Develop materials for the Planning Commission and License and Inspections to handout with permits or mailings (tailored for homeowners, business owners, and owners of vacant lands). Topics to include flood insurance, mitigation options, flood safety, permit requirements, etc. Improve consistency of communication to the public regarding flooding, prepare briefing of basic information for City staff who field calls or meet with citizens groups. Establish a hotline for citizen reports of flooding and drainage problems. Request and sponsor periodic NFIP workshops provided by others (GADNR, FEMA) for lenders, insurance agents, real estate professionals and others. To facilitate preparation of Elevation Certificates and other uses, post database of elevation benchmarks and reference marks on the City's webpage and notify local surveyors and engineers of its availability. Research options to improve disclosure of flood hazards as part of the property transfer process.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contribution to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on Air/Water/Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	/	+	+	/	/	/	+	+	+	+	+	/	+	+	+	+	+	+	+	+	+

18

Blythe

#1

GOAL 2 – Objective 2.2 – Mitigation Action 2.2.2

Flood Mitigation/Hazard Mitigation Staffing. Seek new staff position to coordinate the City's floodplain management and mitigation efforts. Functions would include: leadership for implementation and tracking of priority action items identified in the Plan; provide staff review of permit applications for floodplain development; function as the City's Community Rating System Coordinator; develop flood mitigation policies and procedures; apply for and administer mitigation grants; coordinate the City's interaction with the U.S. Army Corps of Engineers; coordinate multi-year effort to revise FIRMs; coordinate the Flood Damage Assessment Team (with L&I) for substantial damage determinations; serve as liaison with press and the public on matters related to flooding.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

9

#4

GOAL 2 – Objective 2.2 – Mitigation Action 2.2.3

Savannah River Flood Protection and Awareness. Although there is a very low probability that flood levels on the Savannah River would prompt closure of the eight breaches in the Levee, the consequences of such flooding would be catastrophic. Residential and nonresidential uses exist on the riverside of the levee (some on City-owned land) and may be subject to damage at different floodwater levels. To enhance protection and awareness: Convene a City work group to review and revise the Emergency Levee Closure Plan. For City-owned property on the riverside of the Levee that is leased to private entities, examine lease conditions with respect to adequate advisory language to protect the City. Consider whether lessees should be notified of the risk of flooding; that the City periodically conducts a levee closing exercise; and that certain conditions of flooding predicted by the U.S. Army Corps of Engineers may prompt the City to require evacuation. Other topics for consideration: the availability of flood insurance to cover losses (for both structure and contents); the requirement to obtain permits for building improvements, additions, and repair of damage; termination of leases under certain circumstances (e.g., if buildings are substantially damaged by any cause (e.g., flood or fire); etc. Notify owners of private property on the river side of the Levee about the risk of flooding, levee closing procedures, requirements to evacuate, availability of flood insurance, and the requirement to obtain permits. Continue to exercise the Emergency Levee Closure Plan every two years.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

10

Blythe

#3

GOAL 2 – Objective 2.2 – Mitigation Action 2.2.4

Flood Warning - Augusta's watersheds are relatively small and tend to respond rapidly to heavy rainfall, making it difficult to use the traditional door-to-door notification to adequately warn residents to evacuate. For the same reason, placing barricades or stationing City personnel at flood-prone roads is problematic, especially in the upper reaches of watersheds. To enhance flood safety: Use GIS and flood maps to identify buildings within flood hazard areas and develop phone groups for automated, generalized flood warning announcements through 911 Message; exercise the announcement system periodically. Explore if the automated rain gages that may be installed by Augusta Utilities as part of watershed assessments can be used to augment the City's preparations during times when flooding is likely. Improve the list of flood-prone roads; evaluate whether the most frequently flooded areas warrant signs to alert the traveling public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)			
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champions	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefits of Action	Cost of Action	Contribution to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	-+	+	+	-+	+	+	+	+	+	+	+	+	+	+	+	-+	-+	+	-+	+	-+	-+

City of Blythe

Mitigation Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to drought and effects of extreme heat.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of drought and extreme heat in Augusta-Richmond County.

GOAL 3 – Objective 3.1 – Mitigation Action 3.1.1 (Multi Jurisdictional)

Water Conservation Awareness. Augusta Utilities to continue implementation of the Water Conservation Plan; continue to comment on proposed development site and landscaping plans; continue to report on and encourage conservation in The H2O Newsletter and to highlight water conservation tips on its web page. The City of Hephzibah will continue to follow and implement the State's water conservation guidelines.

Add City of Blythe

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champions	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Laws
	+	+	+	+	+	-	-	-	+	+	-	+	+	+	+	-	-	-	+	+	+	+	+

City of Blythe will continue to follow & implement the state's water conservation guidelines as well as Blythe's outdoor water use ordinance.

Blythe

Mitigation Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of winter storms.

Objective 4.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of ice and winter storms.

#3

GOAL 4 – Objective 4.1 – Mitigation Action 4.1.1 (Multi Jurisdictional)

Severe Winter Storm Awareness - Continue public outreach on severe winter storm and ice; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of representatives from Augusta, Blythe, Hephzibah, and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the National Weather Service, FEMA, the American Red Cross, and others and determine whether changes are appropriate. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefits of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	-	-	-	+	+	-	+	+	-	+	-	+	+	+	+	+	+	+

17

#2

GOAL 4 – Objective 4.1 – Mitigation Action 4.1.2

Augusta Public Tree Maintenance - Continue tree maintenance on city streets and city-owned property (reduce debris, impacts of falling).

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefits of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	-	-	-	+	+	+	+	+	-	+	-	+	+	+	+	+	+	+

18

Blythe

#1

GOAL 4 – Objective 4.1 – Mitigation Action 4.1.3 (Multi Jurisdictional)

Debris Management Plan - Work with the cities, Georgia Forestry Commission, power companies, and other entities to develop a Debris Management Plan. Note: FEMA has a guidebook for developing debris management strategies and examples from other jurisdictions are available.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segments of Population	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contribute to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	-	-	-	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+

19

Blythe

Mitigation Goal 5: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of wildfire.

Objective 5.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of wildfire in Augusta-Richmond County.

#1

GOAL 5 – Objective 5.1 – Mitigation Action 5.1.1

Pre-Suppression Planning for City-Owned Lands. Request assistance from the Georgia Forestry Commission to evaluate fire risks on City-owned parks and greenspace to develop prevention plans to improve forest health.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	-	-	-	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+

#2

GOAL 5 – Objective 5.1 – Mitigation Action 5.1.2

Subdivisions & Driveway Access for Fire Vehicles. Request that the Quarterly Subdivision Regulations Review Committee consider new standards for widths of subdivision roads and shoulders, and for common driveways for multiple flagpole lots to provide safer access by larger fire trucks.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	-	+	+	+	+	-	-	-	+	+	-	+	+	-	+	-	+	+	+	+	+	+	+

City of Blythe

Mitigation Goal 6: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of earthquakes.

Objective 6.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of seismic activity.

GOAL 6 – Objective 6.1 – Mitigation Action 6.1.1
Outreach and seismic inspection Request that the building inspectors conduct field verification of the building's overall health and field operators Seismic inspection of the residential structure.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations – for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance / Operations	Political Support	Local Champions	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contribution to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Blythe

In Chapter 3 of this Plan Update, members of the Augusta-Richmond County HMPC conducted quantitative and qualitative evaluation of the community's exposure to technological hazards through HRV process. As a direct result of the prevalent technological hazard evaluation, HMPC established the following 2011 mitigation goals and objectives:

Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to chemical spills / airborne release.

Objective 1.1: Increase environmental safety with respect to flood hazards and downtown Augusta railroad infrastructure.

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of chemical spills / airborne release.

Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to terrorism.

Objective 2.1: Increase public awareness and increase level of protection to local population from the effects of terrorism.

Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to nuclear plant incident.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of nuclear plant incident.

Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to dam / levee break.

Objective 4.1 (in conjunction with Objective 1.1): Maintain public awareness and increase level of protection to critical infrastructure and local population from the effects of dam / levee break.

Blythe

Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to chemical spills / airborne release.

Objective 1.1: Increase environmental safety with respect to flood hazards and downtown Augusta railroad infrastructure.

#2

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.1

Environmental Safety and Flood Hazards. Improve geo-location data for the actual physical locations of hazardous materials and use the GIS-based mapped flood hazard areas to identify sites that are in or near mapped floodplains. Flood hazards should be identified both from FEMA DFIRMs and USACE inundation maps. For sites determined to have some degree of flood risk, request that the LEPC use the information to inform owners/operators and encourage including flood threat recognition and protective measures into risk management plans.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)		A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champions	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contribution to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	/	/	/	+	+	+	+	+	/	+	/	+	+	+	+	+	+	+

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.2

#1

Downtown Railroad Safety. Continue to pursue activities (engineering, land acquisition, etc.) related to relocating railroads from downtown Augusta; in particular, NS Railroad mainline o ff of 6th Street right-of-way. This action is contained in the Augusta-Richmond County Comprehensive Plan.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)		A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champions	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contribution to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	/	/	/	+	+	+	+	+	/	+	+	+	+	+	+	+	+	+

City of Blythe & we have no plants or industry within our City However trucks traveling Hwy 88 & US 1 could have a spill.

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of chemical spills / airborne release.

GOAL 1 – Objective 1.2 – Mitigation Action 1.2.1
Chemical Spill Awareness - Continue public outreach on chemical spills and airborne release; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of representatives from Augusta, LEPC, and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the National Weather Service, FEMA, the American Red Cross, and others and determine whether changes are appropriate. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance & Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contribution to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Laws
	/	+	/	/	/	/	/	/	+	/	/	+	+	/	+	/	+	/	+	/	+	+	+

City of Blythe

Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to terrorism.

Objective 2.1: Increase public awareness and increase level of protection to local population from the effects of terrorism.

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.1
Terrorism Awareness - Continue public outreach on terrorism; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of emergency management and law enforcement representatives from Augusta, Blythe, Hephzibah, LEPC and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the Department of Homeland Security, Georgia Bureau of Investigation (GBI), and GEMA. Ensure that all essential facilities have threat of terrorism evaluated and provided for in their contingency plans. Provide training and emergency drills for operators of all essential facilities. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations – for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champions	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contribution to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	-	-	-	+	+	-	-	-	-	+	-	+	+	-	+	-	+	-	+	+	+	+	+

City of Blythe

Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to nuclear plant incident.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of nuclear plant incident.

GOAL 3 – Objective 3.1 – Mitigation Action 3.1.1
Nuclear Plant Incident Awareness - Continue public outreach on nuclear hazard; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of emergency management and representatives from Augusta, Blythe, Hephzibah, LEPC, SRNS, Southern Company and members of the public, including nonprofit and neighborhood organizations and others, to evaluate existing outreach efforts and materials and propose improvements, if necessary. Provide training and emergency drills for operators of all essential facilities. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance & Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contribution to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to dam / levee break.

- **Objective 4.1 (in conjunction with Objective 1.1):** Maintain public awareness and increase level of protection to critical infrastructure and local population from the effects of dam / levee break.

GOAL 4 – Objective 4.1 – Mitigation Action 4.1.1

Dam / levee Break Flood Hazard Considerations. . Improve geo-location data for the actual physical locations of hazardous materials and use the GIS-based mapped flood hazard areas to identify sites that are in or near mapped floodplains. For sites determined to have some degree of flood risk, request that the LEPC use the information to inform owners/operators and encourage including flood threat recognition and protective measures into risk management plans. Continue public outreach and maintain awareness of the dam/levee break hazard; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of emergency management and representatives from USACE, smaller dam owners and members of the public, including nonprofit and neighborhood organizations and others, to evaluate existing outreach efforts and materials and propose improvements, if necessary. Provide training and emergency drills for operators of all essential facilities. Expand use of Augusta's website to make information readily available to the public. Evaluate dam/levee break warning systems. There are no known ponds within the City of Blythe as of 8-15-11.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champions	Public Support	State Authority	Existing Local Authority	Potential Legal Challenges	Benefit of Action	Cost of Action	Contribution to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

STAPLEE Criteria Package filled out by:

Loriann H. Chancey
Name

08/15/2011
Date:

City Clerk
Title

City of Blythe
Agency

Goal 5: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of wildfire.

Objective 5.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of wildfire in Augusta-Richmond County.

Goal 6: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of earthquakes.

Objective 6.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of seismic activity.

Mitigation Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to tornadoes, wind, storms, and hail.

Objective 1.1: Increase resilience of critical facilities (including shelters) to the effects of tornado winds, violent storms, and hail.

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.1 (Multi Jurisdictional)

3

Review capacity of the existing tornado shelters and construct new ones if needed

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	−	+	−	−	−	+	+	+	+	+	−	+	−	−	+	+	+	+	+	+

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.2 (Multi Jurisdictional)

1

Debris Management Plan - Work with the cities, Georgia Forestry Commission, power companies, and other entities to develop a Debris Management Plan. Note: FEMA has a guidebook for developing debris management strategies and examples from other jurisdictions are available.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
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	+	+	+	+	+	−	−	−	+	+	+	+	+	+	+	−	+	+	+	+	+	+	+

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.3

2

Augusta Public Tree Maintenance - Continue tree maintenance on city streets and city-owned property (reduce debris, impacts of falling).

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	−	+	+	+	+	+	−	+	−	+	+	+	+	+	+	+

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.4

(4) **Promote Enhanced Anchoring of Manufactured Homes** – making them less susceptible to tornado damages and detachment from the pad.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	−	+	+	+	+	−	−	−	−	+	−	+	+	+	+	−	+	+	+	+	+	+	+

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of tornado winds, violent storms, and hail in Augusta-Richmond County.

GOAL 1 – Objective 1.2 – Mitigation Action 1.2.1 (Multi Jurisdictional)

Severe Storm Awareness - Continue public outreach on severe storm and tornado risks; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of representatives from Augusta, Blythe, Hephzibah, and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the National Weather Service, FEMA, the American Red Cross, and others and determine whether changes are appropriate. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	−	−	−	+	+	+	−	+	−	+	−	+	+	+	+	+	+	+

Mitigation Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to the riverine and localized flooding.

Objective 2.1: Increase resilience of building stock, critical infrastructure, and essential facilities to the effects of flooding.

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.1

8

Drainage and Stormwater Management. Implement central database for staff to record drainage and flooding problems (build on existing software). Train staff of all departments that receive citizen calls to use the database to register appropriate information to ensure quality data. Develop method to consider the database contents in setting priorities for drainage projects and to support identification of flood mitigation opportunities. Formalize detention basin maintenance procedures and system to prioritize maintenance.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	−	+	+	+	+	+	−	+	+	+	−	+	+	+	+	+

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.2

2

Sewer Line Infiltration and Inflow. Continue to undertake projects to identify and resolve infiltration and inflow. During wet weather and flooding conditions, water infiltrates into sewer lines and flows into the system through submerged manhole covers, based on qualitative assessment of cost/effort and long-term benefits

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	+	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.3

Soil Erosion and Sediment Control Sedimentation in waterways may be contributing to drainage problems and flooding Due to the significant size and duration of four projects proposed by Georgia DOT for the upper part of the Crane Creek basin, and the high visibility of downstream flooding, request GDOT's continued attention to exemplary sediment and erosion control practices. Communicate with City crews and contractors that City projects are to be undertaken with exemplary sediment and erosion control practices. Examine the feasibility of offering training for local contractors to reinforce proper installation and maintenance of sediment control measures; seek cooperative partners, including the District Soil Conservation Office, Georgia DOT, and GA Department of Natural Resources. Increase frequency of inspections of sediment control measures and work with project owner/contractor to maintain effective measures throughout construction.

Continue cooperative efforts with Columbia County regarding installation and maintenance of sediment and erosion control measures on active construction sites in the upper portions of waterways that drain into Augusta, with particular attention to Crane Creek, Rae's Creek, and Butler Creek

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.4

Flood Hazard Map Revisions and Updates Pursue City-wide revision of the Flood Insurance Rate Maps, building on the City's new digital topography and work underway by the U.S. Army Corps of Engineers to prepare flood studies as part of the *Flood Reduction Study* (including Rocky Creek, Rae's Creek, Crane Creek, Augusta Canal and Phinizy Swamp), and including other studies and identified watersheds. Communicate to the Georgia Department of Natural Resources and FEMA Region IV the importance of receiving revised maps in the Digital Flood Insurance Rate Map format. When available for local use, annotate digital map with the "lower floodway fringe" delineation to facilitate awareness of and application of the Flood Damage Prevention Ordinance and to more clearly identify areas targeted for greenspace purposes. Incorporate new flood maps into the City's GIS. Develop a database of property owners for use in public awareness activities.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
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	+	+	+	+	+	−	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

(4)

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.5

Economic Analysis related to Flood Hazard and critical facilities Perform economic analysis related to identifying the most effective flood mitigation projects. Utilize newly developed FEMA DFIRMs and new topography to ascertain economic impact of flooding at various frequencies. Develop several scenarios and identify the most cost-beneficial mitigation measures or the most exposed industrial facility in downtown Augusta.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
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	+	+	−	+	+	−	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

(1)

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.6

Policies & Procedures for Flood Mitigation Projects. Develop Flood Mitigation Project Policies and Procedures Manual. Establish systematic method for using and prioritizing funds, including a mechanism to account for changes in priorities as a function of several variables (such as the funding agency's priorities, recent flooding, degree of damage, damage history, predicted depth of flooding, existing drainage problems, sewer infiltration, proximity to other public open space/ greenspace, etc.). Gather data on buildings in FEMA-mapped floodways and repetitive loss areas to have available in the post-flood period; use to target efforts for recovery, permitting, and grant application development. Obtain FEMA's Residential Substantial Damage Estimator software and maintain ability to use it to facilitate damage estimates and substantial damage determinations. Develop policy on abandoned homes in SFHA (donations, condemn, demolish, HUD funds). Examine the Corps' database of buildings in the SFHA and pre-identify those most likely to sustain significant damage if floods equivalent to the SFHA or greater occur, i.e., those predicted to have more than 2-feet of water above the lowest floor.

Use the identified list to target post-flood inspections. Maintain awareness of different sources of mitigation funding (pre-disaster, post-disaster, CDBG/HOME, NFIP flood insurance claims payments, etc). Continue to seek mitigation grant funds to implement mitigation in high priority actions. Explore with GDOT if, as part of its environmental enhancement and wetlands mitigation requirements, funding could support additional buyouts areas where the frequency of flooding indicates the hydrology would support allowing areas to return to wetland functions. Include consideration of flood mitigation opportunities in the City's identification of projects for which ISTEA applications will be prepared, which may include projects to preserve floodway greenspace or floodplain buyouts in areas where detention is required or wetlands are desirable.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
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	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

7

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.7

The National Flood Insurance Program's (NFIP) Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS: 1) Reduce flood losses; 2)Facilitate accurate insurance rating; and 3)Promote the awareness of flood insurance.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	−	+	+	−	+	+	+	+	+	+	+	+	+	+	+	+

5

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.8

Dam Safety. For State-designated Category I dams that are located in the City or on waterways that drain through the City, estimate potential impacts and determine if the downstream risks are sufficient to contact owners to encourage their development of limited emergency action plan procedures, and periodic inspections, that are coordinated with the City.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Objective 2.2: Increase public awareness and increase level of protection to local population from the effects of flooding

GOAL 2 – Objective 2.2 – Mitigation Action 2.2.1

Public Awareness Initiative. Mitigation is a partnership and citizens are both obligated and responsible for certain actions to help reduce exposure to flooding and to improve the City's ability to recover from flooding. To increase public awareness and responsibility, convene a work group (e.g., City departments, neighborhood associations, NRCS/SCS, Corps of Engineers, others) to prepare and implement a multi-year plan for public awareness. The Plan may contain the following actions: Encourage property owner purchase of flood insurance to provide financial protection that helps personal recovery; Encourage property owner purchase of flood insurance to increase options for post-flood mitigation (because of Increased Cost of Compliance insurance coverage). Prepare articles for publication emphasizing what property owners can do to plan and prepare for floods and to reduce losses (flooded road safety, low cost mitigation measures, insurance, the automated 911 Message flood warning alerts). Coordinate with campaigns undertaken by the State (flood awareness, winter storm awareness, etc.). Develop web-based materials; link to other sites (GEMA, FEMA, Red Cross, Extension Service). Co-op with stormwater management initiative to distribute periodic mailing to property owners along waterways to inform them of their responsibility to keep drainageways clear (don't dump debris, yard clippings, tree limbs, etc.). Develop materials for the Planning Commission and License and Inspections to handout with permits or mailings (tailored for homeowners, business owners, and owners of vacant lands). Topics to include flood insurance, mitigation options, flood safety, permit requirements, etc. Improve consistency of communication to the public regarding flooding, prepare briefing of basic information for City staff who field calls or meet with citizens groups. Establish a hotline for citizen reports of flooding and drainage problems. Request and sponsor periodic NFIP workshops provided by others (GADNR, FEMA) for lenders, insurance agents, real estate professionals and others. To facilitate preparation of Elevation Certificates and other uses, post database of elevation benchmarks and reference marks on the City's webpage and notify local surveyors and engineers of its availability. Research options to improve disclosure of flood hazards as part of the property transfer process.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
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	+	+	+	+	+	−	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

1

GOAL 2 – Objective 2.2 – Mitigation Action 2.2.2

Flood Mitigation/Hazard Mitigation Staffing. Seek new staff position to coordinate the City's floodplain management and mitigation efforts. Functions would include: leadership for implementation and tracking of priority action items identified in the Plan; provide staff review of permit applications for floodplain development; function as the City's Community Rating System Coordinator; develop flood mitigation policies and procedures; apply for and administer mitigation grants; coordinate the City's interaction with the U.S. Army Corps of Engineers; coordinate multi-year effort to revise FIRMs; coordinate the Flood Damage Assessment Team (with L&I) for substantial damage determinations; serve as liaison with press and the public on matters related to flooding.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
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	+	+	−	+	+	−	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

4

GOAL 2 – Objective 2.2 – Mitigation Action 2.2.3

Savannah River Flood Protection and Awareness. Although there is a very low probability that flood levels on the Savannah River would prompt closure of the eight breaches in the Levee, the consequences of such flooding would be catastrophic. Residential and nonresidential uses exist on the riverside of the levee (some on City-owned land) and may be subject to damage at different floodwater levels. To enhance protection and awareness: Convene a City work group to review and revise the Emergency Levee Closure Plan. For City-owned property on the riverside of the Levee that is leased to private entities, examine lease conditions with respect to adequate advisory language to protect the City. Consider whether lessees should be notified of the risk of flooding; that the City periodically conducts a levee closing exercise; and that certain conditions of flooding predicted by the U.S. Army Corps of Engineers may prompt the City to require evacuation. Other topics for consideration: the availability of flood insurance to cover losses (for both structure and contents); the requirement to obtain permits for building improvements, additions, and repair of damage; termination of leases under certain circumstances (e.g., if buildings are substantially damaged by any cause (e.g., flood or fire); etc. Notify owners of private property on the river side of the Levee about the risk of flooding, levee closing procedures, requirements to evacuate, availability of flood insurance, and the requirement to obtain permits. Continue to exercise the Emergency Levee Closure Plan every two years.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
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	+	+	−	+	+	−	−	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

GOAL 2 – Objective 2.2 – Mitigation Action 2.2.4

3

Flood Warning - Augusta's watersheds are relatively small and tend to respond rapidly to heavy rainfall, making it difficult to use the traditional door-to-door notification to adequately warn residents to evacuate. For the same reason, placing barricades or stationing City personnel at flood-prone roads is problematic, especially in the upper reaches of watersheds. To enhance flood safety: Use GIS and flood maps to identify buildings within flood hazard areas and develop phone groups for automated, generalized flood warning announcements through 911 Message; exercise the announcement system periodically. Explore if the automated rain gages that may be installed by Augusta Utilities as part of watershed assessments can be used to augment the City's preparations during times when flooding is likely. Improve the list of flood-prone roads; evaluate whether the most frequently flooded areas warrant signs to alert the traveling public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
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	+	+	−	+	+	−	−	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Mitigation Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to drought and effects of extreme heat.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of drought and extreme heat in Augusta-Richmond County.

GOAL 3 – Objective 3.1 – Mitigation Action 3.1.1 (Multi Jurisdictional)
Water Conservation Awareness. Augusta Utilities to continue implementation of the Water Conservation Plan; continue to comment on proposed development site and landscaping plans; continue to report on and encourage conservation in The H2O Newsletter and to highlight water conservation tips on its web page. The City of Hephzibah will continue to follow and implement the State's water conservation guidelines.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	−	−	−	+	+	+	+	+	−	+	+	+	+	+	+	+	+	+

Mitigation Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of winter storms.

Objective 4.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of ice and winter storms.

3

GOAL 4 – Objective 4.1 – Mitigation Action 4.1.1 (Multi Jurisdictional)

Severe Winter Storm Awareness - Continue public outreach on severe winter storm and ice; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of representatives from Augusta, Blythe, Hephzibah, and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the National Weather Service, FEMA, the American Red Cross, and others and determine whether changes are appropriate. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	−	+	+	−	+	+	+	+	+	+	+	+	+	+	+	+

2

GOAL 4 – Objective 4.1 – Mitigation Action 4.1.2

Augusta Public Tree Maintenance - Continue tree maintenance on city streets and city-owned property (reduce debris, impacts of falling).

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	−	−	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

GOAL 4 – Objective 4.1 – Mitigation Action 4.1.3 (Multi Jurisdictional)

1 **Debris Management Plan -** Work with the cities, Georgia Forestry Commission, power companies, and other entities to develop a Debris Management Plan. Note: FEMA has a guidebook for developing debris management strategies and examples from other jurisdictions are available.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	−	−	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Mitigation Goal 5: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of wildfire.

Objective 5.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of wildfire in Augusta-Richmond County.

1

GOAL 5 – Objective 5.1 – Mitigation Action 5.1.1

Pre-Suppression Planning for City-Owned Lands. Request assistance from the Georgia Forestry Commission to evaluate fire risks on City-owned parks and greenspace to develop prevention plans to improve forest health.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	−	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

2

GOAL 5 – Objective 5.1 – Mitigation Action 5.1.2

Subdivisions & Driveway Access for Fire Vehicles. Request that the Quarterly Subdivision Regulations Review Committee consider new standards for widths of subdivision roads and shoulders, and for common driveways for multiple flagpole lots to provide safer access by larger fire trucks.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	−	+	−	+	+	−	−	−	+	+	−	+	+	+	+	+	+	+	+	+	+	+	+

Mitigation Goal 6: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of earthquakes.

Objective 6.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of seismic activity.

GOAL 6 – Objective 6.1 – Mitigation Action 6.1.1
Outreach and seismic inspection Request that the building inspectors conduct field verification of the building's overall health and field operators Seismic inspection of the residential structure.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	−	−	−	+	+	−	−	−	+	+	−	+	+	−	+	−	+	+	+	+	+	+	+

In Chapter 3 of this Plan Update, members of the Augusta-Richmond County HMPC conducted quantitative and qualitative evaluation of the community's exposure to technological hazards through HRV process. As a direct result of the prevalent technological hazard evaluation, HMPC established the following 2011 mitigation goals and objectives:

Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to chemical spills / airborne release.

Objective 1.1: Increase environmental safety with respect to flood hazards and downtown Augusta railroad infrastructure.

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of chemical spills / airborne release.

Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to terrorism.

Objective 2.1: Increase public awareness and increase level of protection to local population from the effects of terrorism.

Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to nuclear plant incident.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of nuclear plant incident.

Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to dam / levee break.

Objective 4.1 (in conjunction with Objective 1.1): Maintain public awareness and increase level of protection to critical infrastructure and local population from the effects of dam / levee break.

Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to chemical spills / airborne release.

Objective 1.1: Increase environmental safety with respect to flood hazards and downtown Augusta railroad infrastructure.

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.1

Environmental Safety and Flood Hazards. Improve geo-location data for the actual physical locations of hazardous materials and use the GIS-based mapped flood hazard areas to identify sites that are in or near mapped floodplains. Flood hazards should be identified both from FEMA DFIRMs and USACE inundation maps. For sites determined to have some degree of flood risk, request that the LEPC use the information to inform owners/operators and encourage including flood threat recognition and protective measures into risk management plans.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	−	+	+	+	+	+	+	+	+	+		+	+	+	+	+

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.2

Downtown Railroad Safety. Continue to pursue activities (engineering, land acquisition, etc.) related to relocating railroads from downtown Augusta; in particular, NS Railroad mainline o ff of 6th Street right-of-way. This action is contained in the Augusta-Richmond County Comprehensive Plan.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	+	−	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of chemical spills / airborne release.

GOAL 1 – Objective 1.2 – Mitigation Action 1.2.1
Chemical Spill Awareness - Continue public outreach on chemical spills and airborne release; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of representatives from Augusta, LEPC, and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the National Weather Service, FEMA, the American Red Cross, and others and determine whether changes are appropriate. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
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	+	+	−	+	+	−	−	−	+	+	+	+	+	−	+	−	+	+	+	+	+	+	+

Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to terrorism.

Objective 2.1: Increase public awareness and increase level of protection to local population from the effects of terrorism.

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.1
Terrorism Awareness - Continue public outreach on terrorism; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of emergency management and law enforcement representatives from Augusta, Blythe, Hephzibah, LEPC and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the Department of Homeland Security, Georgia Bureau of Investigation (GBI), and GEMA. Ensure that all essential facilities have threat of terrorism evaluated and provided for in their contingency plans. Provide training and emergency drills for operators of all essential facilities. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
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	+	+	−	+	+	−	−	−	+	+	+	+	+	−	+	−	+	+	+	+	+	+	+

Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to nuclear plant incident.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of nuclear plant incident.

GOAL 3 – Objective 3.1 – Mitigation Action 3.1.1

Nuclear Plant Incident Awareness - Continue public outreach on nuclear hazard; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of emergency management and representatives from Augusta, Blythe, Hephzibah, LEPC, SRNS, Southern Company and members of the public, including nonprofit and neighborhood organizations and others, to evaluate existing outreach efforts and materials and propose improvements, if necessary. Provide training and emergency drills for operators of all essential facilities. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	−	+	+	+	+	+	−	+	−	+	+	+	+	+	+	+

Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to dam / levee break.

Objective 4.1 (in conjunction with Objective 1.1): Maintain public awareness and increase level of protection to critical infrastructure and local population from the effects of dam / levee break.

GOAL 4 – Objective 4.1 – Mitigation Action 4.1.1
Dam / levee Break Flood Hazard Considerations. . Improve geo-location data for the actual physical locations of hazardous materials and use the GIS-based mapped flood hazard areas to identify sites that are in or near mapped floodplains. For sites determined to have some degree of flood risk, request that the LEPC use the information to inform owners/operators and encourage including flood threat recognition and protective measures into risk management plans. Continue public outreach and maintain awareness of the dam/levee break hazard; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of emergency management and representatives from USACE, smaller dam owners and members of the public, including nonprofit and neighborhood organizations and others, to evaluate existing outreach efforts and materials and propose improvements, if necessary. Provide training and emergency drills for operators of all essential facilities. Expand use of Augusta's website to make information readily available to the public. Evaluate dam/levee break warning systems.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	+	−	−	−	+	+	+	+	+	−	+	−	+	+	+	+	+	+	+

STAPLEE Criteria Package filled out by:

JACK L. WOMACK II
Name

8/15/11
Date:

CAPTAIN / FIRE MARSHAL
Title

AUGUSTA FIRE DEPT
Agency

Date: Monday, August 15, 2011

To: Hazard Mitigation Plan Update Planning Committee / Stakeholders Committee

Re: STAPLEE Process for Hazard Mitigation Plan Update – Mitigation Actions

In Chapter 2 of this Plan Update, members of the Augusta-Richmond County HMPC conducted quantitative and qualitative evaluation of the community's exposure to natural hazards through HRV process. As a direct result of the prevalent natural hazard evaluation, HMPC established the following 2011 mitigation goals and objectives:

Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to tornadoes, wind, storms, and hail.

Objective 1.1: Increase resilience of critical facilities (including shelters) to the effects of tornado winds, violent storms, and hail.

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of tornado winds, violent storms, and hail in Augusta-Richmond County.

Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to the riverine and localized flooding.

Objective 2.1: Increase resilience of building stock, critical infrastructure, and essential facilities to the effects of flooding.

Objective 2.2: Increase public awareness and increase level of protection to local population from the effects of flooding.

Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to drought and effects of extreme heat.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of drought and extreme heat in Augusta-Richmond County.

Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of winter storms.

Objective 4.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of winter storms.

Goal 5: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of wildfire.

Objective 5.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of wildfire in Augusta-Richmond County.

Goal 6: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of earthquakes.

Objective 6.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of seismic activity.

Mitigation Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to tornadoes, wind, storms, and hail.

Objective 1.1: Increase resilience of critical facilities (including shelters) to the effects of tornado winds, violent storms, and hail.

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.1 (Multi Jurisdictional)

Review capacity of the existing tornado shelters and construct new ones if needed

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	−	−	−	+	+	+	+	+	−	+	−	−	+	+	+	+	+	+

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.2 (Multi Jurisdictional)

Debris Management Plan - Work with the cities, Georgia Forestry Commission, power companies, and other entities to develop a Debris Management Plan. Note: FEMA has a guidebook for developing debris management strategies and examples from other jurisdictions are available.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
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	+	+	+	+	−	−	−	−	+	+	+	+	+	+	+	−	+	+	+	+	+	+	+

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.3

Augusta Public Tree Maintenance - Continue tree maintenance on city streets and city-owned property (reduce debris, impacts of falling).

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	−	−	−	+	+	+	+	+	−	+	−	+	+	+	+	+	+	+

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.4

Promote Enhanced Anchoring of Manufactured Homes – making them less susceptible to tornado damages and detachment from the pad.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	–	–	+	+	+	–	–	–	–	+	–	+	+	–	+	–	+	–	+	+	+	+	+

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of tornado winds, violent storms, and hail in Augusta-Richmond County.

GOAL 1 – Objective 1.2 – Mitigation Action 1.2.1 (Multi Jurisdictional)

Severe Storm Awareness - Continue public outreach on severe storm and tornado risks; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of representatives from Augusta, Blythe, Hephzibah, and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the National Weather Service, FEMA, the American Red Cross, and others and determine whether changes are appropriate. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
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	+	+	+	+	+	−	−	−	+	+	+	+	+	+	+	−	+	+	+	+	+	+	+

Mitigation Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to the riverine and localized flooding.

Objective 2.1: Increase resilience of building stock, critical infrastructure, and essential facilities to the effects of flooding.

1

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.1

Develop a Database

Drainage and Stormwater Management. Implement central database for staff to record drainage and flooding problems (build on existing software). Train staff of all departments that receive citizen calls to use the database to register appropriate information to ensure quality data. Develop method to consider the database contents in setting priorities for drainage projects and to support identification of flood mitigation opportunities. Formalize detention basin maintenance procedures and system to prioritize maintenance.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	−	+	+	+	+	+	+	+

3

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.2

Sewer Line Infiltration and Inflow. Continue to undertake projects to identify and resolve infiltration and inflow.During wet weather and flooding conditions, water infiltrates into sewer lines and flows into the system through submerged manhole covers, based on qualitative assessment of cost/effort and long-term benefits

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	−	−	−	−	+	+	+	+	+	+	+	−	−	−	+	+	+	+	+

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.3

(2)

Soil Erosion and Sediment Control Sedimentation in waterways may be contributing to drainage problems and flooding Due to the significant size and duration of four projects proposed by Georgia DOT for the upper part of the Crane Creek basin, and the high visibility of downstream flooding, request GDOT's continued attention to exemplary sediment and erosion control practices. Communicate with City crews and contractors that City projects are to be undertaken with exemplary sediment and erosion control practices. Examine the feasibility of offering training for local contractors to reinforce proper installation and maintenance of sediment control measures; seek cooperative partners, including the District Soil Conservation Office, Georgia DOT, and GA Department of Natural Resources. Increase frequency of inspections of sediment control measures and work with project owner/contractor to maintain effective measures throughout construction.

Continue cooperative efforts with Columbia County regarding installation and maintenance of sediment and erosion control measures on active construction sites in the upper portions of waterways that drain into Augusta, with particular attention to Crane Creek, Rae's Creek, and Butler Creek

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	−	−	−	+	+	+	+	+	−	+	−	+	+	+	+	+	+	+

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.4

(1)

Flood Hazard Map Revisions and Updates Pursue City-wide revision of the Flood Insurance Rate Maps, building on the City's new digital topography and work underway by the U.S. Army Corps of Engineers to prepare flood studies as part of the *Flood Reduction Study* (including Rocky Creek, Rae's Creek, Crane Creek, Augusta Canal and Phinizy Swamp), and including other studies and identified watersheds. Communicate to the Georgia Department of Natural Resources and FEMA Region IV the importance of receiving revised maps in the Digital Flood Insurance Rate Map format. When available for local use, annotate digital map with the "lower floodway fringe" delineation to facilitate awareness of and application of the Flood Damage Prevention Ordinance and to more clearly identify areas targeted for greenspace purposes. Incorporate new flood maps into the City's GIS. Develop a database of property owners for use in public awareness activities.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	−	−	−	+	+	+	+	+	−	+	−	+	−	−	−	+	−	−

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.5

Economic Analysis related to Flood Hazard and critical facilities Perform economic analysis related to identifying the most effective flood mitigation projects. Utilize newly developed FEMA DFIRMs and new topography to ascertain economic impact of flooding at various frequencies. Develop several scenarios and identify the most cost-beneficial mitigation measures or the most exposed industrial facility in downtown Augusta.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	−	+	+	−	−	−	−	+	+	+	+	+	−	+	−	−	−	−	−	−	−	−

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.6

Policies & Procedures for Flood Mitigation Projects. Develop Flood Mitigation Project Policies and Procedures Manual. Establish systematic method for using and prioritizing funds, including a mechanism to account for changes in priorities as a function of several variables (such as the funding agency's priorities, recent flooding, degree of damage, damage history, predicted depth of flooding, existing drainage problems, sewer infiltration, proximity to other public open space/ greenspace, etc.). Gather data on buildings in FEMA-mapped floodways and repetitive loss areas to have available in the post-flood period; use to target efforts for recovery, permitting, and grant application development. Obtain FEMA's Residential Substantial Damage Estimator software and maintain ability to use it to facilitate damage estimates and substantial damage determinations. Develop policy on abandoned homes in SFHA (donations, condemn, demolish, HUD funds). Examine the Corps' database of buildings in the SFHA and pre-identify those most likely to sustain significant damage if floods equivalent to the SFHA or greater occur, i.e., those predicted to have more than 2-feet of water above the lowest floor.

Use the identified list to target post-flood inspections. Maintain awareness of different sources of mitigation funding (pre-disaster, post-disaster, CDBG/HOME, NFIP flood insurance claims payments, etc). Continue to seek mitigation grant funds to implement mitigation in high priority actions. Explore with GDOT if, as part of its environmental enhancement and wetlands mitigation requirements, funding could support additional buyouts areas where the frequency of flooding indicates the hydrology would support allowing areas to return to wetland functions. Include consideration of flood mitigation opportunities in the City's identification of projects for which ISTEA applications will be prepared, which may include projects to preserve floodway greenspace or floodplain buyouts in areas where detention is required or wetlands are desirable.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	−	−	−	−	+	+	+	+	−	+	−	+	−	+	+	+	+	+

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.7

(7)

The National Flood Insurance Program's (NFIP) Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS: 1) Reduce flood losses; 2)Facilitate accurate insurance rating; and 3)Promote the awareness of flood insurance.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	-	-	-	+	+	+	+	+	-	+	-	+	-	+	+	+	+	+

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.8

(3)

Dam Safety. For State-designated Category I dams that are located in the City or on waterways that drain through the City, estimate potential impacts and determine if the downstream risks are sufficient to contact owners to encourage their development of limited emergency action plan procedures, and periodic inspections, that are coordinated with the City.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	-	-	-	+	+	+	+	+	-	+	-	+	-	-	-	+	-	+

Objective 2.2: Increase public awareness and increase level of protection to local population from the effects of flooding

GOAL 2 – Objective 2.2 – Mitigation Action 2.2.1

Public Awareness Initiative. Mitigation is a partnership and citizens are both obligated and responsible for certain actions to help reduce exposure to flooding and to improve the City's ability to recover from flooding. To increase public awareness and responsibility, convene a work group (e.g., City departments, neighborhood associations, NRCS/SCS, Corps of Engineers, others) to prepare and implement a multi-year plan for public awareness. The Plan may contain the following actions: Encourage property owner purchase of flood insurance to provide financial protection that helps personal recovery; Encourage property owner purchase of flood insurance to increase options for post-flood mitigation (because of Increased Cost of Compliance insurance coverage). Prepare articles for publication emphasizing what property owners can do to plan and prepare for floods and to reduce losses (flooded road safety, low cost mitigation measures, insurance, the automated 911 Message flood warning alerts). Coordinate with campaigns undertaken by the State (flood awareness, winter storm awareness, etc.). Develop web-based materials; link to other sites (GEMA, FEMA, Red Cross, Extension Service). Co-op with stormwater management initiative to distribute periodic mailing to property owners along waterways to inform them of their responsibility to keep drainageways clear (don't dump debris, yard clippings, tree limbs, etc.). Develop materials for the Planning Commission and License and Inspections to handout with permits or mailings (tailored for homeowners, business owners, and owners of vacant lands). Topics to include flood insurance, mitigation options, flood safety, permit requirements, etc. Improve consistency of communication to the public regarding flooding, prepare briefing of basic information for City staff who field calls or meet with citizens groups. Establish a hotline for citizen reports of flooding and drainage problems. Request and sponsor periodic NFIP workshops provided by others (GADNR, FEMA) for lenders, insurance agents, real estate professionals and others. To facilitate preparation of Elevation Certificates and other uses, post database of elevation benchmarks and reference marks on the City's webpage and notify local surveyors and engineers of its availability. Research options to improve disclosure of flood hazards as part of the property transfer process.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	−	−	−	+	+	+	+	+	+	+	−	+	−	+	+	+	+	+

GOAL 2 – Objective 2.2 – Mitigation Action 2.2.2

Flood Mitigation/Hazard Mitigation Staffing. Seek new staff position to coordinate the City's floodplain management and mitigation efforts. Functions would include: leadership for implementation and tracking of priority action items identified in the Plan; provide staff review of permit applications for floodplain development; function as the City's Community Rating System Coordinator; develop flood mitigation policies and procedures; apply for and administer mitigation grants; coordinate the City's interaction with the U.S. Army Corps of Engineers; coordinate multi-year effort to revise FIRMs; coordinate the Flood Damage Assessment Team (with L&I) for substantial damage determinations; serve as liaison with press and the public on matters related to flooding.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	+	−	−	−	+	+	+	+	+	+	−	+	+	+	+	+	+	+

GOAL 2 – Objective 2.2 – Mitigation Action 2.2.3

Savannah River Flood Protection and Awareness. Although there is a very low probability that flood levels on the Savannah River would prompt closure of the eight breaches in the Levee, the consequences of such flooding would be catastrophic. Residential and nonresidential uses exist on the riverside of the levee (some on City-owned land) and may be subject to damage at different floodwater levels. To enhance protection and awareness: Convene a City work group to review and revise the Emergency Levee Closure Plan. For City-owned property on the riverside of the Levee that is leased to private entities, examine lease conditions with respect to adequate advisory language to protect the City. Consider whether lessees should be notified of the risk of flooding; that the City periodically conducts a levee closing exercise; and that certain conditions of flooding predicted by the U.S. Army Corps of Engineers may prompt the City to require evacuation. Other topics for consideration: the availability of flood insurance to cover losses (for both structure and contents); the requirement to obtain permits for building improvements, additions, and repair of damage; termination of leases under certain circumstances (e.g., if buildings are substantially damaged by any cause (e.g., flood or fire); etc. Notify owners of private property on the river side of the Levee about the risk of flooding, levee closing procedures, requirements to evacuate, availability of flood insurance, and the requirement to obtain permits. Continue to exercise the Emergency Levee Closure Plan every two years.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	−	−	−	+	+	+	+	+	+	+	−	−	−	+	+	+	+	+

(3)

GOAL 2 – Objective 2.2 – Mitigation Action 2.2.4

Flood Warning - Augusta's watersheds are relatively small and tend to respond rapidly to heavy rainfall, making it difficult to use the traditional door-to-door notification to adequately warn residents to evacuate. For the same reason, placing barricades or stationing City personnel at flood-prone roads is problematic, especially in the upper reaches of watersheds. To enhance flood safety: Use GIS and flood maps to identify buildings within flood hazard areas and develop phone groups for automated, generalized flood warning announcements through 911 Message; exercise the announcement system periodically. Explore if the automated rain gages that may be installed by Augusta Utilities as part of watershed assessments can be used to augment the City's preparations during times when flooding is likely. Improve the list of flood-prone roads; evaluate whether the most frequently flooded areas warrant signs to alert the traveling public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	−	−	−	−	+	−	+	+	+	+	−	−	−	+	+	+	+	+

Mitigation Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to drought and effects of extreme heat.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of drought and extreme heat in Augusta-Richmond County.

GOAL 3 – Objective 3.1 – Mitigation Action 3.1.1 (Multi Jurisdictional)
Water Conservation Awareness. Augusta Utilities to continue implementation of the Water Conservation Plan; continue to comment on proposed development site and landscaping plans; continue to report on and encourage conservation in The H2O Newsletter and to highlight water conservation tips on its web page. The City of Hephzibah will continue to follow and implement the State's water conservation guidelines.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	−	−	+	+	+	+	−	+	−	+	−	+	+	−	+	+	+	−	−	+	+	+	+

We need a conservation pricing initiative for water conservation. I have talked to Tom Wiedmeier about this.

Mitigation Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of winter storms.

Objective 4.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of ice and winter storms.

3

GOAL 4 – Objective 4.1 – Mitigation Action 4.1.1 (Multi Jurisdictional)

Severe Winter Storm Awareness - Continue public outreach on severe winter storm and ice; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of representatives from Augusta, Blythe, Hephzibah, and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the National Weather Service, FEMA, the American Red Cross, and others and determine whether changes are appropriate. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	–	–	–	–	+	–	+	+	+	+	–	–	–	+	+	+	+	+

2

GOAL 4 – Objective 4.1 – Mitigation Action 4.1.2

Augusta Public Tree Maintenance - Continue tree maintenance on city streets and city-owned property (reduce debris, impacts of falling).

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	–	–	–	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

GOAL 4 – Objective 4.1 – Mitigation Action 4.1.3 (Multi Jurisdictional)

Debris Management Plan - Work with the cities, Georgia Forestry Commission, power companies, and other entities to develop a Debris Management Plan. Note: FEMA has a guidebook for developing debris management strategies and examples from other jurisdictions are available.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	+	+	+	+	+	+	+	+	—	+	—	+	+	+	+	+	+	+

Mitigation Goal 5: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of wildfire.

Objective 5.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of wildfire in Augusta-Richmond County.

GOAL 5 – Objective 5.1 – Mitigation Action 5.1.1

Pre-Suppression Planning for City-Owned Lands. Request assistance from the Georgia Forestry Commission to evaluate fire risks on City-owned parks and greenspace to develop prevention plans to improve forest health.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	+	−	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

GOAL 5 – Objective 5.1 – Mitigation Action 5.1.2

Subdivisions & Driveway Access for Fire Vehicles. Request that the Quarterly Subdivision Regulations Review Committee consider new standards for widths of subdivision roads and shoulders, and for common driveways for multiple flagpole lots to provide safer access by larger fire trucks.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	+	−	−	+	+	+	+	+	−	+	−	+	+	+	+	+	+	+

Mitigation Goal 6: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to effects of earthquakes.

Objective 6.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of seismic activity.

GOAL 6 – Objective 6.1 – Mitigation Action 6.1.1
Outreach and seismic inspection Request that the building inspectors conduct field verification of the building's overall health and field operators Seismic inspection of the residential structure.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	+	—	—	—	+	+	—	+	+

In Chapter 3 of this Plan Update, members of the Augusta-Richmond County HMPC conducted quantitative and qualitative evaluation of the community's exposure to technological hazards through HRV process. As a direct result of the prevalent technological hazard evaluation, HMPC established the following 2011 mitigation goals and objectives:

Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to chemical spills / airborne release.

Objective 1.1: Increase environmental safety with respect to flood hazards and downtown Augusta railroad infrastructure.

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of chemical spills / airborne release.

Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to terrorism.

Objective 2.1: Increase public awareness and increase level of protection to local population from the effects of terrorism.

Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to nuclear plant incident.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of nuclear plant incident.

Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to dam / levee break.

Objective 4.1 (in conjunction with Objective 1.1): Maintain public awareness and increase level of protection to critical infrastructure and local population from the effects of dam / levee break.

Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to chemical spills / airborne release.

Objective 1.1: Increase environmental safety with respect to flood hazards and downtown Augusta railroad infrastructure.

2

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.1

Environmental Safety and Flood Hazards. Improve geo-location data for the actual physical locations of hazardous materials and use the GIS-based mapped flood hazard areas to identify sites that are in or near mapped floodplains. Flood hazards should be identified both from FEMA DFIRMs and USACE inundation maps. For sites determined to have some degree of flood risk, request that the LEPC use the information to inform owners/operators and encourage including flood threat recognition and protective measures into risk management plans.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	−	−	−	−	+	+	+	+	+	−	+	−	+	−	+	+	+	+	+

1

GOAL 1 – Objective 1.1 – Mitigation Action 1.1.2

Downtown Railroad Safety. Continue to pursue activities (engineering, land acquisition, etc.) related to relocating railroads from downtown Augusta; in particular, NS Railroad mainline o ff of 6th Street right-of-way. This action is contained in the Augusta-Richmond County Comprehensive Plan.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	−	+	−	−	−	−	+	+	+	+	+	−	+	−	+	−	−	−	+	−	+

Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of chemical spills / airborne release.

GOAL 1 – Objective 1.2 – Mitigation Action 1.2.1
Chemical Spill Awareness - Continue public outreach on chemical spills and airborne release; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of representatives from Augusta, LEPC, and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the National Weather Service, FEMA, the American Red Cross, and others and determine whether changes are appropriate. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	—	—	—	—	—	—	—	—	—	+	+	+	+	—	+	—	—	—	—	—	—	—	—

Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to terrorism.

Objective 2.1: Increase public awareness and increase level of protection to local population from the effects of terrorism.

GOAL 2 – Objective 2.1 – Mitigation Action 2.1.1

Terrorism Awareness - Continue public outreach on terrorism; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of emergency management and law enforcement representatives from Augusta, Blythe, Hephzibah, LEPC and members of the public, including nonprofit and neighborhood organizations and others, to look at outreach efforts and materials provided by the Department of Homeland Security, Georgia Bureau of Investigation (GBI), and GEMA. Ensure that all essential facilities have threat of terrorism evaluated and provided for in their contingency plans. Provide training and emergency drills for operators of all essential facilities. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	+	—	+	+

Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to nuclear plant incident.

Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of nuclear plant incident.

GOAL 3 – Objective 3.1 – Mitigation Action 3.1.1
Nuclear Plant Incident Awareness - Continue public outreach on nuclear hazard; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of emergency management and representatives from Augusta, Blythe, Hephzibah, LEPC, SRNS, Southern Company and members of the public, including nonprofit and neighborhood organizations and others, to evaluate existing outreach efforts and materials and propose improvements, if necessary. Provide training and emergency drills for operators of all essential facilities. Expand use of Augusta's website to make information readily available to the public.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County due to dam / levee break.

Objective 4.1 (in conjunction with Objective 1.1): Maintain public awareness and increase level of protection to critical infrastructure and local population from the effects of dam / levee break.

GOAL 4 – Objective 4.1 – Mitigation Action 4.1.1

Dam / levee Break Flood Hazard Considerations. . Improve geo-location data for the actual physical locations of hazardous materials and use the GIS-based mapped flood hazard areas to identify sites that are in or near mapped floodplains. For sites determined to have some degree of flood risk, request that the LEPC use the information to inform owners/operators and encourage including flood threat recognition and protective measures into risk management plans. Continue public outreach and maintain awareness of the dam/levee break hazard; encourage families to prepare Disaster Supply Kits; encourage people with special medical needs to notify Augusta Emergency Management Agency. Convene a working group of emergency management and representatives from USACE, smaller dam owners and members of the public, including nonprofit and neighborhood organizations and others, to evaluate existing outreach efforts and materials and propose improvements, if necessary. Provide training and emergency drills for operators of all essential facilities. Expand use of Augusta's website to make information readily available to the public. Evaluate dam/levee break warning systems.

Scoring: For each consideration, indicate a plus (+) for favorable and a negative (-) for less favorable

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
	+	+	+	+	+	+	—	—	+	+	+	+	+	—	+	—	+	—	—	—	—	—	—

STAPLEE Criteria Package filled out by:

Frank Carl
Name

8/15/11
Date:

Title

Augusta Port Authority
Agency

Natural Hazards – All Hazard Strategy: Safe Growth Audit

GOALS AND OBJECTIVES UPDATE SUMMARY

In Chapter 2 of this Plan Update, members of the Augusta-Richmond County HMPC conducted quantitative and qualitative evaluation of the community's exposure to natural hazards through HRV process. As a direct result of the prevalent natural hazard evaluation, HMPC established the following 2011 mitigation goals and objectives:

Goal 7: Analyze the impacts of current policies, ordinances, and plans on community safety from natural hazard risks due to growth decisions.

Objective 7.1: Production of a Safe Community Audit Report to inform citizens and decision makers about important safety issues and to relay needed changes in community ordinances, processes, and policies (Godschalk, 2009).

Technological Hazards – All Hazard Strategy: Safe Growth Audit

In Chapter 3 of this Plan Update, members of the Augusta-Richmond County HMPC conducted quantitative and qualitative evaluation of the community's exposure to technological hazards through HRV process. As a direct result of the prevalent technological hazard evaluation, HMPC established the following 2011 mitigation goals and objectives:

Goal 5: Analyze the impacts of current policies, ordinances, and plans on community safety from technological hazard risks due to growth decisions.

Objective 5.1: Production of a Safe Community Audit Report to inform citizens and decision makers about important safety issues and to relay needed changes in community ordinances, processes, and policies (Godschalk, 2009).

Worksheet #4 Evaluate Alternative Mitigation Actions

1. Fill in the goal and its corresponding objective. Use a separate worksheet for each objective. The considerations under each criterion are suggested ones to use; you can revise these to reflect your own considerations (see Table 2-1).

2. Fill in the alternative actions that address the specific objectives the planning team identified in Worksheet #1.

3. ***Scoring:*** *For each consideration, indicate a plus (+) for favorable, and a negative (-) for less favorable.*

When you complete the scoring; negatives will indicate gaps or shortcomings in the particular action, which can be noted in the Comments section. For considerations that do not apply, fill in N/A for not applicable. Only leave a blank if you do not know an answer. In this case, make a note in the Comments section of the "expert" or source to consult to help you evaluate the criterion.

Goals: Natural Hazards Goal 7: Analyze the impacts of current policies, ordinances, and plans on community safety from natural hazard risks due to growth decisions.

Technological Hazards Goal 5: Analyze the impacts of current policies, ordinances, and plans on community safety from technological hazard risks due to growth decisions.

Objective: Natural Hazards Objective 7.1: Production of a Safe Community Audit Report to inform citizens and decision makers about important safety issues and to relay needed changes in community ordinances, processes, and policies (Godschalk, 2009).

Technological Hazards Objective 5.1: Production of a Safe Community Audit Report to inform citizens and decision makers about important safety issues and to relay needed changes in community ordinances, processes, and policies (Godschalk, 2009).

Note: This overarching mitigation strategy is contained in both Chapters 4 & 5. Please rank as one item.

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contribution to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
Goal 7	+	+	−	+	+	−	−	+	+	+	+	+	+	−	+	+	+	−	+	+	−	+	+
Goal 5	−	−	−	+	+	−	−	−	−	+	−	+	+	−	+	+	+	+	+	+	+	+	+
7.1	+	+	−	+	+	−	−	+	+	+	+	+	+	+	+	+	+	−	+	+	−	+	+
5.1	+	+	−	−	+	−	−	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Alternative Actions	Comments
This mitigation strategy resulted from a suggestion Terri Turner made during the initial review of Chapters 4 & 5	The committee determined that an all hazards Safe Growth Audit for Natural and Technological hazards would provide guidance in implementing the HMP, much needed information to assess EOP and EMA operations, and reveal needed revisions to building, zoning, and engineering documents.

AUGUSTA - RICHMOND COUNTY and the CITIES of BLYTHE and HEPHZIBAH
GEMA WORKSHEET #4 (a) and (b) STAPLEE RESULTS

Mitigation Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County and Cities of Blythe and Hephzibah due to tornadoes, windstorms, and hail

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
Objective 1.1: Increase resilience of critical facilities (including shelters) to the effects of tornado winds, violent storms, and hail																							
MITIGATION ACTION 1.1.1 (multi jurisdictional) Review capacity of the existing tornado shelters and construct new ones if needed	13	12	1	1	11	0	0	0	12	12	12	12	12	1	11	1	1	8	13	13	12	12	13
MITIGATION ACTION 1.1.2 (multi jurisdictional) Develop Debris Management Plan	12	12	12	12	12	0	0	0	13	13	13	13	13	3	13	0	13	12	13	13	13	13	13
MITIGATION ACTION 1.1.3 Augusta Public Tree Maintenance	13	13	2	13	13	0	0	0	13	13	13	13	13	1	12	0	11	11	13	12	12	12	13
MITIGATION ACTION 1.1.4 Promote Enhanced Anchoring of Manufactured Homes	0	12	12	12	13	0	0	0	0	11	0	12	12	3	13	0	13	8	13	12	12	13	13
Objective 1.2: Increase public awareness and increase level of protection to local population from the effects of tornado winds, violent storms, and hail in Augusta- Richmond County and Cities of Blythe and Hephzibah																							
MITIGATION ACTION 1.2.1 (multi jurisdictional) Severe Storm Awareness	12	10	12	10	6	4	0	7	12	11	12	8	11	5	13	4	10	3	10	10	10	12	11

Natural Hazard B: Flooding

Mitigation Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County and Cities of Blythe and Hephzibah due to the riverine and localized flooding

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
Objective 2.1: Increase resilience of building stock, critical infrastructure, and essential facilities to the effects of flooding																							
MITIGATION ACTION 2.1.1 Drainage and Stormwater Management	N 7	N 9	N 5	N 6	NNNN 3	0	0	3	N 9	N 11	N 10	N 8	N 12	N 5	N 9	N 3	N 5	N 4	N 7	N 5	N 9	N 9	N 10
MITIGATION ACTION 2.1.2 Sewer Line Infiltration and Inflow	N 12	N 12	N 10	N 12	N 8	2	1	2	N 11	N 9	N 12	N 12	N 12	N 6	N 12	N 2	N 11	N 5	N 9	N 11	N 8	N 12	N 12
MITIGATION ACTION 2.1.3 Soil Erosion and Sediment Control	10	13	5	8	N 4	0	0	3	11	13	10	11	13	5	10	3	7	4	8	8	7	9	11
MITIGATION ACTION 2.1.4 Flood Hazard Map Revisions and Updates	12	13	10	10	N 9	1	1	3	13	13	13	N 12	13	2	11	3	11	6	12	9	11	12	12
MITIGATION ACTION 2.1.5 Economic Analysis related to Flood Hazard and critical facilities	11	10	11	11	N 7	0	0	3	10	13	11	13	13	3	12	1	10	6	12	9	10	10	11
MITIGATION ACTION 2.1.6 Policies & Procedures for Flood Mitigation Projects	12	12	11	12	10	2	2	5	11	12	12	12	13	3	12	2	12	6	12	12	12	12	12
MITIGATION ACTION 2.1.7 Participation in NFIP Community Rating System (CRS)	9	11	6	11	8	1	1	3	9	13	10	10	11	3	11	1	6	6	9	8	8	8	13
MITIGATION ACTION 2.1.8 Dam Safety	12	11	8	12	8	2	2	4	12	13	10	13	13	6	11	4	9	7	10	12	12	11	13

Natural Hazard B: Flooding (continued)

Mitigation Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County and Cities of Blythe and Hephzibah due to the riverine and localized flooding

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
Objective 2.2: Increase public awareness and increase level of protection to local population from the effects of flooding																							
MITIGATION ACTION 2.2.1 Public Awareness Initiative	13	11	7	11	11	0	0	7	13	13	12	11	13	7	12	4	12	6	12	12	12	11	12
MITIGATION ACTION 2.2.2 Flood Mitigation/Hazard Mitigation Staffing	12	12	12	12	10	2	0	3	10	12	12	13	13	5	12	7	12	7	13	12	12	12	13
MITIGATION ACTION 2.2.3 Savannah River Flood Protection and Awareness	13	9	6	9	10	1	0	3	13	12	12	13	13	6	11	4	9	5	10	8	9	8	11
MITIGATION ACTION 2.2.4 Flood Warning	13	11	6	11	6	3	0	4	12	12	12	11	13	6	11	4	13	4	12	12	11	8	13

Natural Hazard C: Drought / Extreme Heat

Mitigation Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County and Cities of Blythe and Hephzibah due to drought and effects of extreme heat

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of drought and extreme heat in Augusta-Richmond County and Cities of Blythe and Hephzibah																							
MITIGATION ACTION 3.1.1 (multi jurisdictional) Water Conservation Awareness	10	9	10	11	6	6	1	4	11	12	10	10	12	5	11	4	9	3	11	10	11	13	13
MITIGATION ACTION 3.1.2 (multi jurisdictional)	10	9	9	10	6	5	1	4	10	11	9	10	12	5	11	4	9	3	11	10	11	13	13

Natural Hazard D: Severe Winter Storm

Mitigation Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County and Cities of Blythe and Hephzibah due to effects of winter storms

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
Objective 4.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of ice and winter storms																							
MITIGATION ACTION 4.1.1 (multi jurisdictional) Severe Winter Storm Awareness	13	12	8	10	10	1	1	4	12	13	10	11	13	9	11	4	8	5	7	7	10	11	13
MITIGATION ACTION 4.1.2 Augusta Public Tree Maintenance	11	13	9	8	8	0	0	2	13	13	13	11	13	6	9	3	10	8	9	10	12	12	12
MITIGATION ACTION 4.1.3 (multi jurisdictional) Debris Management Plan	13	13	10	10	11	6	4	6	13	13	13	13	13	8	11	5	13	7	13	10	13	13	13

Natural Hazard E: Wildfire

Mitigation Goal 5: To minimize losses of life and property, and other economic losses in Augusta-Richmond County and Cities of Blythe and Hephzibah due to effects of wildfire

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
Objective 5.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of wildfire in Augusta-Richmond County and Cities of Blythe and Hephzibah																							
MITIGATION ACTION 5.1.1 Pre-Suppression Planning for City-Owned Lands	13	13	13	12	11	2	1	3	13	13	13	13	13	7	13	7	12	6	13	12	12	13	13
MITIGATION ACTION 5.1.2 Subdivisions & Driveway Access for Fire Vehicles	8	13	7	13	8	5	1	4	10	13	8	13	13	5	13	2	10	7	12	10	11	13	13

Natural Hazard F: Earthquake

Mitigation Goal 6: To minimize losses of life and property, and other economic losses in Augusta-Richmond County and Cities of Blythe and Hephzibah due to effects of

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
Objective 6.1: Increase public awareness and increase level of protection to critical infrastructure and local population from the effects of seismic activity																							
MITIGATION ACTION 6.1.1 Outreach and seismic inspection	7	9	6	9	7	0	0	3	10	6	8	8	10	4	10	0	7	2	9	8	10	11	11
Mitigation Action 6.1.2 (multi jurisdictional) Improve Augusta Richmond – County capabilities to prepare for and respond to earthquake events.	7	9	6	9	5	3	0	1	10	6	8	8	10	4	10	5	7	2	4	8	10	11	11

Natural Hazards: All Hazards Mitigation Strategy

Mitigation Goal 7: Analyze the impacts of current policies, ordinances, and plans on community safety from natural hazard risks due to growth decisions.

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
Objective 7.1: Increase resilience of critical facilities (including shelters) to the effects of tornado winds, violent storms, and hail																							
MITIGATION ACTION 7.1.1 Production of a Safe Community Audit Report to inform citizens and decision makers about important safety issues and to relay needed changes in community ordinances, processes, and policies (Godschalk, 2009).	13	13	0	13	13	0	0	13	13	13	13	13	13	13	13	13	13	0	13	13	0	13	13
TOTAL	234																						

Technological Hazard A: Chemical Spills / Airborne Release

Mitigation Goal 1: To minimize losses of life and property, and other economic losses in Augusta-Richmond County and Cities of Blythe and Hephzibah due to chemical spills / airborne release

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
Objective 1.1: Increase environmental safety with respect to flood hazards and downtown Augusta railroad infrastructure																							
MITIGATION ACTION 1.1.1 Environmental Safety and Flood Hazards	13	13	8	9	7	0	0	3	13	13	13	13	13	5	11	3	9	N 7	12	10	11	11	13
MITIGATION ACTION 1.1.2 Downtown Railroad Safety	13	13	8	11	8	3	1	3	13	13	13	13	13	3	12	2	8	5	9	10	11	10	13
Objective 1.2:Increase public awareness and increase level of protection to local population from the effects of chemical spills / airborne release																							
MITIGATION ACTION 1.2.1 Chemical Spill Awareness	10	12	9	7	7	5	1	5	12	11	11	11	12	7	13	4	10	6	10	8	11	11	9

Technological Hazard B: Terrorism

Mitigation Goal 2: To minimize losses of life and property, and other economic losses in Augusta-Richmond County and Cities of Blythe and Hephzibah due to terrorism

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
Objective 2.1: Increase public awareness and increase level of protection to local population from the effects of terrorism																							
MITIGATION ACTION 2.1.1 (multi jurisdictional) Terrorism Awareness	10	8	9	10	10	4	0	3	11	11	10	12	12	4	12	N 4	9	6	11	9	11	11	10

Technological Hazard C: Nuclear Plant Incident

Mitigation Goal 3: To minimize losses of life and property, and other economic losses in Augusta-Richmond County and Cities of Blythe and Hephzibah due to nuclear plant

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
Objective 3.1: Increase public awareness and increase level of protection to local population and economy from the effects of nuclear plant incident																							
MITIGATION ACTION 3.1.1 (multi juridsdictional) Nuclear Plant Incident Awareness	10	9	7	11	10	4	2	5	11	11	10	9	11	6	10	1	10	6	11	11	12	12	11

Technological Hazard D: Dam / Levee Break

Mitigation Goal 4: To minimize losses of life and property, and other economic losses in Augusta-Richmond County and Cities of Blythe and Hephzibah due to dam / levee break

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
Objective 4.1: Maintain public awareness and increase level of protection to critical infrastructure and local population from the effects of dam / levee break.																							
MITIGATION ACTION 4.1.1 Dam / Levee Break Flood Hazard Considerations	11	13	7	12	11	5	1	5	12	10	12	10	12	6	10	1	9	5	11	10	12	12	10

Technological Hazards: All Hazards Mitigation Strategy

Mitigation Goal 5: Analyze the impacts of current policies, ordinances, and plans on community safety from natural hazard risks due to growth decisions.

STAPLEE Criteria	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
Objective 5.1: Increase resilience of critical facilities (including shelters) to the effects of tornado winds, violent storms, and hail																							
MITIGATION ACTION 5.1.1 Production of a Safe Community Audit Report to inform citizens and decision makers about important safety issues and to relay needed changes in community ordinances, processes, and	13	13	0	0	13	0	0	0	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13

TOTAL 234

AUGUSTA - RICHMOND COUNTY and the CITIES OF BLYTHE AND HEPHZIBAH
MULTI-JURISDICTIONAL HMP UPDATE STAPLEE SUMMARY

Mitigation Actions	STAPLEE Score	STAPLEE Ranking
Natural Hazard A: Tornado/Windstorm/Hail		
MITIGATION ACTION 1.1.1 (multi jurisdictional) Review capacity of existing tornado shelters; construct new if needed	183/299	5
MITIGATION ACTION 1.1.2 (multi jurisdictional) Develop Debris Management Plan	231/299	1
MITIGATION ACTION 1.1.3 Augusta Public Tree Maintenance	216/299	2
MITIGATION ACTION 1.1.4 Promote Enhanced Anchoring of Manufactured Homes	184/299	4
MITIGATION ACTION 1.2.1 (multi jurisdictional) Severe Storm Awareness	203/299	3
Natural Hazard B: Flooding		
MITIGATION ACTION 2.1.1 Drainage and Stormwater Management	149/299	12
MITIGATION ACTION 2.1.2 Sewer Line Infiltration and Inflow	203/299	7
MITIGATION ACTION 2.1.3 Soil Erosion and Sediment Control	173/299	11
MITIGATION ACTION 2.1.4 Flood Hazard Map Revisions and Updates	212/299	5
MITIGATION ACTION 2.1.5 Economic Analysis related to Flood Hazard & critical facilities	197/299	8
MITIGATION ACTION 2.1.6 Policies & Procedures for Flood Mitigation Projects	221/299	3
MITIGATION ACTION 2.1.7 Participation in NFIP Community Rating System (CRS)	176/299	10
MITIGATION ACTION 2.1.8 Dam Safety	215/299	4
MITIGATION ACTION 2.2.1 Public Awareness Initiative	222/299	2

MITIGATION ACTION 2.2.2 Flood Mitigation/Hazard Mitigation Staffing	228/299	1
MITIGATION ACTION 2.2.3 Savannah River Flood Protection and Awareness	195/299	9
MITIGATION ACTION 2.2.4 Flood Warning	208/299	6
Natural Hazard C: Drought/Extreme Heat		
MITIGATION ACTION 3.1.1 (multi jurisdictional) Water Conservation Awareness	202/299	1
MITIGATION ACTION 3.1.2 (multi jurisdictional) Non-potable Water Reclamation Study.	189/299	2
Natural Hazard D: Severe Winter Storm		
MITIGATION ACTION 4.1.1 (multi jurisdictional) Severe Winter Storm Awareness	203/299	3
MITIGATION ACTION 4.1.2 Augusta Public Tree Maintenance	205/299	2
MITIGATION ACTION 4.1.3 (multi jurisdictional) Debris Management Plan	244/299	1
Natural Hazard E: Wildfire		
MITIGATION ACTION 5.1.1 Pre-Suppression Planning for City-Owned Lands	241/299	1
MITIGATION ACTION 5.1.2 Subdivisions & Driveway Access for Fire Vehicles	212/299	2
Natural Hazard F: Earthquake		
MITIGATION ACTION 6.1.1 Outreach and seismic inspection	155/299	1
MITIGATION ACTION 6.1.2 (multi jurisdictional) Improve capabilities to prepare and respond to earthquake events.	153/299	2
Natural Hazard: All Hazards		
MITIGATION ACTION 7.1.1 **Production of a Safe Community Audit Report (Godschalk, 2009)**	234/299	1

AUGUSTA - RICHMOND COUNTY and the CITIES OF BLYTHE AND HEPHZIBAH
MULTI-JURISDICTIONAL HMP UPDATE STAPLEE SUMMARY

Mitigation Actions	STAPLEE Score	STAPLEE Ranking
Technological Hazard A: Chemical Spill/Leak (Chemical Release Airborne)		
MITIGATION ACTION 1.1.1 Environmental Safety and Flood Hazards	210/299	1
MITIGATION ACTION 1.1.2 Downtown Railroad Safety	208/299	2
MITIGATION ACTION 1.2.1 Chemical Spill Awareness	202/299	3
Technological Hazard B: Terrorism		
MITIGATION ACTION 2.1.1 (multi jurisdictional) Terrorism Awareness	197/299	1
Technological Hazard C: Nuclear Plant Incident		
MITIGATION ACTION 3.1.1 (multi jurisdictional) Nuclear Plant Incident Awareness	200/299	1
Technological Hazard D: Dam/Levee Failure		
MITIGATION ACTION 4.1.1 Dam / Levee Break Flood Hazard Considerations	207/299	1
Technological Hazard: All Hazards		
MITIGATION ACTION 5.1.1 Production of a Safe Community Audit Report to inform citizens and decision makers about important safety issues and to relay needed changes in community ordinances, processes, and policies (Godschalk, 2000)	234/299	1

STAPLEE SCORES: The Mitigation Action raw numeric scores reflect a possible STAPLEE Score (SS) of 299 (**13 respondents X 23 ranking criteria = 299**). The results were then ranked using the baseline number of **SS/299**

HMPC COMMUNITY CAPABILITY ASSESSMENT

PERSONNEL		EQUIPMENT		FACILITIES		TRAINING NEEDS and COMMUNITY ASSESSEMENT PROCESSES		REGULATORY CHANGES		COMMUNICATION EQUIPMENT		PUBLIC OUTREACH	
EXISTING	**NEEDS**	**EXISTING**	**NEEDS**	**EXISTING**	**NEEDS**	**EXISTING**	**NEEDS**	**EXISTING**	**NEEDS**	**EXISTING**	**NEEDS**	**EXISTING**	**NEEDS**
Emergency Management 2 personnel	NEEDS planners officers, training officers, & promote current assistant to deputy director, need adm. Assistance, PIO	Outdated equipment	Updated equipement projectors, screens, ID equipment etc. WEB EOC, computer connectivity,	Emergency Operation Center in flood zone area, too small	Build a state of the art Emergency Management out of the flood zone, storage warehouse for diaster supplies	Drills, exercise to include GEMA, FEMA regulations	Drills, Exercises support with funding workshops, to include supplies and food	Zoning, Subdivision Regs, Comp Plan, EOP, LEOP, Stormwater Mgmt. Plan, Site & Development Review Forms, Policies, & Documents, Inter-agency, Inter-departmental coordination	Safe Growth Audit and Report for revision of Existing Documents, Policies, Regulation, & Review Processes	Outdated equipment & under supplied amount of equipment	Updated equipment to include laptops, repeater antenna, portable radios opeatons with satallite down, satallite phone, video conference system, community wide alert to include siren system	Media awareness, website, emergency notification system, LEPC, CAER, CAPP Meeting, 9-1-1 Day Community Education, Fire Department end of School Public Fire education Day	Workshop funding, campaign to heighten awarness for all hazards,PIO
Manpower for Debis removal, Tree inspections	Additional Manpower	Older equipment	Equipment necessary to maintain adequate road, debris & clearing capabilites	Building for housing equipment	Updated building for housing equipment	Training for job duties thorough out department for handling equipment	Training for brush and sick tree removal, right of way program			No radios for communication with 911, Emergency Operation Center	Updated radio communicatio n equipement	Media awareness, website,	Campaign for enforcing and revising clean up maintance, work with cable, radio media enhance broadcast public educations on emergency prepareness with EOC PIO

Road & Bridges not enough personnel for Severe Weather Clean up	Additional personnel for perparing roadway for hard weather	Older equipment	Equipment necessary to maintain adequate roadway, & winter weather conditions, 4 wheel drive equipment	Building for housing equipment	Updated building for housing equipment	Job duty training	Training & work shops for handling larger amount of road pre-pro weather conditions			No radios for communication with 911, Emergency Operation Center	Updated radio communicatio n equipement	Media awareness,	Campaign for enforcing and revising clean up maintance, campaign to heighter awarness about brush/wildfire and preventative maintenance to homeowners
Debris Management Plan- EMA 2 personnel	Need additional personnel in EMA for Planning officer	Equipment outdated	Need updated equipment for planning process, street sweepers, road barriers	EOC in Flood plain	build a state of the art Emergency Management out of the flood zone, storage warehouse for diaster supplies	Training in planning	Training in planning and grant awards, funding			Older equipment with manual usage	Need VTC with the GEMA, FEMA	Media awarness, website	PIO, Funding for workshops on debris clean up and maintance
Planning & Zoning personnel responsible for Moblile Home Ordinances	Planning & Zoning needs personnel to keep with inspections, revising ordinances for tie downs	Plans & ordinances in place	Updated plans and ordinances, mapping digital for updates in land use	Small area to work in with mapping	New offices with mapping updates,	Personnel trained in planning and zoning	Personnel training with Mobile Home anchoring enhancemen t			Older equipment with manual usage	need VTC with the Emergency Operation Center	Media awareness, website	Implement a county awarness program for enhanced Manufactored Homes anchoring
Environmenta l Services short staffed	Provide Emergency response personnel capable of responding to the effects of all hazards	Equipment shortage, and out dated	Updated equipment to include digital mapping, properly sized culverts to drainage basins	Building is in need of repairs and updates	Updated building for housing equipment	Training personnel in maintance of sewer lines	Training updated for stormwater managemen t sewer inflow			No radios for communication with 911, Emergency Operation Center	Need updated radio equipment	Media awareness, website	Continue to monitor and revise as necessary to ensure maximun provisions for stormwater control ordinances awareness, water saving campaigns

Planning & Zoning personnel responsible for Flood Hazard local mapping	Additional Hazard Mitigation Planner needed to update plan and mapping	Mapping equipment older model	Update mapping to digital for staff and public easily updates	Small area to work in with mapping		Personnel trained in planning and zoning	Personnel training with Flood mapping			Older equipment with manual usage	WEB EOC	Media awareness, website	WEB EOC
Planning & Zoning personnel responsible for Flodd Mitigation Projects	Need additional Hzd Mitigation Planner	Older Mapping equipment	Digital Equipment	Small area to work in with mapping		Personnel trained in planning and zoning, flooding projects	Buys outs for flood properties			Older equipment with manual usage	Updated equipment	Media awarness, website	Continue to incorporate any revisions to the State building codes inot local code enforcement procdures and to bigorously enfornce minimum building standards.
Water Utilities shortage personnel	Additional personnel	equipment for lawn developmen t and landscaping	additional equipment for land development to conserve water	Structures renews	Structures could use some additional additions	Personnel trained in water conservaton	Training for preserving environment al protection for water shortage			Not adquate radios	Additional radios for all utilities vehicles	Media awarness, website	Educated community, and farmers on potential negetive effects that arise from extended drought conditions, conserving our water

Complete this spreadsheet to identify existing conditions and community needs. Please enter detailed information for each topic and identify gaps in coverage, equipment, training, software, assessment data, (i.e. Safe Communities, personnel, equipment, facility gaps, need for intergovernmental agreements, etc.). The information will inform SPLOST, Comp Plan STWP, Capital Improvements Programs, Local Government Budget and Regulatory Processes and Documents, Grant and other Sources of funding, and Community Outreach efforts.

Appendix E: Copies of Required Planning Documentation

Hazard Mitigation Plan Update – Planning Committee (HMPC)

1. **Committee Chairman** – Chief Howard Willis; EMA Director / Fire Chief; hwillis@augustaga.gov
2. **Committee Vice-Chair** – Terri Turner; Assistant Zoning & Development Administrator, Augusta-Richmond County Planning Commission; tturner@augustaga.gov
3. **Committee Secretary** – Sharon Bennett; EMA / LEPC; SWBennett@augustaga.gov
4. J R Hatney; Augusta Commission, District 9; jhatney@augustaga.gov
5. Grady Smith; Augusta Commission, District 10; hgssbm@knology.net
6. Deke Copenhaver; Mayor; MayorDeke@augustaga.gov
7. Fred Russell; City Administrator; frussell@augustaga.gov
8. George Patty; Executive Director, Augusta-Richmond County Planning Commission; gpatty@augustaga.gov
9. Scott Gay; Sheriff's Department; sgay@augustaga.gov
10. Robert Buckwitz; Commission Chairman, City of Hephzibah (or his designated representative); cityofhephzibah@bellsouth.net
11. Mayor Patricia Cole; City of Blythe (or her designated representative); pcblythe@yahoo.com

HMP – Stakeholders Committee

Other City Stakeholders:

1. Tameka Allen; Deputy Administrator; allen@augustaga.gov
2. Bill Shanahan; Deputy Administrator; bshanahan@augustaga.gov
3. Bill Wright; Planning Commission Chair; billwr1120@comcast.net
4. Billy Yates; GIS Project Leader; yates@augustaga.gov
5. Randy Wishard; Health Dept; rewishard@dhr.state.ga.us
6. Jonathan Adriano; Director of Emergency Preparedness, GA Health, District 6; jdadriano@dhr.state.ga.us
7. Dominick Nutter; E-911 Director; dnutter@augustaga.gov
8. Jack Womack; Fire Marshall, Augusta Fire Department; JWomack2@augustaga.gov
9. Hameed Malik; Assistant Engineering Director / City Engineer; HMalik@augustaga.gov
10. Abie Ladson; Engineering Director; aladson@augustaga.gov
11. Rob Sherman; Director, License & Inspections; rsherman@augustaga.gov
12. Chester Wheeler; Director, Housing & Development; CWheeler@augustaga.gov
13. Tom Wiedmeier; Director, Augusta Utilities; TWiedmeier@augustaga.gov
14. Dayton Sherrouse; Director, Augusta Canal Authority; sherrouse@augustacanal.com

15. Earl Hilson; LEPC Chair; jehilson@olin.com
16. Frank Carl; Augusta Ports Authority; frankcarl@knology.net

Federal and State Stakeholders:

1. Scott Hyatt; Operations Project Manager – J Strom Thurmond Dam and Lake, USCOE; scott.m.hyatt@us.army.mil
2. Jason Hunter; FP Mgmt & Ins, FEMA Region IV; jason.hunter@dhs.gov
3. Lynne Keating; NFIP Outreach Specialist, FEMA Region IV; Lynne.keating@dhs.gov
4. Brian Laughlin; Hazard Mitigation Planner Central GA, GEMA; brian.laughlin@gema.ga.gov
5. Dee Langley; Planning Program Manager, GEMA; dee.langley@gema.ga.gov
6. Tom McQueen; GDOT Project Manager – Atlanta, GA; tmcqueen@dot.ga.gov
7. George Brewer; GDOT, District 2 Project Manager, Tennille, GA; gbrewer@dot.ga.gov
8. Steve Abbott; Chief Ranger, GA Forestry Commission; sabbott@gfc.state.ga.us
9. John Ambrose, PhD; Assistant Chief, Nongame Conservation Section; Wildlife Resources Division; GA DNR; Jon.Ambrose@dnr.state.ga.us
10. Steve Willard; Chief of Environ & Nat, Fort Gordon; steve.willard@us.army.mil

Local Stakeholders:

Industry
1. Bill Walls; Environmental Specialist, Solvay; william.walls@solvay.com
2. Phillip Delk; St Technician – Sr. Specialist HSE & Emergency Response Chief, Elanco; delkph@lilly.com

Hospitals
1. Susan James; Emergency Management Coordinator, University Hospital; susanj@uh.org
2. Dennis Jones; MCG; djones@georgiahealth.edu
3. David Brown; Emergency Preparedness Coordinator, VA Medical Center; David.Brown1@va.gov
4. Brad Thompson; Director of Safety and Security, Doctors Hospital of Augusta; brad.thompson@hcahealthcare.com
5. Bill Welsh; Director of Plant Operations, Trinity Hospital; Bill.Welsh@TriadHospitals.com

Emergency Services
1. Tom Knight; Special Projects Coordinator – South Star; tknight.ssems@gmail.com

Universities

1. James Reid; Paine College; reidj@mail.paine.edu
2. Jasper A Cooke; Public Safety Director, Augusta State University; jcooke@aug.edu

Schools
1. Chief Patrick Clayton; Dept. of School Safety and Security, RCBOE; ClaytPa@BOE.Richmond.k12.ga.us

Business Leaders
1. Braye Boardman; President, Beacon Blue, LLC; braye@beaconblue.com
2. Barry Storey; Co-Owner, Hull-Storey Gibson Companies; LLC; BStorey@HullStoreyGibson.com

Chamber of Commerce/CVB
1. Susan Parr; President/CEO, Augusta Metro Chamber of Commerce; sparr@augustagausa.com
2. Scott MacGregor; Augusta Metro Chamber of Commerce; scott@oglethorpepublicaffairs.com
3. Barry White; President, Augusta Visitors and Convention Bureau; bwhite@augustaga.org

Non-Profit Organizations
1. Jennifer Pennington; Executive Director, East Georgia Chapter of the American Red Cross; jpennington@arcaug.org
2. Mie Lucas; Emergency Services Director, American Red Cross of Augusta; mlucas@arcaug.org
3. Katie Atkinson; Volunteer and Disaster Services Coordinator - Salvation Army / Kroc Center; Katie_Atkinson@uss.salvationarmy.org

Environmental Groups
1. Hazel Langrall; Director, Central Savannah River Land Trust; hazel@csrlt.org
2. Tonya Bonitatibus; Savannah RiverKeepers; tbonitatibus@comcast.net
3. Susan Nicholson; Executive Director; Southeastern Natural Sciences Academy; snicholson@naturalsciencesacademy.org

Citizens
1. James Germany; Elderberry Subdivision – District 3; (706) 796-6588; gman6011@comcast.net
2. Leo Jackson; Belair Hills Estates – District 3; (706) 863-0519
3. Bobby Hankerson; Breeze Hill Plantation – District 5; (706) 793-2342; bobby@bobbyhankerson.com
4. Calvin Holland; Laurel Hills - District 5; (706) 798-5294

METRO

The Augusta Chronicle

Friday, July 22, 2011

Miscellaneous

PUBLIC NOTICE
HAZARD MITIGATION PLAN UPDATE
STAKEHOLDER MEETING
FOR IMMEDIATE RELEASE:
Augusta, GA is working in cooperation with the Georgia Emergency Management Agency (GEMA), Federal Emergency Management Agency (FEMA), and the PMC-P&M Consulting Team to update the Hazard Mitigation Plan (HMP) for Augusta - Richmond County and the cities of Blythe and Hephzibah.
The Plan is designed to address our community's vulnerability to natural and man-made hazards and serve to reduce future critical facility, community services, residential property, and commercial property losses from hazardous events, before they occur. The municipalities of Augusta, Blythe and Hephzibah were identified in the original Hazard Mitigation Plan. During development of the Plan Update, community leaders will identify goals and actions to reduce the impacts of hazards that affect their communities. The Plan is also a useful tool for leveraging additional sources of funding in the event of a disaster.
The Plan Update will have participation from regional and local businesses, agencies, entities, and citizens. The Plan Update also requires community input and involvement. Please contact Terri L. Turner, Assistant Zoning & Development Administrator for the Augusta - Richmond County Planning Commission at (706) 821-1796 for more information about the Plan Update.
A Planning Committee / Stakeholders Committee meeting will be held on the 8th Floor of the Augusta Municipal Building, from 9 a.m. to noon, on Monday, July 25, 2011.
Monday, July 25, 2011 will also begin the 30 day review and comment period of the Draft Hazard Mitigation Plan Update.
Visit the home page of the Augusta website at www.augustaga.gov for more information about the project.
July 22, 2011 Adv. # 15176467

PUBLIC NOTICE
HAZARD MITIGATION PLAN UPDATE
PUBLIC MEETING
FOR IMMEDIATE RELEASE:
Augusta, GA is working in cooperation with the Georgia Emergency Management Agency (GEMA), Federal Emergency Management Agency (FEMA), and the PMC-P&M Consulting Team to update the Hazard Mitigation Plan (HMP) for Augusta - Richmond County and the cities of Blythe and Hephzibah.
The Plan is designed to address our community's vulnerability to natural and man-made hazards and serve to reduce future critical facility, community services, residential property, and commercial property losses from hazardous events, before they occur. The municipalities of Augusta, Blythe and Hephzibah were identified in the original Hazard Mitigation Plan. During development of the Plan Update, community leaders will identify goals and actions to reduce the impacts of hazards that affect their communities. The Plan is also a useful tool for leveraging additional sources of funding in the event of a disaster.
Input and involvement from the citizens within the community is encouraged in the update of the Hazard Mitigation Plan. Please contact Terri L. Turner, Assistant Zoning & Development Administrator for the Augusta - Richmond County Planning Commission at (706) 821-1796 for more information about the Plan Update.
Public Meetings to discuss the Plan Update will be held on Monday, July 25, 2011 from 6:00 - 7:00 p.m. as follows:
Augusta Municipal Building530 Greene Street Augusta
Carrie Mays Community Center1 0 1 4 1 1 t h AvenueAugusta
Warren Road Community Center3 0 0 Warren Road Augusta
These public meetings will also start the 30 day public review and comment period of the Draft Hazard Mitigation Plan Update.
Visit the home page of the Augusta website at www.augustaga.gov for more information about the project.
July 22, 2011 Adv. # 15176455

Miscellaneous

PUBLIC NOTICE
HAZARD MITIGATION PLAN UPDATE
NOTICE OF 30 DAY PUBLIC REVIEW AND COMMENT PERIOD
FOR IMMEDIATE RELEASE:
Augusta, GA is working in cooperation with the Georgia Emergency Management Agency (GEMA), Federal Emergency Management Agency (FEMA), and the PMC-P&M Consulting Team to update the Hazard Mitigation Plan (HMP) for Augusta - Richmond County and the cities of Blythe and Hephzibah.
The Plan is designed to address our community's vulnerability to natural and man-made hazards and serve to reduce future critical facility, community services, residential property, and commercial property losses from hazardous events, before they occur. The municipalities of Augusta, Blythe and Hephzibah were identified in the original Hazard Mitigation Plan. During development of the Plan Update, community leaders will identify goals and actions to reduce the impacts of hazards that affect their communities. The Plan is also a useful tool for leveraging additional sources of funding in the event of a disaster.
Notice is hereby given of a thirty day public review and comment period for the Draft Hazard Mitigation Plan Update beginning Monday, July 25, 2011 and commencing Wednesday, August 24, 2011. Please contact Terri L. Turner, Assistant Zoning & Development Administrator for the Augusta - Richmond County Planning Commission at (706) 821-1796 or tturner@augustaga.gov with comments about the Plan Update.
Visit the home page of the Augusta website at www.augustaga.gov for more information about the project.
July 22, 25, 2011 Adv. # 15176476

Miscellaneous

PUBLIC NOTICE
HAZARD MITIGATION PLAN UPDATE
NOTICE OF 30 DAY PUBLIC REVIEW AND COMMENT PERIOD
FOR IMMEDIATE RELEASE:
Augusta, GA is working in cooperation with the Georgia Emergency Management Agency (GEMA), Federal Emergency Management Agency (FEMA), and the PMC-P&M Consulting Team to update the Hazard Mitigation Plan (HMP) for Augusta - Richmond County and the cities of Blythe and Hephzibah.
The Plan is designed to address our community's vulnerability to natural and man-made hazards and serve to reduce future critical facility, community services, residential property, and commercial property losses from hazardous events, before they occur. The municipalities of Augusta, Blythe and Hephzibah were identified in the original Hazard Mitigation Plan. During development of the Plan Update, community leaders will identify goals and actions to reduce the impacts of hazards that affect their communities. The Plan is also a useful tool for leveraging additional sources of funding in the event of a disaster.
Notice is hereby given of a thirty day public review and comment period for the Draft Hazard Mitigation Plan Update beginning Monday, July 25, 2011 and commencing Wednesday, August 24, 2011. Please contact Terri L. Turner, Assistant Zoning & Development Administrator for the Augusta - Richmond County Planning Commission at (706) 821-1796 or tturner@augustaga.gov with comments about the Plan Update.
Visit the home page of the Augusta website at www.augustaga.gov for more information about the project.
July 22, 25, 2011 Adv. # 15176476

Miscellaneous

PUBLIC NOTICE
HAZARD MITIGATION PLAN UPDATE
STAKEHOLDER MEETING
FOR IMMEDIATE RELEASE:
Augusta, GA is working in cooperation with the Georgia Emergency Management Agency (GEMA), Federal Emergency Management Agency (FEMA), and the PMC-P&M Consulting Team to update the Hazard Mitigation Plan (HMP) for Augusta - Richmond County and the cities of Blythe and Hephzibah.
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The Plan Update will have participation from regional and local businesses, agencies, entities, and citizens. The Plan Update also requires community input and involvement. Please contact Terri L. Turner, Assistant Zoning & Development Administrator for the Augusta - Richmond County Planning Commission at (706) 821-1796 for more information about the Plan Update.
A Planning Committee / Stakeholders Committee meeting will be held on the 8th Floor of the Augusta Municipal Building, from 9 a.m. to noon, on Monday, July 25, 2011.
Monday, July 25, 2011 will also begin the 30 day review and comment period of the Draft Hazard Mitigation Plan Update.
Visit the home page of the Augusta website at www.augustaga.gov for more information about the project.
July 22, 2011 Adv. # 15176467

Miscellaneous

PUBLIC NOTICE
HAZARD MITIGATION PLAN UPDATE
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Input and involvement from the citizens within the community is encouraged in the update of the Hazard Mitigation Plan. Please contact Terri L. Turner, Assistant Zoning & Development Administrator for the Augusta - Richmond County Planning Commission at (706) 821-1796 for more information about the Plan Update.
Public Meetings to discuss the Plan Update will be held on Monday, July 25, 2011 from 6:00 - 7:00 p.m. as follows:
Augusta Municipal Building530 Greene Street Augusta
Carrie Mays Community Center1 0 1 4 1 1 t h AvenueAugusta
Warren Road Community Center3 0 0 Warren Road Augusta
These public meetings will also start the 30 day public review and comment period of the Draft Hazard Mitigation Plan Update.
Visit the home page of the Augusta website at www.augustaga.gov for more information about the project.
July 22, 2011 Adv. # 15176455

Augusta GEORGIA

AUGUSTA CALENDAR

VIEW ALL EVENTS

Sat, June 25 Augusta Pride Festival
Mon, July 18 Vendor Workshop
Mon, Oct. 3 Vendor Workshop
Fri, Nov. 11 Veteran's Day Celebration

QUICK LINKS

- City Phone Numbers
- Emergency Guide
- FAQ's
- Emergency Notification Sign-up
- Online Payments
- Grand Jury Presentments

...View All Quick Links

EMPLOYEE RESOURCES

- Employee Emergency Notifications
- Human Resources Announcements
- Web Mail
- Augusta Employee of the Month

...View All Employee Resources

Kidz PLACE — Links to games, education and safety.

Spotlight — Who's featured? Find out!

NEWS & ANNOUNCEMENTS

Emergency Notification Public Sign-up Page
Augusta is proud to announce the Emergency Notification Public Sign-up Page which will aid in keeping our citizens aware of emergencies affecting the community. Read on...

2011 Citizens Review
RCSO to solicit federal funding with no local tax funds required. For additional information click here...

New HR Policies & Procedures Manual
The new HR Policies and Procedures Manual was recently approved by the Commission. To view this document click here...

Public Notice - Hazard Mitigation Plan Update
Augusta, GA is pleased to announce the creation of the Hazard Mitigation Planning Committee. Read on...

2011 Assessment Notices
2011 Assessment Notices were mailed on Friday, May 13, 2011. Each resident has until Monday, June 27, 2011 at 5:00 p.m. to file an appeal. **Timely postmarked appeals are accepted.** If you have additional questions click here...

Temporary Boat Ramp Closure – Robert Baurle Boat Ramp
The City of Augusta wishes to advise that the Robert Baurle Boat Ramp, located at 2055 Lock and Dam Road, will be closed to the public from the 24th of January to the 24th of June 2011 to allow for a new ramp to be constructed. Read on...

Commission/Committee Minutes
To view the minutes from the last Commission/Committee Meetings click here...

VIEW ALL EVENTS

A WORD FROM THE MAYOR...

MAYOR'S WELCOME
MAYOR'S AGENDA
WEEKLY UPDATES

CONTACT MAYOR COPENHAVER

FOLLOW US ON FACEBOOK...
FOLLOW US ON TWITTER...

Augusta Live Streaming

Video ONDemand

Augusta, GA
Currently | Hourly Info | 15 Days
Sunny
80°F
RealFeel®: 97°F
Winds: Calm
Weather Forecast | Weather Maps

Select Language
Powered by Google Translate

DIGITAL CITIES SURVEY 2010 Winner

530 Greene Street, Augusta, Ga 30901 | Ph: (706) 821-2300 | Fx: (706) 826-4790

PUBLIC NOTICE

HAZARD MITIGATION PLAN UPDATE
STAKEHOLDER MEETING

FOR IMMEDIATE RELEASE:

Augusta, GA is pleased to announce the creation of the Hazard Mitigation Planning Committee (HMPC). The Committee is working in cooperation with the Georgia Emergency Management Agency (GEMA), Federal Emergency Management Agency (FEMA), and the PMC–P&M Consulting Team to update the Hazard Mitigation Plan (HMP) for Augusta - Richmond County and the cities of Blythe and Hephzibah. Augusta, GA received a Hazard Mitigation Grant and we are providing local match resources to fund the planning process.

The Plan is designed to address our community's vulnerability to natural and man-made hazards and serve to reduce future critical facility, community services, residential property, and commercial property losses from hazardous events, before they occur. The most significant areas of concern for our communities (Augusta, Blythe and Hephzibah) were identified in the original Hazard Mitigation Plan. During development of the Plan Update, community leaders will identify goals and actions to reduce the impacts of these hazards. The Plan is also a useful tool for leveraging additional sources of funding in the event of a disaster.

The Committee will have participation from regional and local businesses, agencies, entities, and citizens. The Plan also requires community input and involvement. Please contact Terri L. Turner, Assistant Zoning & Development Administrator for the Augusta – Richmond County Planning Commission at (706) 821-1796 for more information about the Plan Update.

The initial Committee meeting will be held on the 8th Floor of the Augusta Municipal Building, from 9 a.m. to noon, on Tuesday, June 14, 2011. Following the completion of the Draft Hazard Mitigation Plan Update, there will be a press release announcing a 30 day public review and comment period.

Visit the Augusta - Richmond County Planning Commission's website at www.augustaga.gov for more information about the project.

Planning Commission

PUBLIC MEETING
HAZARD MITIGATION PLAN UPDATE
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Visit the Augusta - Richmond County Planning Commission's website at www.augustaga.gov for more information about the project.
June 9, 2011 Adv. # 15104850

Miscellaneous

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The Committee wishes to receive input from the citizens within the community and to encourage community involvement in the update of the Hazard Mitigation Plan. Please contact Terri L. Turner, Assistant Zoning & Development Administrator for the Augusta - Richmond County Planning Commission at (706) 821-1796 for more information about the Plan Update.

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Visit the Augusta - Richmond County Planning Commission's website at www.augustaga.gov for more information about the project.

REQUEST FOR PROPOSALS

Request for Proposals will be received at this office until Thursday, February 17, 2011 @ 11:00 A.M.for furnishing:

RFP Item #11-086 Hazard Mitigation Plan Update for Planning & Zoning Department

RFPs will be received by Augusta, GA Commission hereinafter as the OWNER at the offices of:

Geri A. Sams, Director
Augusta Procurement Department
530 Greene Street - Room 605
Augusta, Georgia 30911 706-821-2422

RFP documents may be viewed on the Augusta-Richmond County web site under the Procurement Department ARCbid. RFP documents may be obtained at the Office of the Augusta, GA Procurement Department, 530 Greene Street—Room 605, Augusta, GA 30901. All questions must be submitted by fax at (706) 821-2811 or by email to procbidandcontracts@augustaga.gov by Tuesday, February 1, 2011 @ 5 p.m. No RFP will be accepted by fax, all must be received by mail or hand delivered.

The local bidder preference program is applicable to this project. To be approved as a local bidder and receive bid preference on an eligible project, the certification statement as a local bidder and all supporting documents must be submitted to the Procurement Department with your bonafide package.

No RFP may be withdrawn for a period of **90** days after time has been called on the date of opening.

An invitation for bids shall be issued by the Procurement Office and shall include specifications prepared in accordance with Article 4 (Product Specifications), and all contractual terms and conditions, applicable to the procurement. All specific requirements contained in the invitation to bid including, but not limited to, the number of copies needed, the timing of the submission, the required financial data, and any other requirements designated by the Procurement Department are considered material conditions of the bid which are not waiveable or modifiable by the Procurement Director. Please mark RFP umber on the outside of the envelope.

Bidders will be cautioned that sequestration of RFP documents through any source other than the office of the Procurement Department is not advisable. Acquisition of RFP documents from unauthorized sources placed the bidder at the risk of receiving incomplete or inaccurate information upon which to base his qualifications.

Disadvantage Business Enterprise (DBE)

AUGUSTA - RICHMOND COUNTY RECORD OF INITIAL HM MEETING

Meeting Minutes

14 June, 2011

Location: Augusta - Richmond County Municipal Building, Room 802
Attending: Sign In Sheet

Ranko S. Pudar, PMC, Inc.
Sharon Caton, Plans & More, LLP
A. Mike Armstrong, Plans & More, LLP

I. **Call to order:** The meeting was called at 9:00 AM, EST, 14 June, 2011 by Terri Turner.

II. **Introductions:** Terri Turner introduced herself, the HMPC Members, and GEMA Representatives Dee Langley and Brian Laughlin Mr. Pudar (PMC) introduced himself and the team members, Ms. Caton and Mr. Armstrong.

III. **Presentation:** Brian Laughlin, GEMA Mitigation Planning Specialist gave a presentation to the HMPC. Mr. Pudar covered the HMPC Meeting Scope and Presentation. General discussion followed to clarify project parameters, timeline, duty assignments, and the Workshop scheduled by the HMPC on 14 June, 2011, 11:00 AM in the Augusta Commission Chamber. Ms. Caton gave a presentation on the Planning Process explaining the HM project tasks, public input requirements, communication tree, community documentation, in-kind resources and stakeholder's responsibilities necessary to complete the Hazard Mitigation Plan.

IV. **General Discussion:** General discussion of the Hazard plan ensued. Terri Turner advised that she was designated as the primary point of contact for the Hazard plan. She also advised that in addition to EMA personnel, the Hazard Planning Committee members included on the HMPC Stakeholder List. Mr. Pudar reviewed the timeline presented by PMC in the proposal response and advised that the first public hearing would immediately follow the HMPC meeting. In discussing the in-kind services, Terri Turner indicated Augusta GIS would provide mapping resources for the plan.

V. **Review of the 2006 Augusta – Richmond County Multi-Jurisdictional Effective HMP:** Ms. Caton, Mr. Pudar and Ms. Turner conducted the review of the effective Hazard Mitigation Plan. The HMPC reviewed each section and reached a consensus to re-write each section due to the many changes in the planning area and the need to re-format the plan to meet the current FEMA/GEMA HMP Template. The group discussion revealed the need to re-write Chapter 1 as a Planning Process Chapter and to move community profile information to an appendix; Chapter 2 to reflect significant changes in community risk to natural hazards; Chapter 3 to reflect changes in community risk to technological/manmade hazards (EMA response to a Chemical Spill across the

river in South Carolina and heightened awareness of Dam/Levee, Terrorism, and Nuclear Plant Incidents were discussed; Chapters 4 & 5 to reflect completed and in progress mitigation efforts and the STAPLEE Worksheet requirements; Chapter 6 to outline new strategies for Plan maintenance and update processes; and Chapter 7 to summarize the updated Plan. A voice vote was taken to approve the Planning Process presented by the Consulting Team.

VI. **Wrap Up:** Ms. Caton requested that Terri Turner prepare a contact tree for all HMPC committee members. Mr. Armstrong asked if there was anything that the HMPC needed from us and that he would be the POC for our team to handle the collection of community survey, critical facility, and key informant data. Terri Turner reminded the group of the Public Hearing scheduled for 14 June, 2011, 6:00 PM in the Commission Chamber.

VII. Adjournment: The meeting ended at approximately 12:00 PM.

GEMA KICK-OFF PRESENTATION – 14 JUNE, 2011

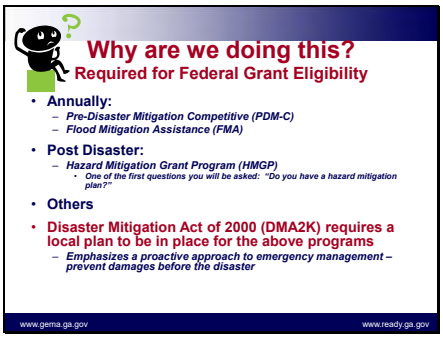
Slide 1

Slide 2

Slide 3

Slide 4

Slide 5



Slide 6

Slide 7

What does this plan do?

- **Identify and profile the Hazards**
  - *Tornados, floods, lightning, etc.*
  - Requirement is natural hazards
  - Can also include technological, or man-made hazards
- **Determine the Risk (Threat)**
  - *A real, quantifiable number that is based on past hazard history, or advanced statistical modeling*
- **Determine the Vulnerability**
  - *How bad could the damages get? (dollars, numbers, etc.)*
- **Develop goals & strategies to reduce long-term risks and/or vulnerabilities**

www.gema.ga.gov www.ready.ga.gov

Slide 8

How do we do this?

Updating Your Local Hazard Mitigation Plan – *Getting Started*

- **Organize Resources**
  - ***Determine who needs to be part of the process - Thank you for being part of this!!!***
  - ***Identify resources for information***

www.gema.ga.gov www.ready.ga.gov

Slide 9

How do we do this?

Updating Your Local Hazard Mitigation Plan – *The plan itself*

1. **Update Risk Assessment**
   - ***How have the hazards changed?***
   - ***Has development increased, decreased or remained the same?***
   - ***Are there any changes in your critical facilities?***
2. **Update Goals & Objectives**
   - ***What projects have been accomplished?***
   - ***Are there some that have not been accomplished? Why?***
   - ***Are there new and better ideas?***

www.gema.ga.gov www.ready.ga.gov

Slide 10

How do we do this?

Updating Your Pre-Disaster Mitigation Plan – *The plan itself cont'd*

3. **Update the Planning Process**
   - *Describe the process used to update the plan.*
   - *Who was involved?*
   - *How was each section reviewed and how was it determined if revisions were necessary?*
4. **Update the intended plan maintenance process**
   - *What process and criteria will be used for evaluation and monitoring?*

www.gema.ga.gov www.ready.ga.gov

Slide 11

How do we do this?

Updating Your Pre-Disaster Mitigation Plan – *Follow-up*

- **Submit for GEMA/FEMA Review**
- **Adopt Plan**
- **Implement the Plan & Monitor Progress**
  - *Ongoing after local adoption and FEMA approval*

www.gema.ga.gov www.ready.ga.gov

Slide 12

Changes

- **Planning Process**
  - *Must include two documentable opportunities for public participation during drafting stage & to comment on final draft prior to adoption*
    - *Can be public hearings, website, etc.*
- **Risk Assessment**
  - *NFIP repetitive loss structures vulnerability must be described in terms of types and numbers of structures.*
- **Goals & Objectives**
  - *Must have strategy for NFIP compliance spelled out, or a specific statement of why jurisdiction is not going to participate in program*

www.gema.ga.gov www.ready.ga.gov

Slide 13

Important Grant Requirements
Augusta-Richmond County's Plan

Hazard Mitigation Plan Updates have special requirements according to your award

- **Grant deadline is September 30, 2013**
- **Quarterly progress reports due at the end of each quarter**
  - **Next one will be due July 15, 2011**
- **Key Point:** ***The above dates are not related to the expiration date of the current plan.***

www.gema.ga.gov www.ready.ga.gov

Slide 14

What is my part?

- **County Point of Contact**
  - *Submit quarterly reports on time*
  - *Submit for reimbursement as needed*
  - *Coordinate with GEMA and consultant*
- **County, Cities & Towns**
  - *Participate in planning process & adopt plan*
- **Everyone**
  - *Will ensure your input into the planning process*
  - *Will help the County meet the 25% grant match requirement*

www.gema.ga.gov www.ready.ga.gov

Slide 15

Questions ... Discussion

www.gema.ga.gov www.ready.ga.gov

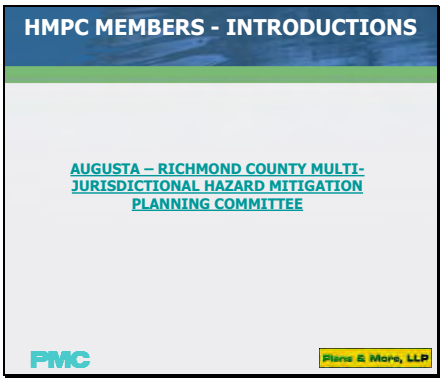
Slide 16

Contact Information
Brian Laughlin
Hazard Mitigation Planner
Georgia Emergency Management Agency
Phone: (404) 635-7307
e-mail: brian.laughlin@gema.ga.gov
www.gema.ga.gov
www.ready.ga.gov

HMPC KICK-OFF PRESENTATION – 14 JUNE, 2011

Slide 1

Slide 2



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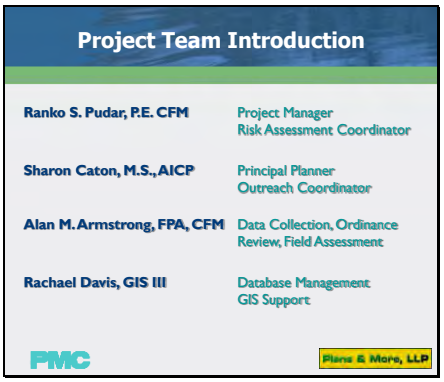


Slide 4

Slide 5

Slide 6

Slide 7

HM PLANNING APPROACH
(continued)

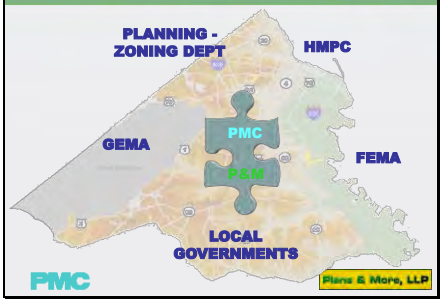
- Draft HM Plan for Local Review
  - With GEMA input and FEMA Crosswalk
- Plan Adoption
- Submit Plan for GEMA - FEMA Review & Approval
- Plan Implementation
  - Incorporate in existing community mechanisms, COP Plan
- Plan Update & Maintenance Matrix

PMC

Plans & More, LLP

Slide 8

HM Project Roles – Responsibilities



PMC

Plans & More, LLP

Slide 9

HMPC & PLANNING DEPT ROLES

- Promote HM Plan Involvement, Support
- Advertise Public Meetings, Workshops
- Attend Meetings and Provide Data on an as-needed basis
- Provide GIS Data and Coordinate with Project Team GIS Technician
- Publish Data, Reports to Project Website
- Coordinate with Project Team to facilitate Review & Adoption of HM Plan Update

PMC

Plans & More, LLP

Slide 10

PMC – P & M ROLES

- Project Management
  - Plan Facilitation, Coordination, Workshops, Meetings, Communication
- Public Outreach Campaign
- Community Assessment Report & Data
  - Capacity, Finance, Equipment, Personnel, etc.
- Community Profile
- Prepare & Distribute Monthly Report & Data

PMC Plans & More, LLP

Slide 11

PMC – P & M ROLES (continued)

- Hazard Identification and Risk Assessment Survey & Analysis
- Local Capacity Survey/Field Assessment & Analysis
- Draft Mitigation Strategies, Projects, FEMA Crosswalk
- Draft HM Plan
- Revise to incorporate input approved by HMPC
- Draft Final HM Plan; Assist with adoption process

PMC Plans & More, LLP

Slide 12

AUGUSTA- RICHMOND GOVERNMENT'S ROLE

- Attend Community HM Plan Workshops
  - Solicit & Support Public Participation
- Provide Community Capacity Data
- Provide Mitigation Strategy Funding Data
- Adopt provisions to integrate HM Plan in existing Jurisdictional Mechanisms
- Review Draft Plan & Provide Input
- Adopt Final HM Plan

PMC Plans & More, LLP

Slide 13

GEMA/FEMA ROLES

- GEMA
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  - Attend HM Plan Meetings
  - Review/Comment on HM Draft & Final Plan
  - Provide Mitigation Project Funding Information
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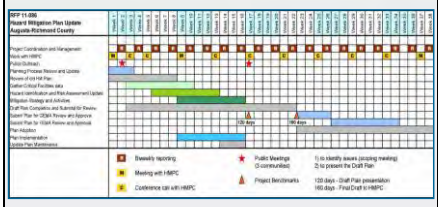
PMC

Plans & More, LLP

Slide 14

HM PLAN TIMELINE



PMC

Plans & More, LLP

Slide 15

QUESTIONS & COMMENTS

Are we ready to work?

Thank You!

PMC

Plans & More, LLP

HMPC PUBLIC HEARING PRESENTATION – 14 JUNE, 2011

Slide 1

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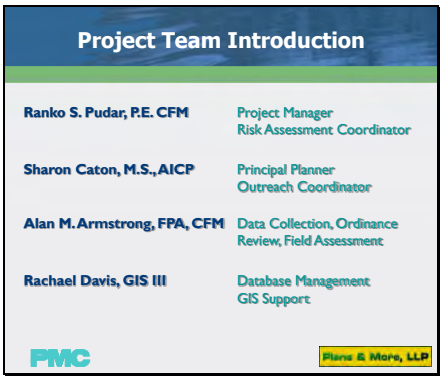

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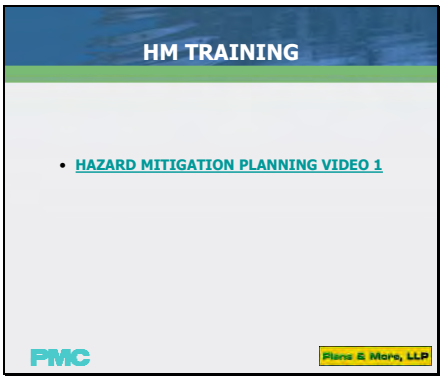

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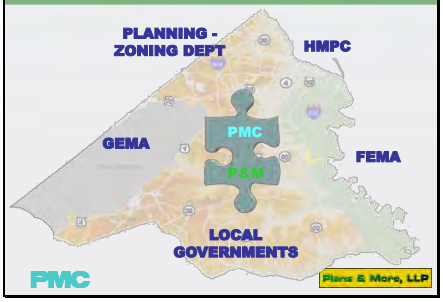

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PMC Plans & More, LLP

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PMC

Plans & More, LLP

Slide 14

QUESTIONS & COMMENTS

Are we ready to work?

Thank You!

PMC

Plans & More, LLP

Hazard Mitigation plan update – public meeting
ESF 11 Group Minutes
June 22, 2011

START TIME: 1:00 p.m. END TIME: 5:00 p.m.

Meeting Minutes

The meeting was called to order 1:15 pm. Introduction of Sharon Bennett from Augusta Richmond county emergency management was made. Ms. Bennett gave a presentation of the hazard mitigation update plan for Augusta Richmond County. Explaining the need for the update and that it is important that we have community involvement with the updated plan. After the presentation a survey for the hazard mitigation plan was handed out.

Ms. Bennett also gave information that as the plan updates there is a place on the Augusta Georgia website to obtain most current information. Ms. Bennett also told the audience that Terrie turner from planning and zoning would be available to help with additional information if needed. The meeting continued with a table top for esf-11 adjourning at 4:45 pm.

HAZARD MITIGATION PLAN UPDATE – PUBLIC MEETING
ESF 11 GROUP
JUNE 22, 2011

START TIME: 1:00 P.M. END TIME: 5:00 P.M.

SIGN-IN SHEET

Name	Address/City/State/Zip	Phone	Email
SHARON W. BENNETT	911 4th Street Augusta, Ga. 30901	706-821-1155	SWBennett@augustaga.gov
Scott D. GAY	401 Walton Way Augusta, GA 30911	706-821-1686	SGay@Augustaga.gov
Mie Lucas	1322 Ellis Street Augusta, GA 30901	706-922-8481	mlucas@garcaug.org
Nancy Szocinski	1700 Blk. Broad St. Augusta, Ga 30904	706 826 1491	nszocinski@uwcsra.org
Edward Jefferson	3206 Norwood Dr Augusta Ga 30906	706 796 6923	EJefferson@Augustaga.gov
SHARON S. BROADY	4164 MACK LANE AUGUSTA, GA 30906	706 790 6836	SBROADY@AUGUSTAGA.GOV
Priscilla Crisler	4164 Mack Lane Augusta, GA 30906	7067906836	pcrisler@augustaga.gov

Name	Address/City/State/Zip	Phone	Email
Sid Mullis	602 Greene St. Augusta, GA 30901-1428	706-821-2350	smullis@uga.edu
Angela Bing	520 Fenwick St. Augusta, GA 30901	706.721.2536	ambing@dhr.state.ga.us
Venaye P Reece	28 Laurayln Camden, SC 29020	803-727-9520 blkbny	venaye.p.reece@aphis.usda.gov
George Chambless	10 Oakhurst Blvd. Dalton, GA 30057	770-548-8554 BB	george.w.chambless@aphis.usda.gov
Tammie Cowart	19 MLK Jr. Drive Atlanta, GA	404-473-0125	Tcowart@agr.state.ga.us.
Adra. Cook	19 MLK Jr. Dr. Atanta	404 656 3713	ACOOK@agr.state.ga.us
Ray DeLuca	128 Hoke Smith Bldg Athens, GA 30602 UGA-Office of Ag. Security	770-710-1254	DJRAY351@UGA.EDU
R. Ralph Ayers	288 Bull Run Rd. Carrollton, GA 30116	240-461-9147	Rhudy.R.Ayers@aphis.usda.gov
Carol P. Bryant	950 Laney Walker Blvd Augusta, GA 30907	706 721 5900	cpbryant@dhr.state.ga.us
Larry Walker	1916 North Reg Rd	706-729-2194	elwalker@dhr.state.ga.us
David J. Lee	1916 North Reg Rd Augusta, GA 30909	706-667-4346	djlee@dhr.state.ga.us

Name	Address/City/State/Zip	Phone	Email
RENNIE WOLFE	1120 15TH STREET CB BUILDING CB-1901	(706) 721-2685	RWOLFE@GEORGIAHEALTH.EDU

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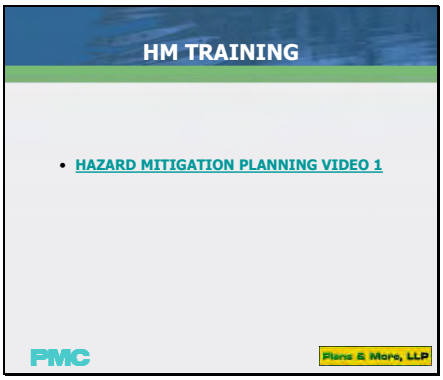

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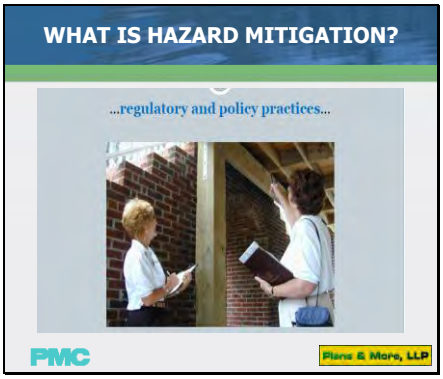

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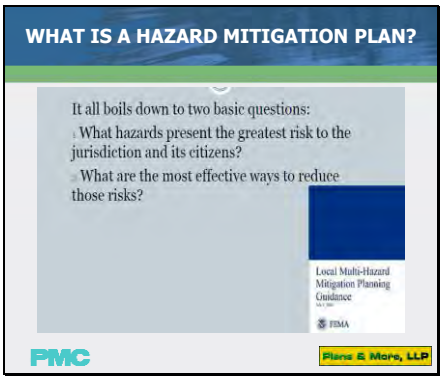

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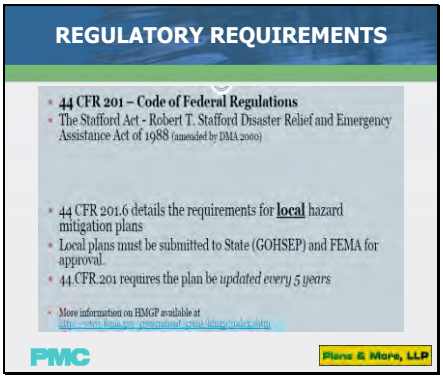

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- The purpose of this project is to develop a Local Hazard Mitigation Plan (LHMP) that complies with the HMGP (Hazard Mitigation Grant Program) and 44.CFR.201.6 and classifies Augusta - Richmond County, Blythe, and Hephzibah as one jurisdiction.
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Slide 11

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- Introduction and process
- Identification of hazards and threats from natural or manmade sources
- Assessment of risks to populations, property, economies
- Critical Facility Data
- Assessment of capability for hazard mitigation
- Action plans to reduce risk
- Plan Implementation and Maintenance

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- The FEMA vocabulary & terms used to describe the planning process.
- This graphic shows the process recommended by FEMA. We'll go thru this step-by-step.

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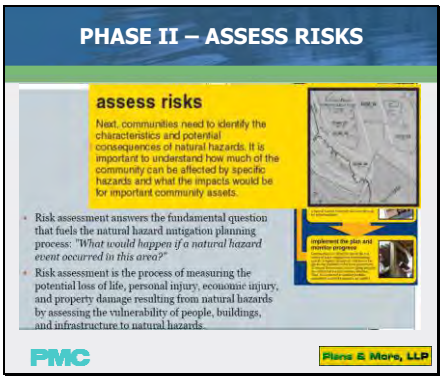

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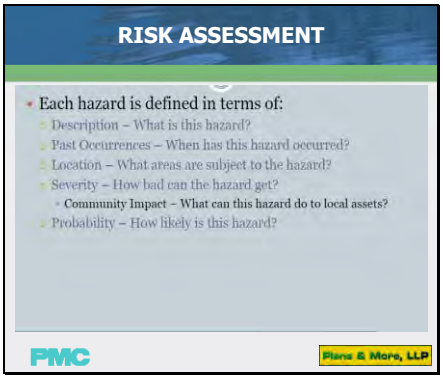

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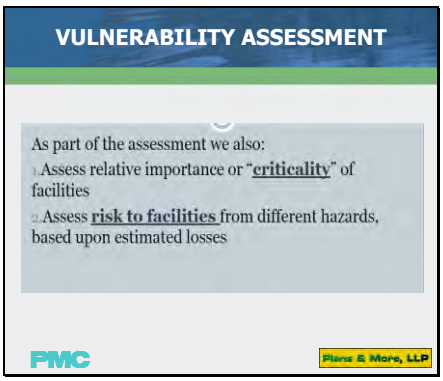

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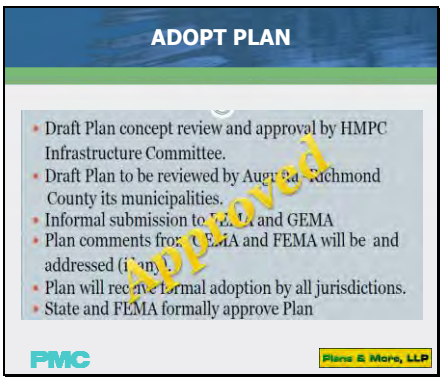

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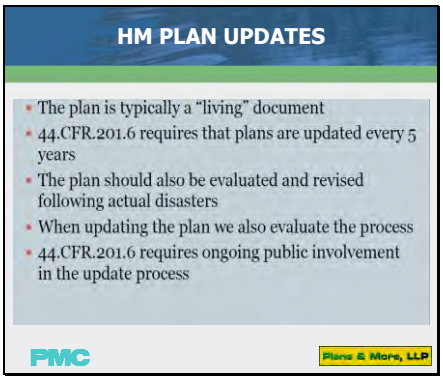

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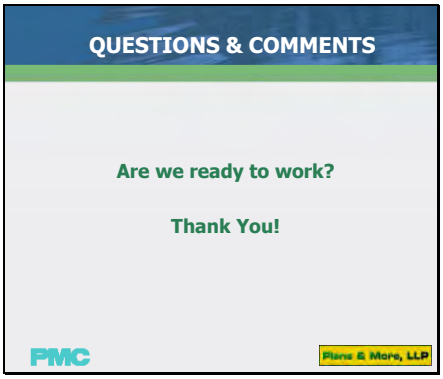

HAZARD MITIGATION PLAN UPDATE

&

SHELTER IN PLACE

COMMUNICATION PROJECT

AUGUSTA-RICHMOND COUNTY

JULY 12, 2011

JULIAN SMITH CASINO

E-41

Name	Address/City/State/Zip	Phone	Email
Brian Kelly	1820 Doug Barnard Pkwy Augusta GA 30906	706-910-9506	BKelly@csginc-net
Randall Eason	PCS Nitrogen P.O. Box 1483 Augusta 30903	706 826 6637	randall.eason@pcsnitrogen.com
Jennifer Sandlin	1616 Marvin Griffin Rd. Augusta, GA 30906	706-790-9364	Jennifer.Sandlin@akzonobel.com
John Atwood	1616 Marvin Griffin Rd Augusta GA 30906	706-790-9364	john.atwood@akzonobel.com
Bill Walls	3702 CLANTON RD AUGUSTA, GA. 30906	706-790-3100	WILLIAM.WALLS@SOLVAY.COM
Ziad Husein	3702 Clanton Rd. Augusta, GA 30906	706.267.9862	Ziad.Husein@Solvay.com
Earl Lett	3702 Clanton Rd Augusta GA 30906	706-771-3356	Earl.Lett@Solvay.com
Rob Wood	4278 Mike Padgett Hwy Augusta 30906	706 796 5582	Robert.woodjr@ipaper.com
Pete Duca	4401 Global Gateway Colleen Park, GA. 30337	404-564-3906	Peter.Duca@AUSBUDGET.com

Name	Address/City/State/Zip	Phone	Email
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Douglas Hill	3005 International Blvd Augusta Ga	706-836-0071	Doug.Hill@IFF.com
Luke Moore	3005 International BLVD Augusta GA 30906	706-799-7885	luke.Moore@iff.com
Dominick Nutter	911 4th St Augusta, GA 30901	706-821-1242	dnutter@augustaga.gov
Richard Roundtree	864 Broad St RCBOE	706-826-1133	roundri@rcboe.org
Jonathan Long	100 Apac Industrial Way Augusta, Georgia 30907	706-738-1413	JLong@AugustaReadyMix.com
Chris Lowe	100 APAC INDUSTRIAL WAY Augusta, GA 30907	706-738-1413	clowe@AugustaReadyMix.com
Jay Smith	2434 Doug Barnard Pkwy P.O. Box 1647 Augusta, Ga. 30906	706-798-3440	jay.smith@bibow.com
JAN Brewer	Florida Rock + Tank Lines 1114 Carmichael Rd Augusta 30906	706 793 6111	JBrewer@PATRIOTTRANS.com
Karl Tesch	Georgia Pacific 1745 Doug Barnard Pkwy Augusta, GA 30906	706-798-7420 x(130)	kdtesch@gapac.com
PAUL Beck	Procter + Gamble 3464 Mike Padgett Hwy	706.796.4162	Beck.PF@PG.com

Name	Address/City/State/Zip	Phone	Email
Andy Moats	2404 Doug Barnard PKWY Augusta, GA, 30906	706-793-9877 706-726-8449	AMoats at PVSchemicals.com
Walter Jones	1626 Aviation WY AUGUSTA GA 30906	678-878-8491	Walter Jones @ AVISBudget.com
Kenneth Erondu	1405 Goss Lane, GI 1014 Augusta, GA 30912	706-721-2591	Kerondu@georgiahealth.edu
ALAN HAMPTON	1580 COLUMBIA NITROGEN RD AUGUSTA, GA 30901	706-724-0221	AHAMPTON@GENCHEM CORP.com
Howard Wills	AFD / EMA	706 821-1165	HWills@augustaga.gov

Name	Address/City/State/Zip	Phone	Email
(ENTERPRISE HOLDINGS) Curt Kruckhow	1634 Aviation Way Augusta 30906	706-772-4998	Curtis.G.Kruckhow@EHI.com
Phillip Delk Elanco	1788 Lover Lane	706-303-6259	delkph@lilly.com
Linda Picardi Crown Castle	Alpharetta, GA	678-366-1235	linda.picardi@crowncastle.com
Tony Thomas Crown Castle	262 Woodland Rd Winder GA	404-304-7025	anthony.Thomas@crowncastle.com
Steve Matthews Unilar	3230 Perkins Rd. Augusta, GA. 30906	706-771-0185 24 hour 706-214-3022	steve.matthews@Unilarusa.com
Phillip Strano Jacobson Companies	1401 Marvin Griffin Rd Augusta, GA 30906	724.622.5106	phillip.strano@jacobsonco.com

ESF11 Group Presentation

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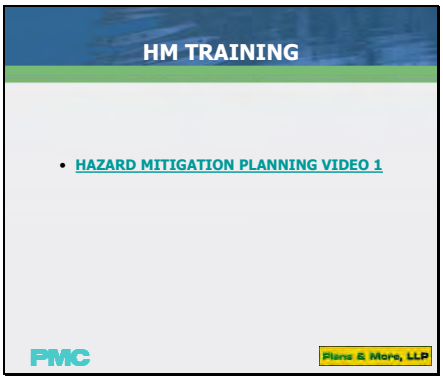

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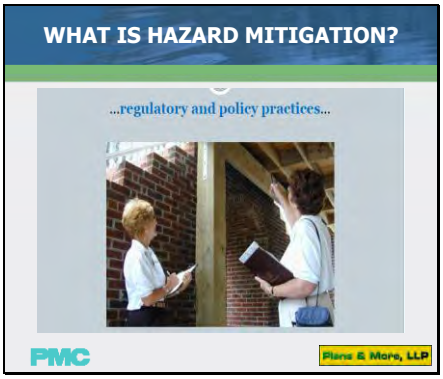

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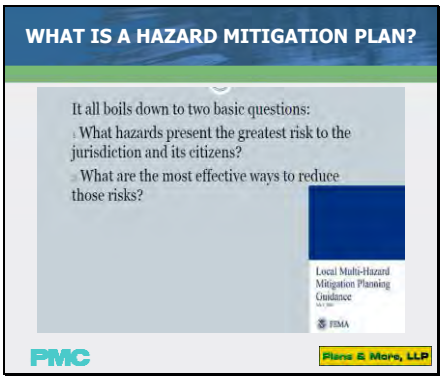

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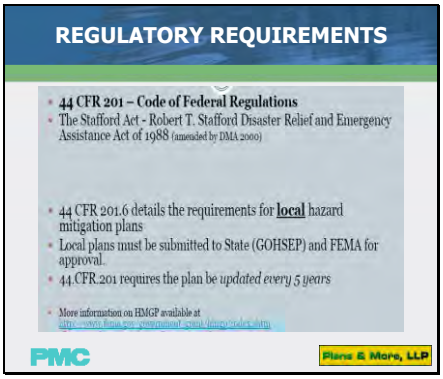

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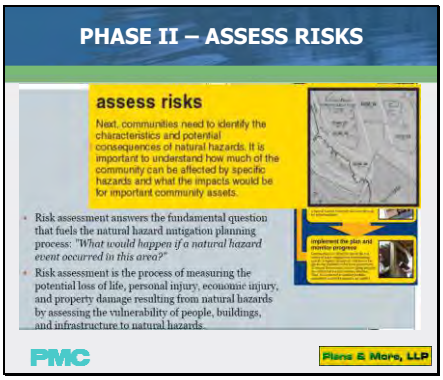

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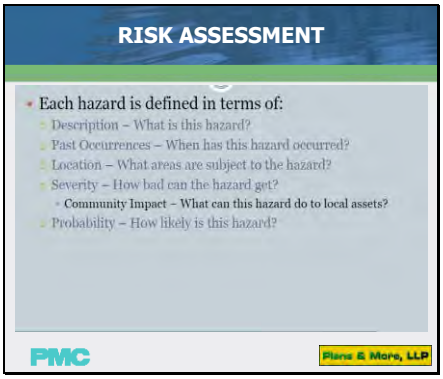

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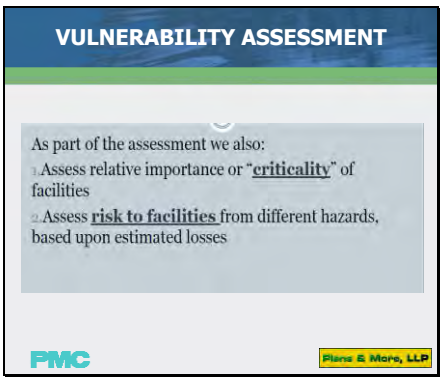

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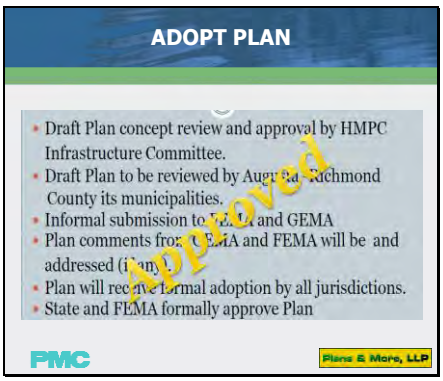

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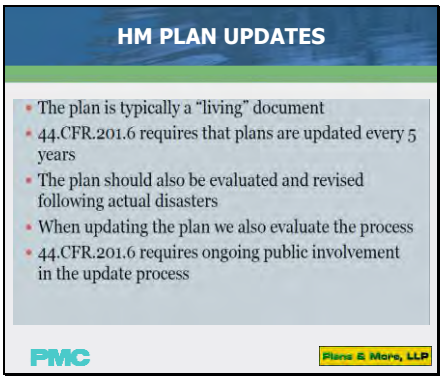

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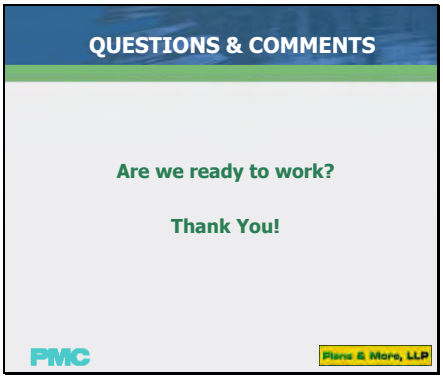


July 12, 2011

River Road Meeting Minutes

Hazard Mitigation Plan Update

Julian Smith Casino

Open by Chief Howard Willis, Director Emergency Management, introduction of audience. Turn over to Sharon Bennett gave presentation Hazard Mitigation Plan Update how important the plan is to Augusta Richmond County and the plan is for the community, encouraged the attendees and anyone they know to participate in the upcoming public meeting to give their comments and help with making sure this plan covers the community needs. The public meeting will be on July 25, 2011 in several locations throughout the community. The Municipal Building Room 80,2 6:00 PM – 7:00 PM, Carrie Mays park located at 5th and Walton Way 6:00 PM – 7:00 PM, Warren Road Community Center 6:00 PM – 7:00 PM. All please attend and support this plan it is your plan if you work or live in this community.

The meeting was turned over to Phillip Delk from Elanco to discuss the Emergency Notification System. To update the current notification plan. Phillip discussed how this plan came upon us and what is now taking place to update the plan. After presenting the ideas from the original committee that started with River Road Phillip ask for questions:

Solvay Polymers representatives questions the level responses their concerns are that the levels distance is not the same for everyone. They were advised that is correct and that is why the plan is in progress of making the decision and needs everyone input to help. The levels advised by Sharon Bennett was the most difficult part of the planning process the committee worked for a long period of time to try and meet all industries needs. The levels are still in the works. Solvay also wanted to know about the alarm inside their building that notifies the local school (Gracewood) in their community of an emergency in their plant what should they do. They were advised by the committee, Chief Willis, & Lt. Roundtree from the Board of Education to continue to use the alarm that was in working status.

Next meeting will be announced.

Submitted by Sharon W. Bennett, EMA

HMPC STAKEHOLDERS MEETING
JULY 14, 2011

START TIME: 9AM END TIME: 12PM

SIGN-IN SHEET

Name	Organization	Phone	Email
Scott Hyatt	U.S. Army Corps of Engineers	864-333-1101	scott.m.hyatt@us.army.mil
Michael Keene	Ga. Dept. of Trans.	706-855-3466	mkeene@dot.ga.gov
Rodney Way	GDOT	706-541-0078	rway@dot.ga.gov
Mike Lucas	American Red Cross	706-922-8482	mlucas@arcaug.org
Randy Wishard	Rich. Co. Health Dept./ Environmental Health	706-667-4234	rewishard@dhr.state.ga.us
Dr. Ricky Lee	EAST CENTRAL HEALTH DISTRICT Bio-Terrorism/Emerg. Preparedness	706-729-2190	drlee2@dhr.state.ga.us
Dominick Nutter	Richmond County 911 ~~dnutter@augusta.ga.gov~~	706-821-1242	dnutter@augusta.ga.gov

Name	Organization	Phone	Email
Scott D. GAY	Richmond County Sheriff's Office	706-821-1000	SGay@Augustaga.gov
Susan James	University Hospital	706.774.8847	susanj@uh.org
Bill Welsh	Trinity Hospital	706 481 7000	bill.welsh@trinityofaugusta.com
Vonda Everett	GDOT	478 552-4631	veverett@dot.ga.gov
HANNEH MALIK	ENGINEERING DEPT	706-796-5040	HMALIK@AUGUSTAGA.GOV
Sharon Bennett	EMA	706 821-1155	SWBennette augustaga.gov
Chief H. Willis	EMA DIRECTOR	706 821-2909	hwillis@augustaga.gov
RANKO PUDAR	PMC. INC	770 565-6309	RANKO_PUDAR@PUDARCONSULTING.COM

HMPC STAKEHOLDERS MEETING
JULY 14, 2011

START TIME: 9AM END TIME: 12PM

SIGN-IN SHEET

Name	Organization	Phone	Email
Scott Hyatt	U.S. Army Corps of Engineers	864-333-1101	scott.m.hyatt@us.army.mil
Michael Keene	Ga. Dept. of Trans.	706-855-3466	mkeene@dot.ga.gov
Rodney Way	GDOT	706-541-0078	rway@dot.ga.gov
Mike Lucas	American Red Cross	706-922-8482	mlucas@arcaug.org
Randy Wishard	Rich. Co. Health Dept./ Environmental Health	706-667-4234	rewishard@dhr.state.ga.us
Dr. Ricky Lee	EAST CENTRAL HEALTH DISTRICT Bio-Terrorism/Emerg. Preparedness	706-729-2190	drlee2@dhr.state.ga.us
Dominick Nutter	Richmond County 911 ~~dnutter@augusta.ga.gov~~	706-821-1242	dnutter@augusta.ga.gov

Name	Organization	Phone	Email
Scott D. GAY	Richmond County Sheriff's Office	706-821-1000	SGay@Augustaga.gov
Susan James	University Hospital	706.774.8847	susanj@uh.org
Bill Welsh	Trinity Hospital	706 481 7000	bill.welsh@trinityofaugusta.com
Vonda Everett	GDOT	478 552-4631	veverett@dot.ga.gov
HAMEED MALIK	ENGINEERING DEPT	706-796-5040	HMALIK@AUGUSTAGA.GOV
Sharon Bennett	EMA	706 821-1155	SWBennette@augustaga.gov
Chief H. Willis	EMA DIRECTOR	706 821-2909	hwillis@augustaga.gov
RANKO PUDAR	PMC. INC	770 565-6309	RANKO_PUDAR@PUDARCONSULTING.COM

Minutes
Hazard Mitigation Stakeholders Committee Meeting
July 14, 2011
Municipal Building
Chairman- Chief Howard Willis

Members present: Howard Willis, Sharon Bennett, Fred Russell, Scott Gay, Bill Shanahan, Randy Wishard, Jonathan Adriano (Rep. Ricky Lee), Dominick Nutter, Hameed Malik, Bill Welch, Mie Lucas, Rodney Wright, Michael Keene, Fonda Everett, Susan James, Scott Hyatt,

Consultant: Ranko Pudar

Meeting opened by Chairman Chief Howard Willis @ 9:11am.

Mr. Pudar continued with hand outs: Agenda, Critical Facilities, and survey questioners (to be completed by attending member who had not filled theirs out). The roll call was made with Mrs. Bennett's assistance with checking off members' attendance. Gave out information for July 25, 2011 stakeholders meeting with 6-7pm Community meeting advised all members to attend if possible.

Voted on agenda approval: Scott Gay & Dominick Nutter –Motion & second all approved

No minutes from last meeting to approve (will send by email to all members).

Established Subcommittee (see attachment with members listed) adding members to represent with proxy Motion - Mie Lucas & Susan James all approved, Questioned asked if we need more than one representative per department- answer no just to make sure if you are a proxy we received it in writing per Mr. Pudar & Chief Willis. But the director of each department director will remain on the list.

Adoption of Hazard Ranking Survey: need to add levee & canal to Dam list, motion Randy Wishard & Dominick Nutter all approved.

Red Cross Advised their name was to be changed they are not representative of the East Central Red Cross they are our Augusta Red Cross need to change all name that apply to this plan.

Adoption of Hazard ID Date Spreadsheet: Susan James asked, "can we add a hazard to spread sheet at this time?" Mr Pudar advised the first meeting established this sheet and we can add CPIPC to the plan was a great idea. Mr. Pudar wanted approval when survey questioners were completed and sent could results be changed for ranking survey approved by chairman Chief Howard Willis and all approved.

Spreadsheet adopted; motion Bill Welch & Ricky Lee.

Adopted List of Natural hazards & Manmade/Technological Hazards- Motion Ricky Wishard & Scott Gay all approved- note need information (all surveys turned in today) for template to go forward on ranking survey.

AUGUSTA - RICHMOND COUNTY HAZARD MITIGATION PLAN UPDATE

HMPC Meeting Agenda

14 July, 2011
9:00 A.M. – 12:00 P.M.

Type of Meeting: HMPC – Stakeholders Committee

Meeting Facilitator: Chief Howard Willis, Chairman

HMPC Members

I. Call to order - Chairman

II. Roll call (P = Present, A = Absent)

A. Chief Howard Willis _____
B. Terri Turner _____
C. Sharon Bennett _____
D. J R Hatney _____
E. Deke Copenhaver _____
F. Fred Russell _____
G. George Patty _____
H. Scott Gay _____
I. Robert Buckwitz _____
J. Patricia Cole _____

<u>Hazard Mitigation Plan – Stakeholders Committee</u>

<u>Other City Stakeholders:</u>

K. Tameka Allen _____
L. Bill Shanahan _____
M. Bill Wright _____
N. Billy Yates _____
O. Randy Wishard _____
P. Jonathan Adriano _____
Q. Dominick Nutter _____
R. Jack Womack _____
S. Hameed Malik _____
T. Abie Ladson _____
U. Rob Sherman _____
V. Chester Wheeler _____
W. Tom Wiedmeier _____
X. Dayton Sherrouse _____
Y. Earl Hilson _____
Z. Frank Carl _____

III. Ex Officio

A. Ranko S. Pudar _____

B. Sharon Caton _____

C. Alan M. Armstrong _____

IV. Approval of the Agenda

V. Approval of minutes from last meeting N/A

VI. New business

A. Establish the HMPC Hazard Ranking Subcommittee

1. Subcommittee Members
   - Chief Howard Willis, Chair
   - Terri Turner, Vice-chair
   - Sharon Bennett, Secretary
   - Fred Russell
   - George Patty
   - Scott Gay
   - Patricia Cole
   - Loriann H. Chancey
   - Bill Shanahan
   - Jonathan Adriano
   - Dominick Nutter
   - Jack Womack
   - Hameed Malik
   - Tom Wiedmeier
   - Abie Ladson
   - Rob Sherman
   - Scott Hyatt
   - Steve Abbott
   - Steve Willard
   - Susan James
   - David Jones
   - David Brown
   - Tom Knight
   - Chief Patrick Clayton
   - Mie Lucas
   - Evan Joseph
   - Tom Beck, Jr.
   - Martha Allen
   - Jasper A. Cooke

1. Motion _____

2. Second _____

3. Vote _____ AYE _____ NAY

B. Review and adopt the Hazard Ranking Survey

1. Motion _____

2. Second _____

3. Vote _____ AYE _____ NAY

C. Review and adopt the Hazard Identification Data Spreadsheet

1. Motion _____

2. Second _____

3. Vote _____ AYE _____ NAY

D. Review, revise, and adopt (with revisions if any) the List of Natural Hazards and Manmade/Technological Hazards and the Hazard Rankings contained in the table below:

TABLE 1: HAZARD IDENTIFICATION RANKING SURVEY			
RANK	**NATURAL HAZARDS**	**RAW NUMBER**	**# RESPONDENTS**
1	**Tornado/Windstorm/Hail**	**29**	**17**
2	**Flood**	**43**	**17**
3	**Drought/Extreme Heat**	**54**	**17**
4	**Winter Storm**	**62**	**17**
5	**Wildfire**	**73**	**17**
6	**Earthquake**	**95**	**17**
RANK	**MANMADE/TECHNOLOGICAL HAZARDS**		
1	**Chemical Leak/Spill**	**21**	**17**
2	**Terrorism**	**43**	**17**
3	**Nuclear Incident**	**50**	**17**
4	**Dam/Levee Failure**	**52**	**17**
Notes: Respondent numeric results are assigned value with the Hazards in each category ranked where the raw lowest score = the highest risk.			

1. Motion _____

2. Second _____

3. Vote _____ AYE _____ NAY

E. Review and adopt the Report of Hazard Identification Questionnaire Data Results.

1. Motion _____
2. Second _____
3. Vote _____ AYE _____ NA

F. Review and adopt the HMPC HI - RA Qualitative Summary Report.

1. Motion _____
2. Second _____
3. Vote _____ AYE _____ NAY

G. Review and adopt the HMPC Ranking Survey Responses.

1. Motion _____
2. Second _____
3. Vote _____ AYE _____ NAY

H. Review, revise, and adopt (with revisions) the Critical Facilities List.

1. Motion _____
2. Second _____
3. Vote _____ AYE _____ NAY

If additional Hazard Identification Questionnaires and/or Ranking Surveys are collected HMPC agenda motions should include acknowledgment that additional data will be entered, tabulated, and forwarded for HMPC electronic (HMPC email response) approval of changes.

I. Schedule the Mitigation Strategy Meeting.

A. Motion _____
B. Second _____
C. Vote _____ AYE _____ NAY

II. Adjournment

A. Motion _____
B. Second _____
C. Vote _____ AYE _____ NAY

Adopted Report of Hazard ID Questionnaire Data Results-motion Mie Lucas & Ricky Wishard all approved.

Adopted RA Qualitative Summary Report- motion Bill Welch & Susan James all approved.

Adopted Ranking Survey Responses- motion Bill Welch & Scott Gay all approved.

Adopted Critical Facilities List- motion Ricky Wishard & Bill Welch all approved-note for Chief Willis to update the list and forward to Mr. Pudar.

With Hazard ID Questionnaires and/or Ranking Surveys collected data to be changed or added, motion Ricky Wishard & Mie Lucas all approved P&M will provide draft plan to members -Tuesday July 19th 4pm-return by Thursday July 21st 12pm by members-all voted and approved.

Adjournment –reminder July 25th stakeholders and community meeting motion Bill Welch & Scott Gay all approved.

Submitted By Sharon W. Bennett –Sec. Hazard Mitigation Planning Committee

Minutes: Hazard Mitigation Stakeholders Committee Meeting
July 14, 2011

City of Hephzibah & Blythe Representatives

Present: Terri Turner, Sharon Bennett, Ranko Pudar, Jesse Hornsby (Chief of Police Blythe), Patricia Cole (Mayor of Blythe), Martha Allen (City Clerk of Hephzibah)

Mr. Pudar opened meeting at 1:30 pm with introduction to Plans and More and the role they play in the planning process. Used power point to explain the Hazard Mitigation Plan update and the process in which the plan update takes place.

The draft for the plan rollout date is July 25, 2011 at the community meeting held at the municipal building and several other locations.

The Augusta website www.augustaga.gov has a link for the Hazard Mitigation Plan please visit for update information on the plan as it continues to take place

Mr. Pudar explained the roles for FEMA & GEMA and explained meaning of the funding that applies to this plan.

Terri Turner explained to Blythe and Hephzibah representatives that they have their own chapter in the plan for each city. Also that it is important to keep your MOU's updated with the mitigation plan.

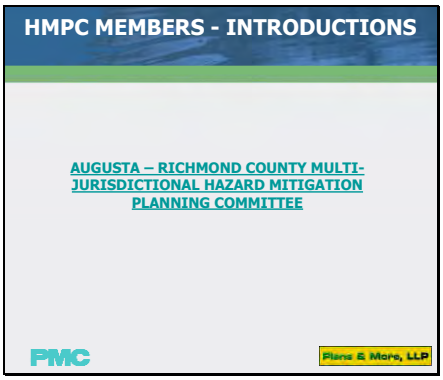
Project information should be forwarded to the consultants and CC to Terri Turner.

Meeting adjourned.

Submitted By: Sharon W. Bennett Sec. Hazard Mitigation Plan Update

Slide 1

Slide 2



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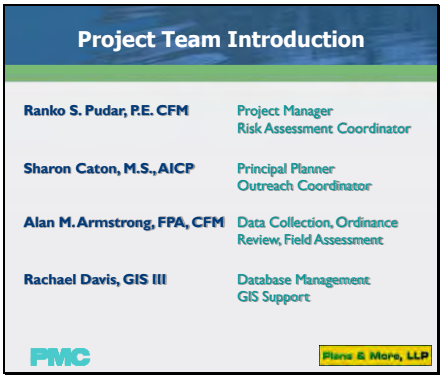

Slide 4

HM TRAINING

- HAZARD MITIGATION PLANNING VIDEO 1

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Slide 5

HM PLANNING APPROACH

- Project Coordination & Management With HMPC
  - Public Outreach Meetings
- Planning Process review and update
  - Community Assessment & Existing Conditions Review
  - Gather Critical Facilities - Capacity Data
- Hazard Identification & Risk Assessment Update
- Mitigation Strategies & Activities Update

PMC

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Slide 6

HM PLANNING APPROACH
(continued)

- Draft HM Plan for Local Review
  - With GEMA input and FEMA Crosswalk
- Plan Adoption
- Submit Plan for GEMA - FEMA Review & Approval
- Plan Implementation
  - Incorporate in existing community mechanisms, COP Plan
- Plan Update & Maintenance Matrix

PMC

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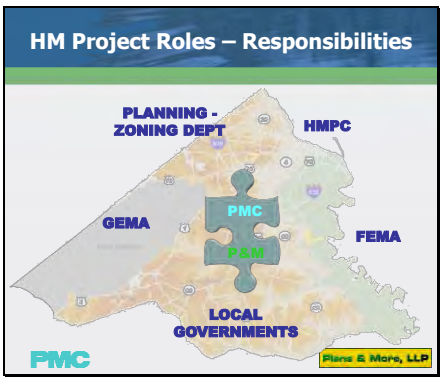
Slide 7



Slide 8

Slide 9

Slide 10

PMC – P & M ROLES
(continued)

- Hazard Identification and Risk Assessment Survey & Analysis
- Local Capacity Survey/Field Assessment & Analysis
- Draft Mitigation Strategies, Projects, FEMA Crosswalk
- Draft HM Plan
- Revise to incorporate input approved by HMPC
- Draft Final HM Plan; Assist with adoption process

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Slide 11

AUGUSTA- RICHMOND GOVERNMENT'S ROLE

- Attend Community HM Plan Workshops
  - Solicit & Support Public Participation
- Provide Community Capacity Data
- Provide Mitigation Strategy Funding Data
- Adopt provisions to integrate HM Plan in existing Jurisdictional Mechanisms
- Review Draft Plan & Provide Input
- Adopt Final HM Plan

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Slide 12

GEMA/FEMA ROLES

- GEMA
  - Provide Technical Assistance
  - Attend HM Plan Meetings
  - Review/Comment on HM Draft & Final Plan
  - Provide Mitigation Project Funding Information
- FEMA
  - Provide Technical Assistance
  - Review/Comment on HM Draft & Final Plan
  - Provide Mitigation Project Funding Information

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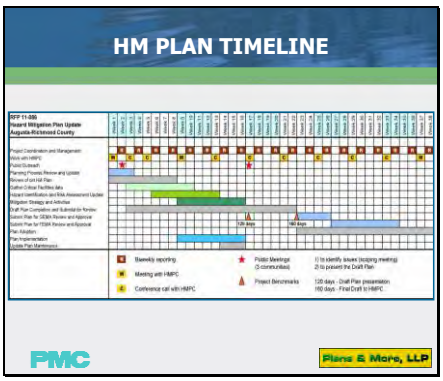
Slide 13



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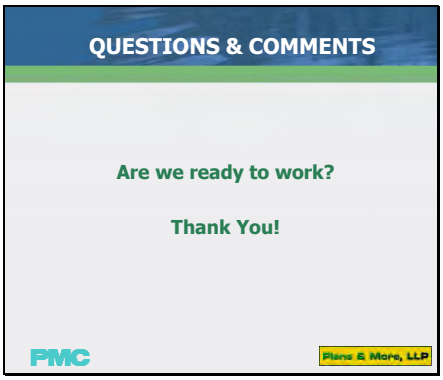

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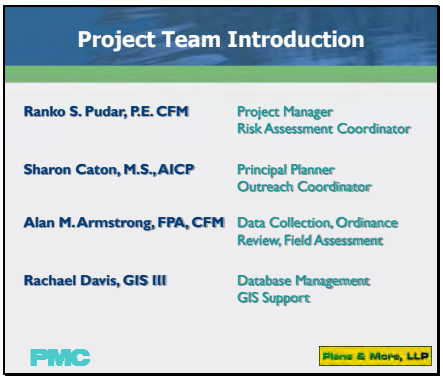

Slide 3

Slide 4

HM PLANNING APPROACH
(continued)

- Draft HM Plan for Local Review
  - With GEMA input and FEMA Crosswalk
- Plan Adoption
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- Plan Implementation
  - Incorporate in existing community mechanisms, COP Plan
- Plan Update & Maintenance Matrix

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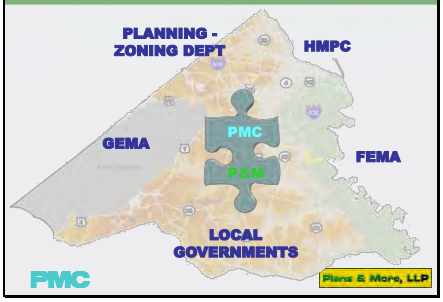
Slide 5

HM Project Roles – Responsibilities



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Slide 6

HMPC & PLANNING DEPT ROLES

- Promote HM Plan Involvement, Support
- Advertise Public Meetings, Workshops
- Attend Meetings and Provide Data on an as-needed basis
- Provide GIS Data and Coordinate with Project Team GIS Technician
- Publish Data, Reports to Project Website
- Coordinate with Project Team to facilitate Review & Adoption of HM Plan Update

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Slide 7

PMC – P & M ROLES

- Project Management
  - Plan Facilitation, Coordination, Workshops, Meetings, Communication
- Public Outreach Campaign
- Community Assessment Report & Data
  - Capacity, Finance, Equipment, Personnel, etc.
- Community Profile
- Prepare & Distribute Monthly Report & Data

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Slide 8

PMC – P & M ROLES (continued)

- Hazard Identification and Risk Assessment Survey & Analysis
- Local Capacity Survey/Field Assessment & Analysis
- Draft Mitigation Strategies, Projects, FEMA Crosswalk
- Draft HM Plan
- Revise to incorporate input approved by HMPC
- Draft Final HM Plan; Assist with adoption process

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Slide 9

AUGUSTA- RICHMOND GOVERNMENT'S ROLE

- Attend Community HM Plan Workshops
  - Solicit & Support Public Participation
- Provide Community Capacity Data
- Provide Mitigation Strategy Funding Data
- Adopt provisions to integrate HM Plan in existing Jurisdictional Mechanisms
- Review Draft Plan & Provide Input
- Adopt Final HM Plan

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Slide 10

GEMA/FEMA ROLES

- GEMA
  - Provide Technical Assistance
  - Attend HM Plan Meetings
  - Review/Comment on HM Draft & Final Plan
  - Provide Mitigation Project Funding Information
- FEMA
  - Provide Technical Assistance
  - Review/Comment on HM Draft & Final Plan
  - Provide Mitigation Project Funding Information

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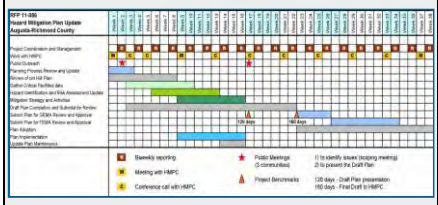
Slide 11

HM PLAN TIMELINE



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Slide 12

QUESTIONS & COMMENTS

Thank You!

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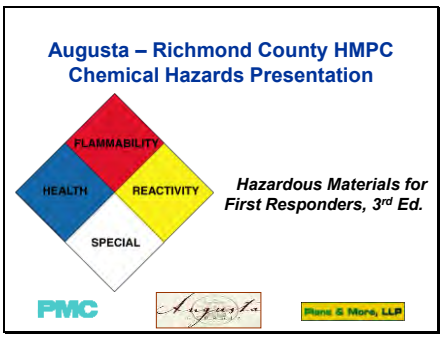
Slide 1



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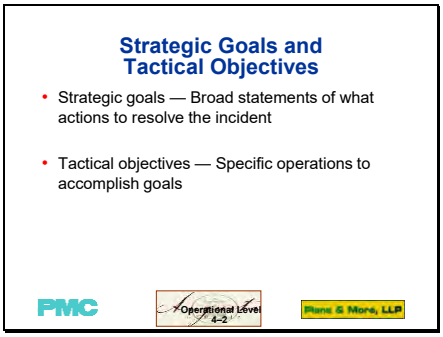

Slide 3

Slide 4

Scene Perimeters and Hazard Control Zones

- Isolation perimeter — Outer boundary of an incident that is controlled to prevent entrance by the public or unauthorized persons
- Initial isolation distance — Distance within which all persons should be considered for evacuation in all directions from the actual spill/leak source

(1 of 8)

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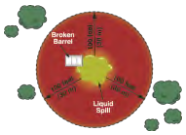
Slide 5

Scene Perimeters and Hazard Control Zones

- Initial-isolation zone — Circular zone (with a radius equivalent to the initial isolation distance) within which persons may be exposed to dangerous concentrations upwind of the source and may be exposed to life-threatening concentrations downwind of the source



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Slide 6

Scene Perimeters and Hazard Control Zones

- Protective action distance — Downwind distance for which protective actions should be considered
- Protective-action zone — Area immediately adjacent to and downwind from the initial isolation zone, which is in imminent danger of being contaminated by airborne vapors within 30 minutes of material release

(3 of 8)

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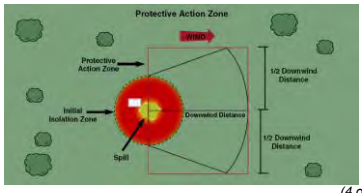
Slide 7

Scene Perimeters and Hazard Control Zones



(4 of 8)

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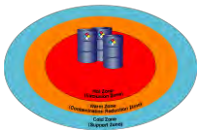
Slide 8

Scene Perimeters and Hazard Control Zones

- Hazard control zones — Zones dividing the levels of hazard of an incident (hot, warm, or cold), with the hot zone representing the highest degree of hazard; also called site work zones or scene-control zones



(5 of 8)

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Slide 9

Scene Perimeters and Hazard Control Zones

- Decontamination zone — Area located in the warm zone where contaminated clothing, people, and equipment can be cleaned or secured
- Area of safe refuge — Primarily an area serving as a safe place to wait for evacuation assistance in the event of fire when building elevators are normally inaccessible; used in the haz mat world as a safe location (or locations) where evacuated persons are directed to gather while potential emergencies are assessed, decisions are made, and mitigating activities are begun

(6 of 8)

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Slide 10

Scene Perimeters and Hazard Control Zones

- Staging area — Area where personnel and equipment awaiting assignment to the incident are held (which keeps responders and equipment out of the way and safe until needed), minimizing confusion and freelancing at the scene; located at an isolated spot in the cold zone where occupants cannot interfere with ongoing operations

(7 of 8)

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Slide 11

Scene Perimeters and Hazard Control Zones

- Rehabilitation area (rehab area) — Safe location where emergency personnel can rest, sit or lie down, have food and drink, and have medical conditions evaluated; located in the cold zone
- Triage/treatment area — Area where victims of an incident are brought for medical assessment (triage) and stabilization (treatment); located in the cold zone unless a patient is contaminated, then it would have to be the warm zone

(8 of 8)

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Slide 12

Notifying Additional Help at a Haz Mat Incident

- Consult SOPs, SOGs, OIs, and LERPs for detailed information.

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Slide 13

Factors Affecting the Ability of Personnel to Perform a Rescue

- Nature of the hazardous material and incident severity
- Availability of appropriate PPE
- Availability of monitoring equipment
- Number of victims and their condition
- Time needed (including a safety margin) to complete the rescue
- Tools, equipment, and other devices needed to achieve the rescue

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Slide 14

Rescue Risks Associated with DOT Hazard Classes

- Class 1 — Thermal injury, due to heat generated by the detonation; mechanical injury from the shock, blast overpressure, fragmentation, shrapnel, or structural damage; chemical injuries from associated contamination; etiological harm from contact with blood or other bodily fluids; asphyxiation due to depletion of oxygen

(1 of 4)

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Slide 15

Rescue Risks Associated with DOT Hazard Classes

- Class 2 — Thermal, asphyxiant, chemical, or mechanical hazard due to violent rupture of pressurized containers; thermal harm due to extremely cold temperatures; asphyxiation due to chemical vapors in a confined space
- Class 3 — Thermal hazards from forceful explosions, heat, and fire; chemical and mechanical injuries from explosions

(2 of 4)

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Slide 16

Rescue Risks Associated with DOT Hazard Classes

- Class 4 — Thermal harm from heat and flammability; mechanical harm from slip, trip, and fall hazards; chemical harm from water reactive, toxic, and/or corrosive materials
- Class 5 — Thermal, chemical, and mechanical harm due to sensitivity to heat, shock, friction, and contamination
- Class 6 — Chemical harm due to toxicity by inhalation, ingestion, and skin and eye contact; etiological harm from disease-causing organisms; thermal injuries due to flammability

(3 of 4)

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Slide 17

Rescue Risks Associated with DOT Hazard Classes

- Class 7 — Thermal and radiological harm from alpha, beta, and neutron particles, and gamma rays
- Class 8 — Chemical and thermal hazards associated with the disintegration of contacted tissues; mechanical harm from corrosive chemicals, which can weaken structural elements
- Class 9 — Could encompass a multitude of potential hazards

(4 of 4)

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Slide 18

Operational-Level Rescue Actions

- Conducting searches during reconnaissance or defensive activities
- Conducting searches on the edge of the hot zone
- Directing victims to the decontamination area
- Assisting with decontamination while not coming into contact with the hazardous material itself
- Assisting with the identification of victims
- Giving instructions to a large number of people for mass decontamination

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Slide 19

Sizing Up a Haz Mat Incident

- Estimate the number and type of exposures involved.
- Use the ERG and other sources to predict or attempt to predict where the hazardous material may be going.
- After predicting the size of the endangered area, predict the potential exposures.

(1 of 2)

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Slide 20

Sizing Up a Haz Mat Incident

- Protect exposures.
  - People — Through evacuation or sheltering in place
  - Environment — Through confinement of released materials and runoff until environmental impact can be determined
  - Property — Action must be tailored to the material, its properties, and any reactions to the proposed protective medium

  Note: Lives must not be risked and the environment must not be unduly compromised to safe property!

(2 of 2)

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Slide 21

Evacuation

- Definition — To move all people from a threatened area to a safer place
- Factors — Must be enough time to warn people, for them to get ready, and for them to leave the area

  Note: Evacuation plans for likely terrorist targets should be made in advance as part of the LERP
- Steps
  - Evacuate nearby, downwind, or crosswind within the distance recommended by the ERG.
  - Send evacuees upwind/uphill/upstream of the incident.
  - Assign enough personnel to conduct the evacuation.

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Slide 22

Sheltering-In-Place Protection

- To direct people to go quickly inside a building and remain inside until the danger passes
- When to use
  - The population is unable to initiate evacuation because of health care, detention, or educational occupancies
  - The material is spreading too rapidly to allow time for evacuation
  - The material is too toxic to risk any exposure
  - Vapors are heavier than air, and people are in a high-rise structure
- Direct people to a building, instructing them to close all doors and windows and to shut off all HVAC systems

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Slide 23

Confinement

- Controlling the product that has already been released from its container
- Function — Minimizes the amount of contact the product makes with people, property, and the environment
- Tactics
  - Absorption
  - Adsorption
  - Blanketing/covering
  - Dam, dike, diversion, and retention
  - Vapor suppression

(1 of 2)

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Slide 24

Confinement

(2 of 2)

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Slide 25

Absorption

- A physical and/or chemical event occurring during contact between materials that have an attraction for each other
- One material is retained in the other
- Procedure — The absorbent is spread directly onto the hazardous material or in a location where the material is expected to flow
- Refer to Skill Sheet 4–1.

Note: After use, absorbents must be treated and disposed of as hazardous materials because they retain the properties of the materials they absorb

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Slide 26

Adsorption and Blanketing/Covering

- Adsorption — The molecules of the hazardous material physically adhere to the material
- Blanketing/covering — Covering the surface of the spill to prevent dispersion of materials

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Slide 27

Damming, Diking, Diversion, and Retention

- A way to control the flow of liquid hazardous materials away from the point of discharge
- Can be made by using earthen materials or materials carried on response vehicles
- Procedure — Construct curbs that direct or divert the flow away from gutters, drains, storm sewers, flood-control channels, and outfalls
- Refer to Skill Sheets 4–2 through 4–5.

Note: Any construction materials that contact the spilled material must be properly disposed of.

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Slide 28

Vapor Suppression

- The action taken to reduce the emission of vapors at a haz mat spill
- Spills of flammable and combustible liquids may require fire-fighting foams.
- Refer to Skill Sheet 4–6.

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Slide 29

Using Foams

- Application methods
  - All fire-fighting foams (except fluoroprotein types) should not be plunged directly into the spill, but applied onto the ground at the edge of the spill and rolled gently onto the material.
  - Rainfall method — Spraying foam into the air over the target area in a fog pattern
- Considerations
  - Water destroys and washes away foam blankets; do not use water streams in conjunction with the application of foam.
  - A material must be below its boiling point; foam cannot seal vapors of boiling liquids.

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Slide 30

Other Spill-Control Tactics

- Ventilation — Controlling the movement of air by natural or mechanical means
- Vapor dispersion
  - The action taken to direct or influence the course of airborne hazardous materials
  - Procedure: Using pressurized streams of water from handlines or unmanned master streams; streams create turbulence, which increases the rate of mixing with air and reduces the concentration of the hazardous material
  - Refer to Skill Sheet 4–7.

(1 of 4)

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Slide 31

Other Spill-Control Tactics

(2 of 4)

PMC Operational Level 4–31 Plano & More, LLP

Slide 32

Other Spill-Control Tactics

- Dispersion — The breaking up or dispersing of a hazardous material that has spilled on a solid or liquid surface
- Dilution
  - The application of water to a water-soluble material to reduce the hazard
  - Is not typically used for spill control, but during decontamination operations
  - May be used when very small amounts of corrosive materials are involved
  - Refer to Skill Sheet 4–8.

(3 of 4)

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Slide 33

Other Spill-Control Tactics

- Dissolution — The process of dissolving a gas in water
- Neutralization — The process of raising or lowering the pH of corrosive materials to render them netural

(4 of 4)

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Slide 34

Leak Control/Containment Tactics

- Remote shutoff activation
  - Cargo tank trucks — Locations vary depending on truck
  - Piping systems and pipelines
    - Uses — May be used to stop the flow of product to the incident area without entering into the hot zone
    - Locations — Contact onsite maintenance personnel or local utility workers

(1 of 2)

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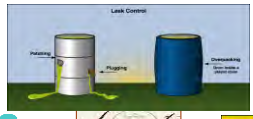
Slide 35

Leak Control/Containment Tactics

- Patching/plugging
- Overpacking
- Product transfer
- Crimping
- Valve actuation
- Vacuuming
- Pressure isolation and reduction
- Solidification



(2 of 2)

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Slide 36

Typical Fire-Control Tactics

- Controlled burn
- Exposure protection
- Withdrawal
- Extinguishment

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Slide 37

Foam

- All foams must be proportioned and aerated before they can be used.
  - Proportioned — Mixed with water
  - Aerated — Mixed with air
- Foam categories
  - For use on Class A fuels (ordinary combustibles)
  - For use on Class B fuels (flammable and combustible liquids)

PMC | Operational Level 4–37 | Plano & More, LLP

Slide 38

Foam Methods

- Separating — Creates a barrier between the fuel and burning vapors
- Cooling — Lowers the temperature of the fuel and adjacent surfaces
- Suppressing — Prevents the release of additional flammable vapors, access to oxygen in the atmosphere, and therefore reduces the possibility of ignition or reignition

PMC | Operational Level 4–38 | Plano & More, LLP

Slide 39

Foam Terms

- Foam concentrate — Liquid found in a foam storage container before the introduction of water, typically found as 1-, 3-, or 6-percent concentrates
- Foam solution — Mixture in the proper ratio of foam concentrate and water before the introduction of air
- Foam proportioner — Device that mixes foam concentrate in the proper ratio with water
- Finished foam — Completed product after air is introduced into the foam solution and after it leaves the nozzle or aerator

PMC | Operational Level 4–39 | Plano & More, LLP

Slide 40

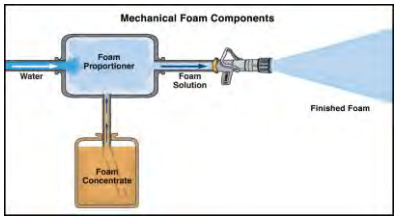
Foam Proportioning

- Class B foam concentrates are mixed in proportions from 1 to 6 percent (1:99 or 6:94 ratio of concentrate to water); proper proportion rates are listed on the outside of the foam concentrate container
- Can be done via a fixed system, an apparatus-mounted system, or portable foam proportioning equipment
- Can be applied with either standard fog nozzles or air-aspirating foam nozzles

PMC Operational Level 4–40 Plans & More, LLP

Slide 41

Foam-Making Process



PMC Operational Level 4–41 Plans & More, LLP

Slide 42

Regular Protein Foam

- Is virtually nonexistent in today's fire service
- Characteristics
  - Is available in 3- and 6-percent concentrations
  - Has excellent water-retention capabilities
  - Has high heat resistance
  - Its performance can be affected by freezing and thawing.
  - Stores at temperatures ranging from 35º to 120ºF (2ºC to 49ºC)

(1 of 2)

PMC Operational Level 4–42 Plans & More, LLP

Slide 43

Regular Protein Foam

- Characteristics
  - Can be compounded for freeze protection using a nonflammable antifreeze solution
  - Is not compatible with dry-chemical extinguishing agents
  - Is only used on hydrocarbon fuels

(2 of 2)

PMC | Operational Level 4–43 | Plans & More, LLP

Slide 44

Fluoroprotein Foam

- Is available in 3- and 6-percent concentrations
- Stores at temperatures ranging from 35º to 120ºF (2ºC to 49ºC); however, can be freeze-protected with nonflammable antifreeze solution
- Its performance is not affected by freezing and thawing.
- Is premixable for short periods of time (based on the manufacturer's recommendations)

(1 of 2)

PMC | Operational Level 4–44 | Plans & More, LLP

Slide 45

Fluoroprotein Foam

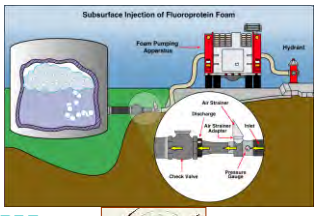
- Maintains rather low viscosity at low temperatures
- Is compatible with simultaneous application of dry-chemical extinguishing agents
- Is delivered through air-aspirating equipment
- Is suitable for use on gasoline that has been blended with oxygen additives

(2 of 2)

PMC | Operational Level 4–45 | Plans & More, LLP

Slide 46

Fluoroprotein Foam for Subsurface Injection into Flammable Liquid Storage Tanks



PMC Operational Level 4–46 Plans & More, LLP

Slide 47

Film Forming Fluoroprotein Foam

- Is available in 3- and 6-percent concentrations
- Stores at temperatures ranging from 35º to 120ºF (2ºC to 49ºC) with fair low-temperature viscosity
- Stores premixed in portable fire extinguishers and fire apparatus water tanks
- Is compatible with simultaneous application of dry-chemical fire-fighting agents
- Its performance is not affected by freezing and thawing.
- Uses either freshwater or saltwater

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Slide 48

Aqueous Film Forming Foam (AFFF)

- Is available in 1-, 3-, and 6-percent concentrations for use with either freshwater or saltwater
- Is premixable in portable fire extinguishers and apparatus water tanks
- Stores at temperatures ranging from 25º to 120ºF (-5ºC to 49ºC) (Freezing and thawing do not adversely affect AFFF concentrates, but consult the manufacturer for details.)
- Can be freeze-protective with nonflammable antifreeze solution

(1 of 3)

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Slide 49

Aqueous Film Forming Foam (AFFF)

- Has good low-temperature viscosity
- Is suitable for subsurface injection
- Has fair penetrating capabilities in baled storage fuels or high surface-tension fuels such as treated wood
- Is compatible with dry-chemical extinguishing agents
- Is rather fast draining

(2 of 3)

PMC | Operational Level 4–49 | Plans & More, LLP

Slide 50

Aqueous Film Forming Foam (AFFF)

- Its film-forming characteristics are adversely affected by fuels in excess of 140ºF (60ºC).
- Oxygen additives (mandated by EPA) in blended gasoline can adversely affect film-forming characteristics; solvent-based performance additives in reformulated gasoline can also hamper AFFF's performance.

(3 of 3)

PMC | Operational Level 4–50 | Plans & More, LLP

Slide 51

Alcohol-Resistant AFFF

- Is available in 3- or 6-percent concentrations
- Stronger polar solvents require application rates that are higher than those required for weaker solvents or hydrocarbons.
- Concentrates designed to be proportioned at 3 percent on hydrocarbon fuels and 6 percent on polar solvent fuels are called 3 by 6 concentrates.
- Concentrates proportioned at 3 percent on both types of fuels are called 3 by 3 concentrates.

(1 of 2)

PMC | Operational Level 4–51 | Plans & More, LLP

Slide 52

Alcohol-Resistant AFFF

- Creates a membrane rather than a film over the fuel, separating the water in the foam blanket from the attack of the solvent
- May be used in subsurface injection applications on certain light hydrocarbons such as gasoline, kerosene, and jet propulsion fuels

(2 of 2)

PMC | Operational Level 4–52 | Plans & More, LLP

Slide 53

High-Expansion Foam Applications

- Concealed spaces such as shipboard compartments, basements, coal mines, and other subterranean spaces
- Fixed-extinguishing systems for specific industrial uses such as rolled or bulk paper storage
- Class A fire applications (slow draining)

PMC | Operational Level 4–53 | Plans & More, LLP

Slide 54

High-Expansion Foam Characteristics

- Stores at temperatures ranging from 35º to 120ºF (2ºC to 49ºC)
- Is not affected by freezing and thawing
- Has poor heat resistance because air-to-water ratio is very high
- Has expansion ratios of 200:1 to 1,000:1 for high-expansion uses and 20:1 to 200:1 for medium-expansion uses (Whether the finished foam is used in either a medium- or high-expansion capacity is determined by the type of application device.)

PMC | Operational Level 4–54 | Plans & More, LLP

Slide 55

Major Goals of the Recovery Phase

- Return the operational area to a safe condition.
- Debrief personnel before they leave the scene.
- Return the equipment and personnel of all involved agencies to the condition they were in before the incident.

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Slide 56

Termination Phase

- Critiquing
  - Needs to occur as soon as possible after the incident
  - Needs to involve all responders, including law enforcement, public works, and EMS
  - Must be documented to identify those in attendance as well as any operational deficiencies that were identified

(1 of 2)

PMC Operational Level 4–56 Plans & More, LLP

Slide 57

Termination Phase

- After-action analysis (following action reports)
  - Compiles the information obtained from debriefings and critiques
  - Recommendations for improvements can be made once trends have been identified.

(2 of 2)

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Slide 58

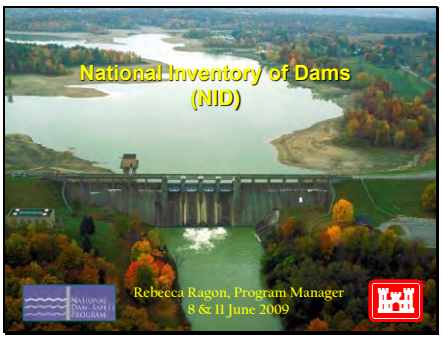
Augusta – Richmond County HMPC
Chemical Hazards Presentation
Operational Level Training

Hazardous Materials for First Responders, 3rd Ed.

PMC

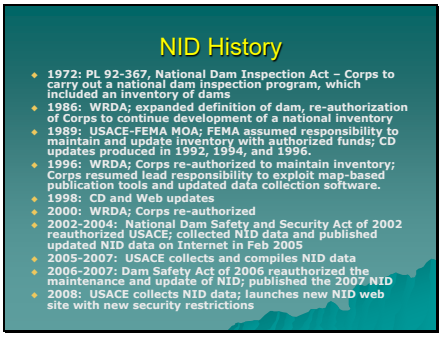
Plane & More, LLP

Slide 1

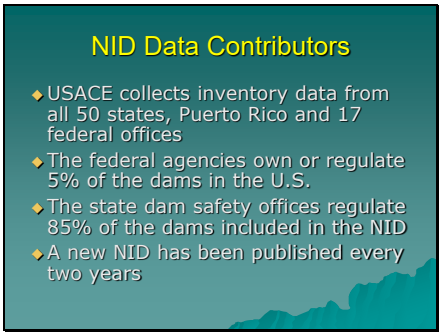


Picture of Berlin Dam, USACE-owned and operated, located in Pricetown, Ohio on the Mahoning River. Dam is 96 feet tall and normally stores 58,400 acre-feet of water (maximum 140,000 acre-feet). Primary purpose is flood control but also used for recreation and water supply.

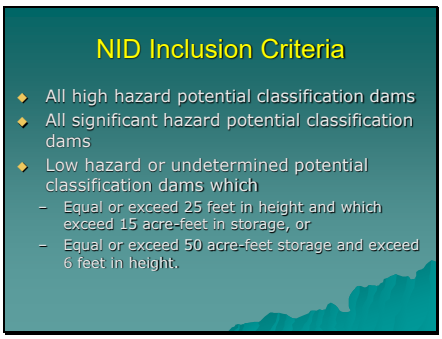
Slide 2



Slide 3

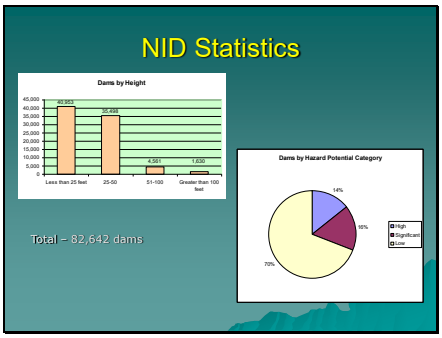


Slide 4



Dams assigned the **high** hazard potential classification are those where failure or mis-operation will probably cause loss of human life. Dams assigned the **significant** hazard potential classification are those dams where failure or mis-operation results in no probable loss of human life but can cause economic loss, environment damage, disruption of lifeline facilities, or impact other con-cerns. Significant hazard potential classification dams are often located in predom-i-nantly rural or agricultural areas but could be located in areas with population and significant infrastructure.
Dams assigned the **low** hazard potential classification are those where failure or mis--operation results in no probable loss of human life and low economic and/or environ-mental losses. Losses are principally limited to the owner's property.

Slide 5



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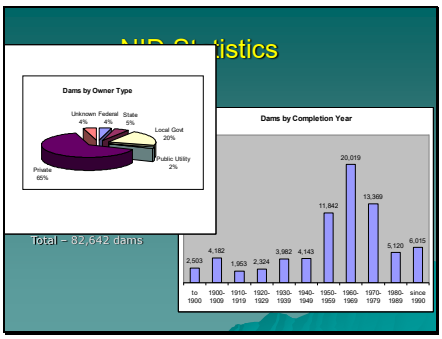
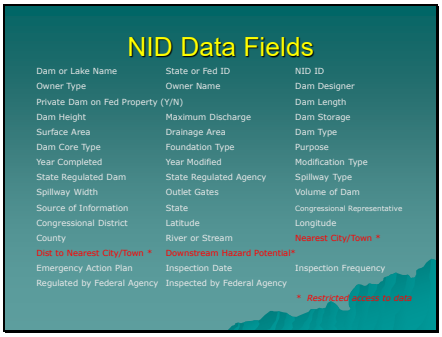


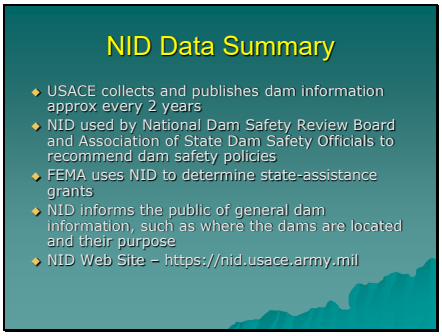
Over a third of our nation's dams are already fifty years old; in another ten years, more than 60% of dams in the U.S. will have reached the half-century mark.

Slide 7



Nearest City, Distance to Nearest City and Hazard are restricted to government users only.

Slide 8



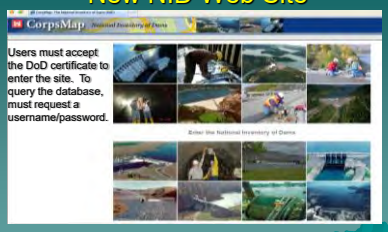
Slide 9

New NID Web Site

- National Dam Safety Review Board recommended to restrict access to the NID
  - Three data fields no longer available to the public: hazard, city, distance to city
  - Public (non-government) users cannot download any data or be given any aggregate data
  - Must have username/password to query the database
- With these new mandates, TEC looked to CorpsMap to host the new restricted access NID web site
- The previous site (1998-2007) hosted at TEC had been open to all users and the data could be easily exported by anyone

Slide 10

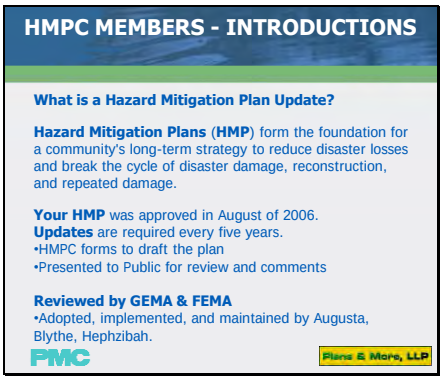
New NID Web Site



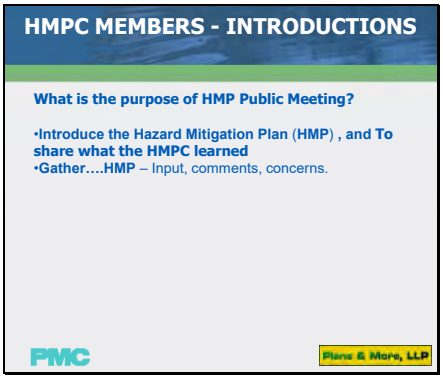
HMP Update Rollout Public Hearings, 25 July, 2011
Held in 3 Locations: Augusta, Hephzibah, and Blythe

Slide 1

Slide 2



Slide 3



Slide 4

HMPC MEMBERS - INTRODUCTIONS

What are the Hazards in Your Community?

TABLE 3.2: HAZARD IDENTIFICATION RANKING SURVEY

RANK	NATURAL HAZARDS	RAW NUMBER	# RESPONDENTS
1	Tornado/Windstorm/Hail	50	31
2	Flood	75	31
3	Drought/Extreme Heat	105	31
4	Winter Storm	111	31
5	Wildfire	135	31
6	Earthquake	175	31
RANK	MANMADE/TECHNOLOGICAL HAZARDS		31
1	Chemical Leak/Spill	44	31
2	Terrorism	82	31
3	Nuclear Incident	94	31
4	Dam/Levee Failure	95	31

Notes: Respondent numeric results are assigned value with the Hazards in each category ranked where the raw lowest score = the highest risk.

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Slide 5

HMPC MEMBERS - INTRODUCTIONS

How Likely are Natural Hazards to Happen?

Table 2.4 Augusta – Richmond County HMPC RF

NATURAL HAZARDS	PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION	RF RATING (PRIORITY)
Natural Hazard A: Tornado – Windstorm –Hail	1.2	.9	.4	.4	.1	3.0
Natural Hazard B: Flooding	.6	.9	.9	.1	.4	2.9
Natural Hazard C: Drought – Extreme Heat	.9	.3	.4	.1	.4	2.1
Natural Hazard D: Winter Storm	.9	.3	.4	.1	.3	2.0
Natural Hazard E: Wildfire	.3	.3	.2	.2	.4	1.4
Natural Hazard F: Earthquake	.3	.3	.2	.4	.1	1.3
HIGH RISK (3.0 or higher)						

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Slide 6

HMPC MEMBERS - INTRODUCTIONS

How Likely are they to Happen?

Table 3.3 Augusta – Richmond County HMPC RF

TECHNOLOGICAL HAZARDS	PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION	RF RATING (PRIORITY)
Hazard A: Chemical	1.2	.9	.4	.4	.4	3.3
Hazard B: Terrorism	.6	.6	.4	.4	.4	2.8
Hazard C: Nuclear Plant Incident	.3	.6	.4	.4	.4	2.1
Hazard D: Dam Levee Failure	.6	.3	.4	.3	.4	2.0
HIGH RISK (3.0 or higher)						

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Slide 7

QUESTIONS & COMMENTS

What are the next steps?

- Community Review of the HMP within 30 days
- Community comments, concerns, and input on the HMP

How do I do that?

- Email: Terri Turner, City of Augusta, tturner@augustaga.gov
  Sharon Bennett, Augusta EMA, swbennett@augustaga.gov
- HMP Website Comment Form:
  - At bottom of website page.

Where Can I see the Plan?

- Augusta Municipal Building, Blythe City Hall, Hephzibah City Hall
- Augusta – Richmond County Multi-Jurisdictional HMP Website

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Augusta Web Site
www.augustaga.gov

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Slide 9

Augusta HMP Project Site

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Slide 10

QUESTIONS & COMMENTS

Provide email contact if you would like the HMP Plan Link sent to you.

Questions?
Comments?
THANK YOU!

PMC

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HMPC Sign-in Sheet, 25 July, 2011

7/25/11 Hazard Mitigation Update Plan "Draft"
Municipal Building

HAMEED MALIK AUGUSTA ENGINEERING DEPT. 706-796-5040

MIC LUCAS American Red Cross 7066922 8482

Randy Wishard Rich. Co. Health Dept., Env. Health 706-667-4238

Committ A. Walker - Emergency Preparedness Office - 706-729-2190
(clwalker@dhr.state.ga.us)

Frank Carl - Augusta Port Authority frankcarl@knology.net

Tom Wiedmeier - Augusta Utilities

Sharon W. Bennett Augusta EMA SWBennett@augustaga.gov

Terri Turner Plan + Zoning Development TTurner@augustaga.gov

Minutes
Hazard Mitigation Stakeholders Committee Meeting
July 25, 2011
Municipal Building

Present: Terri Turner, Sharon Bennett, Hameed Malik, Mie Lucas, Randy Wishard, Emmitt Walker (Rep Jonathan Adriano), Frank Carl, Tom Wiedmeier

Consulting Representatives: Ranko Pudar, Sharon Caton, Alan Armstrong

Terri Turner opened with welcome @ 9:20 am, Sharon Bennett passed out agenda and sign in pad.

Turning over to Mr. Pudar from Plans & More @ 9:22am

Mr. Carl asks question how much interest has taken place with input from the public and committee?

Sharon Caton advised over 4000 hits on website, 3000 plus emails has been involved, Sharon Bennett advised that the River Road meeting has 40 plus attendance during a presentation for the information on the Hazard Mitigation updated plan in process.

Mr. Pudar spoke on where we are in the process at this time with the plan and the deadlines that are taking place at this time. A thank you to Terri Turner, Michelle Pearman, Sharon Bennett for all the additional time and work they have provided.

Sharon Canton explained the hyperlink she placed in the plan it is to take you straight to information related to an incident. Also that the Vote to except this plan draft and send it forward to GEMA must be in by 6pm today. So review the plan and send your vote to adoption or not today.

Terri Turner advised no quorum is present must vote via email today. This is a living document will/can be changed with comments and updated information during public review next 30 days.

Sharon Caton after draft submission to GEMA it normally takes 30 days and the plan draft will be sent back to us with a stamped conditional approval. GEMA must check to see if the plan has met the federal and state requirements. The plan will then be forwarded to FEMA again a 30 day review before an answer will be provided. The Augusta Richmond County will be covered for disaster during this process if plan has expired while approval is taking place.

Mr. Pudar the time line we started was not so long ago June 14, 2011; plan is posted on website and has 7 chapters and appendices.
Input during the next 30 days is very important! Need to know your comments and knowledge of what information you have about your community.

Submitted By: Sharon W. Bennett Sec. Hazard Mitigation Plan Update

PUBLIC NOTICE
HAZARD MITIGATION PLAN PUBLIC MEETING

FOR IMMEDIATE RELEASE:

The Local Governments of Augusta - Richmond County are pleased to announce the creation of the Hazard Mitigation Planning Committee (HMPC). The Committee is working in cooperation with the Georgia Emergency Management Agency (GEMA), Federal Emergency Management Agency (FEMA), and the PMC – P & M Consulting Team to update the Hazard Mitigation Plan (HMP) for Augusta - Richmond County and the cities of Blythe and Hephzibah. Our local communities received a GEMA HM Grant and are providing local match resources to fund the planning process.

The Plan is designed to address our vulnerability to natural and man-made hazards and serve to reduce future critical facility, community services, residential, and commercial property losses from hazardous events before they occur. The most significant areas of concern for our communities are determined. During development of the plan, community leaders will identify goals and actions to reduce the impacts of these hazards. The plan is also a useful tool for leveraging additional sources of funding in the event of a disaster.

The Committee would like to have participation from regional and local businesses, agencies, entities, and citizens on the Draft Hazard Mitigation Plan. The plan requires community input and involvement. Please contact Terri L. Turner, Assistant Zoning & Dev. Administrator, Augusta – Richmond County Planning Department at: (706) 821-1796 to serve on the Committee.

Below is a Flyer with dates, time, and location of the Public Meeting for input on the Draft Hazard Mitigation Plan.

Monday, July 25

9:00 A.M. - Noon

Hazard Mitigation Plan Update Planning Committee/Stakeholders Committee meeting *

Monday, July 25

6:00 - 7:00 P.M.

1. **Public Meeting #1 Municipal Building, Room 802 (Armstrong/Bennett)**
2. **Public Meeting #2 Carrie Mays Community Center Meeting Room (Pudar/Turner)**
3. **Public Meeting #3 Warren Road Community Center Meeting Room (Caton/Willis)**

Minutes
Hazard Mitigation Stakeholders Committee Public Meeting
July 25, 2011 6:00 P.M. to 7:00 P.M.

1. Public Meeting #1 Municipal Building, Room 802, (Armstrong/Bennett)
   No Attendees were present for the meeting.
2. Public Meeting #2 Carrie Mays Community Center Meeting Room (Pudar/Turner)
   No Attendees were present for the meeting.
3. Public Meeting #3 Warren Road Community Center Meeting Room (Caton/Willis)
   No Attendees were present for the meeting.

Submitted By: Sharon W. Bennett Sec. Hazard Mitigation Plan Update

COUNTY **RICHMON**D
HAZARD FREQUENCY TABLE

Hazard	Number of Events in Historic Record	Number of Years in Historic Record	Number of Events in Past 10 Years	Number of Events in Past 20 Years	Number of Events in Past 50 Years	Historic Recurrence Interval (years)	Historic Frequency % chance/year	Past 10 Year Record Frequency Per Year	Past 20 Year Record Frequency Per Year	Past 50 Year Record Frequency Per Year
Hurricane Surge - Cat 1	1	76	0	0	0	76.00	1.32	0	0	0
Hurricane Surge - Cat 2						#DIV/0!	#DIV/0!	0	0	0
Hurricane Surge - Cat 3						#DIV/0!	#DIV/0!	0	0	0
Hurricane Surge - Cat 4						#DIV/0!	#DIV/0!	0	0	0
Hurricane Surge - Cat 5						#DIV/0!	#DIV/0!	0	0	0
Hurricane Wind						#DIV/0!	#DIV/0!	0	0	0
Floods	12	61	4	12	12	5.08	19.67	0.4	0.6	0.24
Wildfire	0	0	0	0	0	0.00	#DIV/0!	0	0	0
Earthquake						#DIV/0!	#DIV/0!	0	0	0
Tornado	9	61	2	6	9	6.78	14.75	0.2	0.3	0.18
Thunderstorm Wind	140	56	54	88	134	0.40	250.00	5.4	4.4	2.68
Hail	62	61	41	56	62	0.98	101.64	4.1	2.8	1.24
Drought	49	108	10	11	17	0.00	0.00	0	0.55	0.34
Extreme Heat	5	10	5			2.00	50.00	0.5	0	0
Snow & Ice	6	5	5	5	5	0.83	120.00	0.5	0.25	0.1
Landslide						#DIV/0!	#DIV/0!	0	0	0
Dam Failure	1	31	0	0	1	31.00	3.23	0	0	0.02
High Wind	2	61	1	2		30.50	3.28	0.1	0.1	0
HazMat Release (fixed)						#DIV/0!	#DIV/0!	0	0	0
HazMat Release (trans)	2	6	2	2	2	3.00	33.33	0.2	0.1	0.04
Radiological Release						#DIV/0!	#DIV/0!	0	0	0

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

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

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

HAZARD MITIGATION PLAN REVIEW COMMENTS

CHAPTER 1:

Chapter 1 Draft Review Comments from Richmond County/Augusta

In reviewing the Chapter I draft I see you have Rural Metro as the EMS provider. Gold Cross has been the EMS provider for a number of years. It would be good that SouthStar EMS could be the back up provider since there is not one now. It seems prudent that the county would insure an agreement with SouthStar as a back up in the event there was a major event in Richmond County. As of this date there is no back up. Also, I noticed in the draft that the fire department information about the location of the administrative offices is incorrect as they moved into the Deans Bridge location a long time ago. Thank you , Tom Knight

Hephzibah City Clerk sent:

"I just read through it, I don't see anything shocking that must be changed."

Phillip Delk sent:

From: Phillip Gee Delk [mailto:DELK_PHILLIP_GEE@LILLY.COM]
Sent: Wednesday, July 20, 2011 4:17 PM

Only comment I have is:
Local Stakeholders section- Industry p.10 (correct title and spelling)

Phillip Delk; Sr. Specialist HSE & Emergency Response Chief, Elanco; delkph@lilly.com

Phillip Delk
Sr. Specialist-HSE / ERT Chief
Augusta Technology Center
706-303-6259 Office
706-495-7786 Cell

Comment from Susan James:

Terri,
In process of reviewing but turn around time line of 5 hours is not realistic with most schedules. In addition, Sharon sent two more documents today for review as well. It is my intent to respond by tomorrow. Sorry.

Susan

Susan James, LPN, CHSP, CHEC
Emergency Management Coordinator
University Hospital
Phone - 706.774.8847
email -- susanj@uh.org

Another e-mail from Susan James:

As far as the HMP goes, I think it's loaded with "fluff" that could be deleted and not change the content. I'm assuming a template is being used for the most part? Templates can be very redundant an empty. Say what you need to say ---- and keep it simple.

Susan James:

One more thing Terri --- at the end of Chapter 1, Kevin Wells has not been to any of the meetings. He is currently out of the area in the Reserves for the next 18 months. Dennis Jones is stepping up to the plate. Kevin doesn't represent MCG's school --- hospital only. Contacts for Dennis -- I'm forwarding to you since I can't attach it.

Augusta Engineering sent:

From: Hameed Malik
Sent: Thursday, July 21, 2011 3:33 PM

Page 3: Under Strategic Goals- Notification Considering adding Evacuation (read as Notification / Evacuation)
Draft Chapter 1: Page 9: Under HMP Stakeholders Committee
Correction for #9 and #10 (replace Public Works with Engineering (Public Works is now Engineering Department) Our VOTE is "YES" with corrections

Hameed

Remark from Sharron Bennett, without subject so it is undeterminable what it is related to:

Jennifer Pennington | Executive Director
American Red Cross of Augusta

Remark from Terri Turner:

Ranko, Sharon, Mike – it should be ESF11 on page 13.
Additionally, what you are showing as links all over the place will have to be appendices for the printed version ??? I am assuming.

Chapter 1 comments and vote of approval with revisions for Turner / Russell / and Patty
Can we please use the word Plan instead of plan ?

Can we take out the sentence about the update taking 23 weeks ?
Capitalize Chair in Vice-Chair (bottom of page 8 and everywhere else applicable)
Grady Smith should be #5 (bottom of page 8) and numbers adjusted accordingly
List address of Augusta website (bottom of page 11)
Change 14 June, 2011 to June 14, 2011 format (bottom of page 12, top of page 13 and everywhere else applicable)
Change Public Hearing to Planning Committee and Stakeholders Committee Meeting (bottom of page 12)
List website instead of providing links (top of page 13 and everywhere else applicable)
"Held a joint SEF11 Group and HMP Update meeting" (pg 13)
Public hearing started at 6 p.m. (top of page 13)
Augusta not Augusts (pg 13)
Addresses for July 25, public meetings needed
Top of page 14:
The draft HMP was adopted by the Augusta Commission and the municipalities of Blythe and Hephzibah after the 30 day public review period and concurrent with submission to GEMA/FEMA for review and comment in accordance……

The final HMP was adopted by the Augusta Commission and the municipalities of Blythe and Hephzibah after approval by GEMA/FEMA as to form and content in accordance
……..

Bottom of page 15 dam/levee/canal failures
Middle of page 17 – the meeting was held at 9 a.m.

Skimmed the last few pages but felt like I would be seeing those again.

You have my approval of Chapter 1 and approval by Fred Russell and George Patty, with me serving as their proxy, of Chapter 1 subject to the revisions listed.

Thank you,

T.

From Sharon Bennett:

TERRI the held joint (should be) ESF11 Group on page 13

From City of Blythe:

Please update 6.8 City of Blythe by removing "Clark Memorial Library" from our listing of historic buildings. This building was demolished by the City in 2009.

From GEMA - Brian

Good afternoon all,

I may have missed it when I read through the drafts, but where do you describe how each of the sections to the previous plan were reviewed, analyzed and revised (crosswalk requirement 4 F)? Or do you plan on including this in a different chapter?
I see where you listed the Cities of Blythe and Hephzibah as participants with Augusta-Richmond County, but not the City of Augusta (reviewers may not know the difference). I recommend making it more clear that this is a multi-jurisdictional plan and listing out who the participants are. Also, pay close attention to Crosswalk requirements 3 A and 3 B to meet multi-jurisdictional plan criteria.

One thing I suggest which may help speed up the review process is to go ahead and start filling out a crosswalk in the columns where you will be asked to identify the location where each requirement is met, as the plan is updated. This would also help me in being able to provide comments and recommendations to each draft chapters. Just to make sure everyone has a copy of the FEMA crosswalk with the additional State of Georgia requirements, I am attaching it below.

If you have any questions or comments, please feel free to contact me.

From Tom Wiedmeier:

Terri:
I reviewed Chapter 1 of the Hazard Mitigation Plan. The section addressing Water and Sewer Systems is dated and does not reflect changes and improvements of the last 5 years. I would be glad to help update this section, but would need an editable version to do so.

From Hameed Malik:

Here are Engineering Comments: Draft Chemical Hazard:
Page 3: Under Strategic Goals- Notification Considering adding Evacuation (read as Notification / Evacuation)
Draft Chapter 1:
Page 9: Under HMP Stakeholders Committee Correction for #9 and #10 (replace Public Works with Engineering (Public Works is now Engineering Department)

Our VOTE is "YES" with corrections

July 21, 2011

<u>18</u> Accept "AS IS" <u>8</u> W/Comments <u>6</u> No Response

Chapter 5 Comments:

#3 Terri Turner, #5 Fred Russell, #6 George Patty

First paragraph	need comma after county-wide
Table 5.1	add colon after all Technological Hazard labels: (ex Technological Hazard A:)
Page 2, First paragraph	are the responsibility (add the word the) What do you mean by "other pertinent services" ?
Goal 1:	add and participating communities after Augusta-Richmond County
Goal 2:	add and participating communities after Augusta-Richmond County
Goal 3:	add and participating communities after Augusta-Richmond County
Goal 4:	add and participating communities after Augusta-Richmond County
Section 1 Goal 1:	add and participating communities after Augusta-Richmond County
	Identification…….. What about chemical spills / leaks / releases by man-made error, equipment failure ??
	Top of page 4 – skip line between first two paragraphs
Goal 1 – Objective 1.1 – Mitigation Action 1.1.2	Planning Commission should be Planning & Development

Top of pg 5 Objective 1.2 take out spaces between of and chemical spills /

Section 2 Goal 2: add and participating communities after Augusta-Richmond County

Identification……..
Add "the" in front of judicial system
I think you mean plan for in the last paragraph

Add "the" in front of local EOP and also in front of public

Section 3 Goal 3: add and participating communities after Augusta-Richmond County

Top of Page 7 add "the" in front of Fukushima; take out "the" in front of public
How many miles ?? (of each)

Pg 7 third paragraph add "the" in front of Southern Company
add "about" in front of evacuation procedures
add "a" in front of very
add a comma after link, and again after Information"

Pg7 fourth paragraph add "the" in front of Augusta-Richmond
Do not capitalize area
Capitalize State

Under Existing Policies…… take out the word "the" in front of Federal laws

Section 4 Goal 4: add and participating communities after Augusta-Richmond County

In general Need to add IT to all Mitigation Actions that refer to Augusta's website

Please don't take offense, but this entire Chapter left me wanting more…….. (Seems to be lacking something) For example, Ranko happened to mention the vulnerability of our Municipal Bldg to someone driving up, too close to the building, with a load of dynamite in the trunk. Another example, we

have security in our Municipal Bldg, but what about security in our other buildings. What about terroristic acts on our water system?

What about working on our response to / evacuation of areas near our chemical plants ?? What about compacts (notification / disaster response) with other communities in relation to chemical releases / spills (which I know we have but there is no mention of that) ?? What about expanding/improving warning systems in relation to chemical releases / spills ??
What about additional Shelter in Place kits / Shelter in Place training ??
I could go on……..
Please spend some time with Chief Willis and our LEPC representative/ industrial plant representatives on the HPC discussing these issues.

#15 Tom Wiedmeier:

Page 7, 2nd paragraph: I'm pretty sure Savannah River Site is larger than 310 acres. I think they mean 310 square miles.

#14 Hameed Malik:

Here are Engineering Department Comments (both for Hameed and Abie)
Page2- Goal 1 – Under objective 1.1 HOW FLOOD HAZARD fits under this goal? Suggestion is to keep it under Goal 4.
Page 9 – Responsible Departments – Correction
There is reference to Public Service Department- BUT effective May 1, 2001, PUBLIC SERVICES do not exist-Make correction accordingly.
Comment: Mitigation action should include some reference to public "Evacuation" plan or route

#10 Bill Shanahan:

Page 7, Savannah River Site is larger than 310 acres. Not familiar with acreage they have we need to check into this.
Vote recorded in file Hazard Mitigation Plan Update
Submitted By Sharon W. Bennett

	Chapter 4	Chapter 5
Chief Howard Willis-Chair	Yes-AS IS	Yes AS IS
Terri Turner -Co-Chair	Yes w/comments	Yes w/comments
Sharon Bennett	Yes-AS IS	Yes AS IS
Fred Russell	Yes w/comments	Yes w/comments
George Patty	Yes w/comments	Yes w/comments
Scott Gay	Yes AS IS	Yes AS IS
Patricia Cole	Yes AS IS	Yes AS IS
Loriann H. Chancey	Yes AS IS	Yes AS IS
Bill Shanahan	Yes w/comments	Yes w/comments
Jonathan Adriano	Yes AS IS	
Dominick Nutter	Yes AS IS	Yes AS IS
Jack Womack	Yes AS IS	Yes AS IS
Hameed Malik		Yes w/comments
Tom Wiedmeier	Yes w/comments	Yes w/comments
Abie Ladson		Yes w/comments
Rob Sherman	Yes AS IS	Yes AS IS
Scott Hyatt	Yes w/comments	Yes AS IS
Steve Abbott		
Steve Willard	Yes AS IS	
Susan James	Yes w/comments	Yes w/comments
Dennis Jones	Yes AS IS	Yes AS IS
David Brown	Yes AS IS	
Tom Knight	Yes AS IS	
Chief Patrick Clayton	Yes AS IS	
Mie Lucas	Yes AS IS	Yes AS IS
Evan Joseph	Yes AS IS	Yes AS IS
Tom Beck	Yes AS IS	Yes AS IS
Martha Allen	Yes AS IS	Yes AS IS
Jasper Cooke	Yes AS IS	Yes AS IS
Bill Welch	Yes AS IS	Yes AS IS
Ricky Wishard	Yes AS IS	Yes AS IS
Vonda Everett	Yes AS IS	Yes AS IS
Rodney Wright	Rep DOT Vonda replied	
Ricky Lee	Rep for Adriano at meetings	

Minutes: HMPC STAPLEE Subcommittee Meeting

August 15, 2011
Augusta Municipal Building, Room 803, 9:00 A.M. – 12:00 P.M.

The meeting was called to order by Chief Willis at 9:03 A.M.

Subcommittee Members Present:

- HMPC Subcommittee Chairman – Chief Howard Willis; EMA Director / Fire Chief; hwillis@augustaga.gov
- Subcommittee Vice-Chair – Terri Turner; Assistant Zoning & Development Administrator, Augusta-Richmond County Planning Commission; tturner@augustaga.gov
- HMPC Subcommittee Secretary – Sharon Bennett; EMA / LEPC; SWBennett@augustaga.gov
- Jonathan Adriano; Director of Emergency Preparedness, GA Health, District 6; jdadriano@dhr.state.ga.us
- Loriann H. Chancey; City Clerk, City of Blythe; cityofblythe@comcast.net
- Frank Carl; Augusta Ports Authority; frankcarl@knology.net
- Martha Allen; City Clerk, City of Hephzibah ; cityofhephzibah@bellsouth.net
- Mie Lucas; Emergency Services Director, American Red Cross of Augusta; mlucas@arcaug.org
- Dominick Nutter; E-911 Director; dnutter@augustaga.gov
- Bill Shanahan; Deputy Administrator; bshanahan@augustaga.gov
- Susan James; Emergency Management Coordinator, University Hospital; susanj@uh.org
- Randy Wishard; Health Dept.; rewishard@dhr.state.ga.us
- Jack Womack; Fire Marshall, Augusta Fire Department; JWomack2@augustaga.gov

New Business: The members of the HMPC STAPLEE Subcommittee completed the STAPLEE GEMA Worksheet #4 (a) and (b) and the Community Capability Assessment Database entries.

Note: The Results were entered in the STAPLEE Mitigation Database and the Rankings shared with the group on August 29, 2011. The group approved the assessments and rankings on August 31, 2011 (electronic vote) and Community Capability Assessment on September 1, 2011.

Meeting adjourned at 11:55 A.M., August 15, 2011

Submitted By: Sharon W. Bennett Sec. Hazard Mitigation Plan Update

RESOLUTION

WHEREAS the City of Augusta, Georgia, has experienced natural hazards such as drought / extreme heat, earthquake, flooding, tornado / wind storm / hail / lightening, wildfire, and winter storm or has the potential of experiencing such hazards;

WHEREAS the City of Augusta, Georgia, has experienced man-made hazards such as chemical leak / chemical spill / chemical release, dam failure, nuclear plant incident, and terrorism or has the potential of experiencing such hazards;

WHEREAS these hazards have resulted in public safety response, damage to private and public property, and public and private expenditures for clean up and recovery, or have the potential for causing public safety response, damage to private and public property, and public and private expenditures for clean up and recovery;

WHEREAS, the cities of Blythe, and Hephzibah (within the jurisdictional boundaries of Richmond County) have experienced the same or similar hazards and/or have the potential for experiencing such hazards;

WHEREAS, the Robert T. Stafford Disaster Relief and Emergency Assistance Act as amended by the Disaster Mitigation Act of 2000 require local jurisdictions to adopt a mitigation plan in order to be eligible for post-disaster and pre-disaster grants to implement certain mitigation projects; and

WHEREAS the National Flood Insurance Reform Act of 1994 and the Flood Insurance Reform Act of 2004 require local jurisdictions to adopt a mitigation plan in order to be eligible for grants to implement certain flood mitigation projects; and

WHEREAS the planning process supported by the Georgia Emergency Management Agency and required by the Federal Emergency Management Agency offers the opportunity to consider natural hazards and risks, and to identify mitigation actions to reduce future impacts of such hazards; and

WHEREAS the State of Georgia has provided federal mitigation funds to support the development of a Hazard Mitigation Plan; and

WHEREAS the City of Augusta adopted a *Flood Hazard Mitigation Plan* on February 17, 2004; and

WHEREAS the *Hazard Mitigation Plan* for Augusta, Blythe and Hephzibah has previously been developed and adopted by each jurisdiction and approved by FEMA on August 24, 2006. This *Hazard Mitigation Plan* for Augusta, Blythe and Hephzibah superseded the *Flood Hazard Mitigation* previously adopted by the City of Augusta; and

WHEREAS the original *Hazard Mitigation Plan* identified mitigation actions that, over time, would help minimize and reduce safety threats, reduce the costs of natural hazard events, and reduce damage to private and public property; and

WHEREAS as required by the Robert T. Stafford Disaster Relief and Emergency Assistance Act as amended by the Disaster Mitigation Act of 2000, a 5 year *Hazard Mitigation Plan Update* was required to be performed prior to the *Hazard Mitigation Plan* expiry on August 24, 2011; and

WHEREAS, funding for the update of the original *Hazard Mitigation Plan* was secured through an HMGP grant and a Planning Committee / Stakeholders Committee was formed to update the *Hazard Mitigation Plan*; and

WHEREAS, the Planning Committee / Stakeholders Committee met formally on June 14, 2011, July 14, 2011, and July 25, 2011, to update the *Hazard Mitigation Plan* and less formally via electronic reviews, updating and voting during the update process; and

WHEREAS, public meetings were held on July 14, 2011 and July 25, 2011, to update the *Hazard Mitigation Plan*; and

WHEREAS, additional public meetings were held on June 22, 2011 with the ESF-11 Group and on July 12, 2011 for the River Road Committee, to update the *Hazard Mitigation Plan*; and

WHEREAS, a draft *Hazard Mitigation Plan Update* was developed by the consultant, PDM Consulting, Inc., with extensive input from the Planning Committee / Stakeholders Committee, a SubCommittee developed by the Planning Committee / Stakeholders Committee, and extensive public input; and

WHEREAS, the draft *Hazard Mitigation Plan Update* went into a 30 day public review period beginning July 25, 2011 and ending August 24, 2011; and

WHEREAS, the draft *Hazard Mitigation Plan Update* was submitted to the Georgia Emergency Management Agency (GEMA) for initial review; and

WHEREAS, comments were received from the public review period, including comments from City staff; and

WHEREAS, comments were received from the Georgia Emergency Management Agency (GEMA) for the initial review of the *Hazard Mitigation Plan Update*; and

WHEREAS, comments from the public review period (to include comments from the Planning Committee / Stakeholders Committee), comments from City staff, and comments from the Georgia Emergency Management Agency (GEMA) were incorporated into the draft *Hazard Mitigation Plan Update*; and

WHEREAS, the final *Hazard Mitigation Plan Update* was submitted to the Georgia Emergency Management Agency (GEMA) and the Federal Emergency Management Agency (FEMA) for final review and approval; and

WHEREAS, the Georgia Emergency Management Agency (GEMA) and the Federal Emergency Management Agency (FEMA) have indicated that the *Hazard Mitigation Plan Update* is classified as Approved Pending Adoption (APA).

NOW, THEREFORE, BE IT RESOLVED by the Augusta Commission that:

The revised *Hazard Mitigation Plan Update,* more formally titled: *Augusta-Richmond County and the Cities of Blythe and Hephzibah Multi-Jurisdictional Hazard Mitigation Plan 2012-2016* is hereby adopted as an official document of the City of Augusta, Georgia.

PASSED AND ADOPTED by the Commission of Augusta, Georgia, this 17 day of April, 2012.

Deke Copenhaver, Mayor

AGM 4/17/12 6/21/12
Date

Lena Bonner, Clerk of Commission

6/21/12
Date

CITY OF BLYTHE
RESOLUTION PURSUANT TO
THE DISASTER MITIGATION ACT 0F 2000
AUTHORIZING THE ADOPTION OF
THE AUGUSTA-RICHMOND AND THE CITIES OF BLYTHE AND HEPHZIBA MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN 2012-2016

RESOLUTION NO. 2012 -01

WHEREAS, the City of Blythe, Georgia has experienced natural hazards such as drought / extreme heat, earthquake, flooding, tornado / wind storm / hail / lightening, wildfire, and winter storm or has the potential of experiencing such hazards;

WHEREAS, the City of Blythe, Georgia, has experienced man-made hazards such as chemical leak / chemical spill / chemical release, dam failure, nuclear plant incident, and terrorism or has the potential of experiencing such hazards;

WHEREAS these hazards have resulted in public safety response, damage to private and public property, and public and private expenditures for clean up and recovery, or have the potential for causing public safety response, damage to private and public property, and public and private expenditures for clean up and recovery;

WHEREAS, the cities of Augusta-Richmond County, Blythe and Hephzibah (within the jurisdictional boundaries of Richmond County) have experienced the same or similar hazards and/or have the potential for experiencing such hazards;

WHEREAS, the Robert T. Stafford Disaster Relief and Emergency Assistance Act as amended by the Disaster Mitigation Act of 2000 require local jurisdictions to adopt a mitigation plan in order to be eligible for post-disaster and pre-disaster grants to implement certain mitigation projects; and

WHEREAS, the National Flood Insurance Reform Act of 1994 and the Flood Insurance Reform Act of 2004 require local jurisdictions to adopt a mitigation plan in order to be eligible for grants to implement certain flood mitigation projects; and

WHEREAS, the planning process supported by the Georgia Emergency Management Agency and required by the Federal Emergency Management Agency offers the opportunity to consider natural hazards and risks, and to identify mitigation actions to reduce future impacts of such hazards; and

WHEREAS, the State of Georgia has provided federal mitigation funds to support the development of a Hazard Mitigation Plan; and

WHEREAS, the City of Augusta adopted a *Flood Hazard Mitigation Plan* on February 17, 2004; and

WHEREAS, the *Hazard Mitigation Plan* for Augusta, Blythe and Hephzibah has previously been developed and adopted by each jurisdiction and approved by FEMA on August 24, 2006. This *Hazard Mitigation Plan* for Augusta, Blythe and Hephzibah superseded the *Flood Hazard Mitigation* previously adopted by the City of Augusta; and

WHEREAS, the original *Hazard Mitigation Plan* identified mitigation actions that, over time, would help minimize and reduce safety threats, reduce the costs of natural hazard events, and reduce damage to private and public property; and

WHEREAS, as required by the Robert T. Stafford Disaster Relief and Emergency Assistance Act as amended by the Disaster Mitigation Act of 2000, a 5 year *Hazard Mitigation Plan Update* was required to be performed prior to the *Hazard Mitigation Plan* expiry on August 24, 2011; and

WHEREAS, funding for the update of the original *Hazard Mitigation Plan* was secured through an HMGP grant and a Planning Committee / Stakeholders Committee was formed to update the *Hazard Mitigation Plan*; and

WHEREAS, the Planning Committee / Stakeholders Committee met formally on June 14, 2011, July 14, 2011, and July 25, 2011, to update the *Hazard Mitigation Plan* and less formally via electronic reviews, updating and voting during the update process; and

WHEREAS, public meetings were held on July 14, 2011 and July 25, 2011, to update the *Hazard Mitigation Plan*; and

WHEREAS, additional public meetings were held on June 22, 2011 with the ESF-11 Group and on July 12, 2011 for the River Road Committee, to update the *Hazard Mitigation Plan*; and

WHEREAS, a draft *Hazard Mitigation Plan Update* was developed by the consultant, PDM Consulting, Inc., with extensive input from the Planning Committee / Stakeholders Committee, a SubCommittee developed by the Planning Committee / Stakeholders Committee, and extensive public input; and

WHEREAS, the draft *Hazard Mitigation Plan Update* went into a 30 day review period beginning July 25, 2011 and ending August 24, 2011; and

WHEREAS, the draft *Hazard Mitigation Plan Update* was submitted to the Georgia Emergency Management Agency (GEMA) for initial review; and

WHEREAS, comments were received from the public review period, including comments from City staff; and

WHEREAS, comments were received from the Georgia Emergency Management Agency (GEMA) for the initial review of the *Hazard Mitigation Plan Update*; and

WHEREAS, comments from the public review period (to include comments from the Planning Committee / Stakeholders Committee), comments from City staff, and comments from the Georgia Emergency Management Agency (GEMA) were incorporated into the draft *Hazard Mitigation Plan Update*; and

WHEREAS, the final *Hazard Mitigation Plan Update* was submitted to the Georgia Emergency Management Agency (GEMA) and the Federal Emergency Management Agency (FEMA) for final review and approval; and

WHEREAS, the Georgia Emergency Management Agency (GEMA) and the Federal Emergency Management Agency (FEMA) have indicated that the *Hazard Mitigation Plan Update* is classified as Approved Pending Adoption (APA).

NOW, THEREFORE, BE IT RESOLVED by the Blythe City Council that:

The revised *Hazard Mitigation Plan Update*, more formally titled: *Augusta-Richmond County and the Cities of Blythe and Hephzibah Multi-Jurisdictional Hazard Mitigation Plan 2012-2016* is hereby adopted as an official document of the City of Blythe, Georgia.

PASSED AND ADOPTED by the Blythe City Council, this 12th day of March, 2012.

Patricia H. Cole
Mayor

March 12, 2012
Date

Emory A. Myers, Mayor Pro Tem

James G. Adkins, Councilmember

Cindy Parham, Councilmember

Troy Harwell, Councilmember

AS TO FORM:

Loriann H. Chancey
CITY CLERK

RESOLUTION

WHEREAS the City of Hephzibah, Georgia, has experienced natural hazards such as drought / extreme heat, earthquake, flooding, tornado / wind storm / hail / lightening, wildfire, and winter storm or has the potential of experiencing such hazards;

WHEREAS the City of Hephzibah, Georgia, has experienced man-made hazards such as chemical leak / chemical spill / chemical release, dam failure, nuclear plant incident, and terrorism or has the potential of experiencing such hazards;

WHEREAS these hazards have resulted in public safety response, damage to private and public property, and public and private expenditures for cleanup and recovery, or have the potential for causing public safety response, damage to private and public property, and public and private expenditures for cleanup and recovery;

WHEREAS, the cities of Blythe, and Augusta (within the jurisdictional boundaries of Richmond County) have experienced the same or similar hazards and/or have the potential for experiencing such hazards;

WHEREAS, the Robert T. Stafford Disaster Relief and Emergency Assistance Act as amended by the Disaster Mitigation Act of 2000 require local jurisdictions to adopt a mitigation plan in order to be eligible for post-disaster and pre-disaster grants to implement certain mitigation projects; and

WHEREAS the National Flood Insurance Reform Act of 1994 and the Flood Insurance Reform Act of 2004 require local jurisdictions to adopt a mitigation plan in order to be eligible for grants to implement certain flood mitigation projects; and

WHEREAS the planning process supported by the Georgia Emergency Management Agency and required by the Federal Emergency Management Agency offers the opportunity to consider natural hazards and risks, and to identify mitigation actions to reduce future impacts of such hazards; and

WHEREAS the State of Georgia has provided federal mitigation funds to support the development of a Hazard Mitigation Plan; and

WHEREAS the City of Hephzibah adopted a *Flood Hazard Mitigation Plan* on February 17, 2004; and

WHEREAS the *Hazard Mitigation Plan* for Augusta, Blythe and Hephzibah has previously been developed and adopted by each jurisdiction and approved by FEMA on August 24, 2006. This *Hazard Mitigation Plan* for Augusta, Blythe and Hephzibah superseded the *Flood Hazard Mitigation* previously adopted by the City of Augusta;

WHEREAS the original *Hazard Mitigation Plan* identified mitigation actions that, over time, would help minimize and reduce safety threats, reduce the costs of natural hazard events, and reduce damage to private and public property; and

WHEREAS as required by the Robert T. Stafford Disaster Relief and Emergency Assistance Act as amended by the Disaster Mitigation Act of 2000, a 5 year *Hazard Mitigation Plan* update was required to be performed prior to the *Hazard Mitigation Plan* expiry on August 24, 2011.

WHEREAS, funding for the update of the original *Hazard Mitigation Plan* was secured through an HMGP grant and a Planning Committee / Stakeholders Committee was formed to update the *Hazard Mitigation Plan*.

WHEREAS, the Planning Committee / Stakeholders Committee met formally on June 14, 2011, July 14, 2011, and July 25, 2011, to update the *Hazard Mitigation Plan* and less formally via electronic reviews, updating and voting during the update process;

WHEREAS, public meetings were held on July 14, 2011 and July 25, 2011, to update the *Hazard Mitigation Plan*;

WHEREAS, additional public meetings were held on June 22, 2011 with the ESF-11 Group and on July 12, 2011 for the River Road Committee, to update the *Hazard Mitigation Plan*;

WHEREAS, a draft *Hazard Mitigation Plan Update* was developed by the consultant, PMC Inc., with extensive input from the Planning Committee / Stakeholders Committee, a Subcommittee developed by the Planning Committee / Stakeholders Committee, and public input.

WHEREAS, the draft *Hazard Mitigation Plan Update* has gone into a 30 day public review period beginning July 25, 2011 and ending August 24, 2011.

WHEREAS, the draft *Hazard Mitigation Plan Update* has been submitted to the Georgia Emergency Management Agency (GEMA) for initial review.

NOW, THEREFORE, BE IT RESOLVED by the Hephzibah Commission that:

1. The draft *Hazard Mitigation Plan Update* is hereby adopted as an official document of the City of Hephzibah, Georgia.

2. The final version of the *Hazard Mitigation Plan Update* will be adopted at a later date, once public review comments are received and the revised *Hazard Mitigation Plan Update* is sent to the Georgia Emergency Management Agency (GEMA) and the Federal Emergency Management Agency (FEMA) and final approval is received by both agencies.

PASSED AND ADOPTED by the Commission of Hephzibah, Georgia, this _____ day of

_____, 2011.

_____

Robert J. Buchwitz, Commission Chairman

Date: _____

_____
Martha Allen, City Clerk

_____
Date

RESOLUTION

WHEREAS the City of Hephzibah, Georgia, has experienced natural hazards such as drought / extreme heat, earthquake, flooding, tornado / wind storm / hail / lightening, wildfire, and winter storm or has the potential of experiencing such hazards;

WHEREAS the City of Hephzibah, Georgia, has experienced man-made hazards such as chemical leak / chemical spill / chemical release, dam failure, nuclear plant incident, and terrorism or has the potential of experiencing such hazards;

WHEREAS these hazards have resulted in public safety response, damage to private and public property, and public and private expenditures for clean up and recovery, or have the potential for causing public safety response, damage to private and public property, and public and private expenditures for clean up and recovery;

WHEREAS, the cities of Blythe, and Augusta (within the jurisdictional boundaries of Richmond County) have experienced the same or similar hazards and/or have the potential for experiencing such hazards;

WHEREAS, the Robert T. Stafford Disaster Relief and Emergency Assistance Act as amended by the Disaster Mitigation Act of 2000 require local jurisdictions to adopt a mitigation plan in order to be eligible for post-disaster and pre-disaster grants to implement certain mitigation projects; and

WHEREAS the National Flood Insurance Reform Act of 1994 and the Flood Insurance Reform Act of 2004 require local jurisdictions to adopt a mitigation plan in order to be eligible for grants to implement certain flood mitigation projects; and

WHEREAS the planning process supported by the Georgia Emergency Management Agency and required by the Federal Emergency Management Agency offers the opportunity to consider natural hazards and risks, and to identify mitigation actions to reduce future impacts of such hazards; and

WHEREAS the State of Georgia has provided federal mitigation funds to support the development of a Hazard Mitigation Plan; and

WHEREAS the City of Hephzibah adopted a *Flood Hazard Mitigation Plan* on February 17, 2004; and

WHEREAS the *Hazard Mitigation Plan* for Augusta, Blythe and Hephzibah has previously been developed and adopted by each jurisdiction and approved by FEMA on August 24, 2006. This *Hazard Mitigation Plan* for Augusta, Blythe and Hephzibah superseded the *Flood Hazard Mitigation* previously adopted by the City of Augusta;

WHEREAS the original *Hazard Mitigation Plan* identified mitigation actions that, over time, would help minimize and reduce safety threats, reduce the costs of natural hazard events, and reduce damage to private and public property; and

WHEREAS as required by the Robert T. Stafford Disaster Relief and Emergency Assistance Act as amended by the Disaster Mitigation Act of 2000, a 5 year *Hazard Mitigation Plan* update was required to be performed prior to the *Hazard Mitigation Plan* expiry on August 24, 2011.

WHEREAS, funding for the update of the original *Hazard Mitigation Plan* was secured through an HMGP grant and a Planning Committee / Stakeholders Committee was formed to update the *Hazard Mitigation Plan.*

WHEREAS, the Planning Committee / Stakeholders Committee met formally on June 14, 2011, July 14, 2011, and July 25, 2011, to update the *Hazard Mitigation Plan* and less formally via electronic reviews, updating and voting during the update process;

WHEREAS, public meetings were held on July 14, 2011 and July 25, 2011, to update the *Hazard Mitigation Plan*;

WHEREAS, additional public meetings were held on June 22, 2011 with the ESF-11 Group and on July 12, 2011 for the River Road Committee, to update the *Hazard Mitigation Plan*;

WHEREAS, a draft *Hazard Mitigation Plan Update* was developed by the consultant, PMC Inc., with extensive input from the Planning Committee / Stakeholders Committee, a SubCommittee developed by the Planning Committee / Stakeholders Committee, and public input.

WHEREAS, the draft *Hazard Mitigation Plan Update* has gone into a 30 day public review period beginning July 25, 2011 and ending August 24, 2011; and

WHEREAS, comments have been received from the public review period, including comments from City staff; and

WHEREAS, comments have been received from the initial review by the Georgia Emergency Management Agency (GEMA). These review comments must be included in the draft Hazard Mitigation Plan Update that must now be submitted to the Georgia Emergency Management Agency (GEMA) and the Federal Emergency Management Agency (FEMA) for final review and approval.

NOW, THEREFORE, BE IT RESOLVED by the Hephzibah Commission that:

1. The draft *Hazard Mitigation Plan Update* is hereby adopted as an official document of the City of Hephzibah, Georgia.

2. The final version of the *Hazard Mitigation Plan Update* will be adopted at a later date, once public review comments are received and the revised *Hazard Mitigation Plan Update* is sent to the Georgia Emergency Management Agency (GEMA) and the Federal Emergency Management Agency (FEMA) and final approval is received by both agencies.

PASSED AND ADOPTED by the Commission of Hephzibah, Georgia, this 30th day of July, 2012.

Robert J. Buchwitz, Commission Chairman
Date: July 30, 2012

Martha Allen, City Clerk

July 30, 2012
Date

Appendix F: Glossary of Hazard Mitigation Terms

Glossary of Terms

- **Acquisition:** Local governments can acquire lands in high hazard areas through conservation easements, purchase of development rights, or outright purchase of property.
- **Anchoring:** Special connections made to ensure that a building will not float off, blow off or be pushed off its foundation during a flood or storm.
- **Asset:** Any manmade or natural feature that has value, including, but not limited to people; buildings; infrastructure like bridges, roads, and sewer and water systems; lifelines like electricity and communication resources; or environmental, cultural, or recreational features like parks, dunes, wetlands, or landmarks
- **Base Flood Elevation (BFE):** Elevation of the base flood in relation to a specified datum, such as the National Geodetic Vertical Datum of 1929. The Base Flood Elevation is used as the standard for the National Flood Insurance Program.
- **Base Flood:** Flood that has a 1 percent probability of being equaled or exceeded in any given year. Also known as the 100-year flood.
- **Base Floodplain:** The floodplain that would be inundated by a one-percent chance (100-year) flood.
- **Basement:** Any floor level below grade.
- **Bedrock:** The solid rock that underlies loose material, such as soil, sand, clay, or gravel.
- **Building Code:** The regulations adopted by a local governing body setting forth standards for the construction, addition, modification, and repair of buildings and other structures for the purpose of protecting the health, safety, and general welfare of the public.
- **Building:** A structure that is walled and roofed, principally above ground and permanently affixed to a site. The term includes a manufactured home on a permanent foundation on which the wheels and axles carry no weight.
- **Community Rating System (CRS):** A National Flood Insurance Program (NFIP) that provides incentives for NFIP communities to complete activities that reduce flood hazard risk. When the community completes specified activities, the insurance premiums of policyholders in these communities are reduced.
- **Community:** Community means any State or area or political subdivision thereof, or any Indian tribe or authorized tribal organization or Alaska Native village or authorized native organization, which has the authority to adopt and enforce floodplain management regulations for the areas within its jurisdiction.
- **Computer-Aided Design and Drafting (CADD):** A computerized system enabling quick and accurate electronic 2-D and 3-D drawings, topographic mapping, site plans, and profile/cross-section drawings.
- **Consequences:** The damages, injuries, and loss of life, property, environment, and business that can be quantified by some unit of measure, often in economic or financial terms.
- **Contour:** A line of equal ground elevation on a topographic (contour) map.
- **Critical Facility:** Facilities that are critical to the health and welfare of the population and that are especially important during and following hazard events. Critical facilities include shelters, police and fire stations, schools, childcare centers, senior citizen centers, hospitals, disability centers, vehicle and equipment storage facilities, emergency operations centers, and city hall. The term also includes buildings or locations that, if damaged, would create

secondary disasters, such as hazardous materials facilities, vulnerable facilities, day care centers, nursing homes, and housing likely to contain occupants who are not very mobile. Other critical city infrastructure such as telephone exchanges and water treatment plants are referred to as lifelines. See Lifelines.

- **Dam Breach Inundation Area:** The area flooded by a dam failure or programmed release.
- **Debris:** The scattered remains of assets broken or destroyed in a hazard event. Debris caused by a wind or water hazard event can cause additional damage to other assets.
- **Declaration:** The President‘s decision that a major disaster qualifies for federal assistance under the Stafford Act.
- **Designated Floodway:** The channel of a stream and that portion of the adjoining floodplain designated by a regulatory agency to be kept free of further development to provide for unobstructed passage of flood flows.
- **Development:** Any man-made change to real estate.
- **Digitize:** To convert electronically points, lines, and area boundaries shown on maps into x, y coordinates (e.g., latitude and longitude, universal transverse mercator (UTM), or table coordinates) for use in computer applications.
- **Disaster Mitigation Act Of 2000 (DMA 2000):** DMA 2000 (public Law 106-390) is the latest legislation to improve the planning process. It was signed into law on October 10, 2000. This new legislation reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur.
- **Disaster Resistant Communities:** A community-based initiative that seeks to reduce vulnerability to natural hazards for the entire designated area through mitigation actions. This approach requires cooperation between individuals and the business sectors of a community to implement effective mitigation strategies.
- **Duration:** How long a hazard event lasts.
- **Earthquake:** A sudden motion or trembling that is caused by a release of strain accumulated within or along the edge of earth's tectonic plates.
- **Elevation:** The placement of a structure above flood level to minimize or prevent flood damages.
- **Emergency Operations Center (EOC):** A facility that houses communications equipment that is used to coordinate the response to a disaster or emergency.
- **Emergency Operations Plan (EOP):** Sets forth actions to be taken by State or local governments for response to emergencies or major disasters.
- **Emergency Response Plan:** A document that contains information on the actions that may be taken by a governmental jurisdiction to protect people and property before, during, and after a disaster.
- **Emergency:** Any hurricane, tornado, storm, flood, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, drought, fire, explosion, or other catastrophe in any part of the United States which requires federal emergency assistance to supplement State and local efforts to save lives and protect property, public health and safety, or to avert or lessen the threat of a disaster. Defined in Title V of Public Law 93-288, Section 102(1).
- **Erosion:** Wearing away of the land surface by detachment and movement of soil and rock fragments, during a flood or storm or over a period of years, through the action of wind, water, or other geologic processes.
- **Extent:** The size of an area affected by a hazard or hazard event.
- **Fault:** A fracture in the continuity of a rock formation caused by a shifting or dislodging of the earth's crust, in which adjacent surfaces are differentially displaced parallel to the plane of fracture.
- **Federal Emergency Management Agency (FEMA):** The independent

agency created in 1978 to provide a single point of accountability for all Federal activities related to disaster mitigation and emergency preparedness, response and recovery.

- **FIPS:** Stands for Federal Information Processing Standards. Under the Information Technology Management Reform Act (Public Law 104-106), the Secretary of Commerce approves standards and guidelines that are developed by the National Institute of Standards and Technology (NIST) for Federal computer systems. These standards and guidelines are issued by NIST as Federal Information Processing Standards (FIPS) for use government-wide. NIST develops FIPS when there are compelling Federal government requirements such as for security and interoperability and there are no acceptable industry standards or solutions.
- **Fire Potential Index (FPI):** Developed by United States Geological Survey (USGS) and United States Forest Service (USFS) to assess and map fire hazard potential over broad areas. Based on such geographic information, national policy makers and on-the-ground fire managers established priorities for prevention activities in the defined area to reduce the risk of managed and wildfire ignition and spread. Prediction of fire hazard shortens the time between fire ignition and initial attack by enabling fire managers to pre-allocate and stage suppression forces to high fire risk areas.
- **Flash Flood:** A flood event occurring with little or no warning where water levels rise at an extremely fast rate.
- **Flood:** A general and temporary condition of partial or complete inundation of normally dry land areas from (1) the overflow of inland or tidal waters, (2) the unusual and rapid accumulation or runoff of surface waters from any source, or (3) mudflows or the sudden collapse of shoreline land.
- **Flood Control:** Keeping flood waters away from specific developments or populated areas by the construction of flood storage reservoirs, channel alterations, dikes and levees, bypass channels, or other engineering works.
- **Flood Depth:** Height of the flood water surface above the ground surface.
- **Flood Disaster Assistance:** Flood disaster assistance includes development of comprehensive preparedness and recovery plans, program capabilities, and organization of Federal agencies and of State and local governments to mitigate the adverse effects of disastrous floods. It may include maximum hazard reduction, avoidance, and mitigation measures, as well policies, procedures, and eligibility criteria for Federal grant or loan assistance to State and local governments, private organizations, or individuals as the result of the major disaster.
- **Flood Elevation:** Elevation of the water surface above an established datum, e.g. National Geodetic Vertical Datum of 1929, North American Vertical Datum of 1988, or Mean Sea Level.
- **Flood Fringe:** That portion of the floodplain that lies beyond the floodway and serves as a temporary storage area for floodwaters during a flood. This section receives waters that are shallower and of lower velocities than those of the floodway.
- **Flood Hazard Area:** The area shown to be inundated by a flood of a given magnitude on a map.
- **Flood Insurance Rate Map (FIRM):** Map of a community, prepared by the Federal Emergency Management Agency, which shows both the special flood hazard areas and the risk premium zones applicable to the community.
- **Flood Insurance Study (FIS):** A study that provides an examination, evaluation, and determination of flood hazards and, if appropriate, corresponding water surface elevations in a community or communities.
- **Flood Mitigation Assistance Program (FMA):** A planning and project

implementation grant program funded by the National Flood Insurance Program. Provides pre-disaster grants to State and local governments for both planning and implementation of mitigation strategies. Grant funds are made available from NFIP insurance premiums, and therefore are only available to communities participating in the NFIP.

- **Flood of Record:** The highest known flood level for the area, as recorded in historical documents.
- **Floodplain:** Any land area, including watercourse, susceptible to partial or complete inundation by water from any source.
- **Floodproofing:** Protective measures added to or incorporated in a building to prevent or minimize flood damage.
    - Dry floodproofing "measures are designed to keep water from entering a building."
    - Wet floodproofing "measures minimize damage to a structure and its contents from water that is allowed into a building."
- **Floodway:** The stream channel and that portion of the adjacent floodplain which must remain open to permit conveyance of the base flood. Floodwaters are generally the swiftest and deepest in the floodway. The floodway should remain clear of buildings and impediments to the flow of water.
- **Freeboard:** A margin of safety added to a protection measure to account for waves, debris, miscalculations, lack of scientific data, floodplain fill, or upstream development.
- **Frequency:** A measure of how often events of a particular magnitude are expected to occur. Frequency describes how often a hazard of a specific magnitude, duration, and/or extent typically occurs, on average. Statistically, a hazard with a 100-year recurrence interval is expected to occur once every 100 years on average, and would have a 1 percent chance œ its probability œ of happening in any given year. The reliability of this information varies depending on the kind of hazard being considered.
- **Fujita Scale of Tornado Intensity:** Rates tornadoes with numeric values from F0 to F5 based on tornado wind speed and damage sustained. An F0 indicates minimal damage such as broken tree limbs or signs, while an F5 indicates severe damage sustained.
- **Functional Downtime:** The average time (in days) during which a function (business or service) is unable to provide its services due to a hazard event.
- **Geographic Area Impacted:** The physical area in which the effects of the hazard are experienced.
- **Geographic Information System (GIS):** A computer software application that relates physical features on the earth to a database to be used for mapping and analysis.
- **Georgia Department of Civil Emergency Management (GDCEM):** The State department responsible for hazard mitigation, community preparedness, emergency response, and disaster recovery.
- **Georgia Water Resources Board (GWRB):** The State agency responsible for administration of the National Flood Insurance Program, and the dam safety program.
- **Ground Motion:** The vibration or shaking of the ground during an earthquake. When a fault ruptures, seismic waves radiate, causing the ground to vibrate. The severity of the vibration increases with the amount of energy released and decreases with distance from the causative fault or epicenter, but soft soils can further amplify ground motions.
- **Hazard Event:** A specific occurrence of a particular type of hazard.
- **Hazard Identification:** The process of defining and describing a hazard, including its physical characteristics, magnitude and severity, probability and

frequency, causative factors, and locations or areas affected.

- **Hazard Mitigation Grant Program (HMGP):** Authorized under Section 404 of the Stafford Act; a FEMA disaster assistance grant program that funds mitigation projects in conformance with post-disaster mitigation plans required under Section 409 of the Stafford Act. The program is available only after a Presidential disaster declaration.
- **Hazard Mitigation Plan:** The plan resulting from a systematic evaluation of the nature and extent of vulnerability to the effects of natural hazards present in society that includes the actions needed to minimize future vulnerability to hazards. Section 409 of the Stafford Act requires the identification and evaluation of mitigation opportunities, and that all repairs are made to applicable codes and standards, as condition for receiving Federal disaster assistance. Enacted to encourage identification and mitigation of hazards at all levels of government.
- **Hazard Mitigation:** Sustained actions taken to reduce or eliminate long-term risk to human life and property from natural and technological hazards and their effects. Note that this emphasis on long-term risk distinguishes mitigation from actions geared primarily to emergency preparedness and short-term recovery.
- **Hazard Profile:** A description of the physical characteristics of hazards and a determination of various descriptors including magnitude, duration, frequency, probability, and extent. In most cases, a community can most easily use these descriptors when they are recorded and displayed as maps.
- **Hazard:** A source of potential danger or adverse condition. An event or physical condition that has the potential to cause fatalities, injuries, property and infrastructure damage, agriculture loss, damage to the environment, interruption of business, or other types of harm or loss. Hazards, as defined in this study, will include naturally occurring events such as floods, dam failures, levee failures, tornadoes, high winds, hailstorms, lightning, winter storms, extreme heat, drought, expansive soils, urban fires, wildfires that strike populated areas, and earthquakes. A natural event is a hazard when it has the potential to harm people or property. For purposes of this study, hazardous materials events are also included.
- **HAZUS - MH® (Hazards U.S.):** A GIS-based nationally standardized earthquake loss estimation tool developed by FEMA.
- **Hydrology:** The science of dealing with the waters of the earth. A flood discharge is developed by a hydrologic study.
    - **Infrastructure:** The public services of a community that have a direct impact on the quality of life. Infrastructure includes communication technology such as phone lines or Internet access, vital services such as public water supplies and sewer treatment facilities, and includes an area's transportation system such as airports, heliports; highways, bridges, tunnels, roadbeds, overpasses, railways, bridges, rail yards, depots, and waterways, canals, locks, and regional dams.
- **Insurance Service Office, Inc. (ISO):** An insurance organization that administers several programs that rate a community‘s hazard mitigation activities.
- **Intensity:** A measure of the effects of a hazard event at a particular place.
- **Landslide:** Downward movement of a slope and materials under the force of gravity.
- **Lifelines:** Transportation and utility systems that are essential to the function of a region and to the well-being of its inhabitants. Transportation systems include highways, air, rail, and waterways, ports, and harbors. Utility systems include electric power, gas and liquid fuels, telecommunications, water, and wastewater.

- **Liquefaction:** The phenomenon that occurs when ground shaking causes loose soils to lose strength and act like viscous fluid. Liquefaction causes two types of ground failure: lateral spread and loss of bearing strength.
- **Lowest Floor:** Under the NFIP, the lowest floor of the lowest enclosed area (including basement) of a structure.
- **Magnitude:** A measure of the strength of a hazard event. The magnitude (also referred to as severity) of a given hazard event is usually determined using technical measures specific to the hazard.
- **Mitigation Plan:** A systematic evaluation of the nature and extent of vulnerability to the effects of natural hazards typically present in the state and includes a description of actions to minimize future vulnerability to hazards.
- **Mitigation:** Sustained action taken to reduce or eliminate the long-term risk to human life and property from natural and technological hazards and their effects. Note that this emphasis on long-term risk distinguishes mitigation from actions geared primarily to emergency preparedness and short-term recovery (Burby, 1998).
- **National Flood Insurance Program (NFIP):** A federal program created by Congress in 1968 that provides the availability of flood insurance to communities in exchange for the adoption and enforcement of a minimum floodplain management ordinance specified in 44 CFR §60.3. The ordinance regulates new and substantially damaged or improved development in identified flood hazard areas.
- **National Geodetic Vertical Datum of 1929 (NGVD):** Datum established in 1929 and used in the NFIP as a basis for measuring flood, ground, and structural elevations, previously referred to as Sea Level Datum or Mean Sea Level. The Base Flood Elevations shown on most of the Flood Insurance Rate Maps issued by the Federal Emergency Management Agency are referenced to NGVD.
- **National Weather Service (NWS):** Prepares and issues flood, severe weather, and coastal storm warnings and can provide technical assistance to Federal and state entities in preparing weather and flood warning plans.
- **One Hundred (100)-Year Flood:** The flood elevation that has a one-percent chance of being equaled or exceeded in any given year. It is also known as the base flood.
- **Permeability:** The property of soil or rock that allows water to pass through it.
- **Planimetric:** Describes maps that indicate only man-made features like buildings.
- **Planning for Post-Disaster Reconstruction:** The process of planning (preferably prior to an actual disaster) those steps the community will take to implement long-term reconstruction with one of the primary goals being to reduce or minimize its vulnerability to future disasters. These measures can include a wide variety of land-use planning tools, such as acquisition, design review, zoning, and subdivision review procedures. It can also involve coordination with other types of plans and agencies but is distinct from planning for emergency operations, such as restoration of utility services and basic infrastructure.
- **Planning:** The act or process of making or carrying out plans; the establishment of goals, policies and procedures for a social or economic unit.
- **Preparedness:** Activities to ensure that people are ready for a disaster and respond to it effectively. Preparedness requires figuring out what will be done if essential services break down, developing a plan for contingencies, and practicing the plan.
- **Probability:** A statistical measure of the likelihood that a hazard event will occur.
- **Project Impact:** A program that encourages business, government agencies

and the public to work together to build disaster-resistant communities.

- **Reconstruction:** The long-term process of rebuilding the community's destroyed or damaged buildings, public facilities, or other structures.
- **Recovery:** The process of restoring normal public or utility services following a disaster, perhaps starting during but extending beyond the emergency period to that point when the vast majority of such services, including electricity, water, communications, and public transportation have resumed normal operations. Recovery activities necessary to rebuild after a disaster include rebuilding homes, businesses and public facilities, clearing debris, repairing roads and bridges, and restoring water, sewer and other essential services. Short-term recovery does not include the reconstruction of the built environment, although reconstruction may commence during this period.
- **Recurrence Interval:** The time between hazard events of similar size in a given location. It is based on the probability that the given event will be equaled or exceeded in any given year.
- **Regulatory Power:** Local jurisdictions have the authority to regulate certain activities in their jurisdiction. With respect to mitigation planning, the focus is on such things as regulating land use development and construction through zoning, subdivision regulations, design standards, and floodplain regulations.
- **Relocation:** The moving of a structure from a flood area to a new location, normally to one where there is no threat of flooding.
- **Repetitive Loss Property:** A property that is currently insured for which two or more National Flood Insurance Program losses (occurring more than ten days apart) of at least $1000 each have been paid within any 10year period since 1978. While Repetitive Loss Properties constitute only 2% of insured properties, they account for 40% of flood damage claims against the NFIP.
- **Replacement Value:** The cost of rebuilding a structure. This is usually expressed in terms of cost per square foot, and reflects the present-day cost of labor and materials to construct a building of a particular size, type and quality.
- **Response:** The actions taken during an event to address immediate life and safety needs and minimize further damage to properties.
- **Retrofitting:** Modifications to a building or other structure to reduce its susceptibility to damage by a hazard.
- **Richter Scale:** A numerical scale of earthquake magnitude devised by seismologist C.F. Richter in 1935.
- **Risk Assessment:** A process or method for evaluating risk associated with a specific hazard and defined in terms of probability and frequency of occurrence, magnitude and severity, exposure and consequences. Also defined as:
    - The process of measuring the potential loss of life, personal property, housing, public facilities, equipment, and infrastructure; lost jobs, business earnings, and lost revenues, as well as indirect losses caused by interruption of business and production; and the public cost of planning, preparedness, mitigation, response, and recovery. (Burby, 1998).
- **Risk:** The estimated impact that a hazard would have on people, services, facilities, and structures in a community; the likelihood of a hazard event resulting in an adverse condition that causes injury or damage. Risk is often expressed in relative terms such as a high, moderate or low likelihood of sustaining damage above a particular threshold due to a specific type of hazard event. It also can be expressed in terms of potential monetary losses associated with the intensity of the hazard.
- **Risk Factor Approach – Definitions of Risk :**
    - High Risk (RF = 3.0 or higher)
        - Probability is Highly Likely or Likely
        - Impact is Critical or Catastrophic

        - Spatial Extent is Large
        - Warning Time is Less than 6 hours
        - Duration is More than 1 week
    - Moderate Risk (RF = 2.0 – 2.9)
        - Probability is possible
        - Impact is limited
        - Spatial Extent is small
        - Warning Time is
        - Duration is less than 1 week
    - Low Risk (RF = 0.1 – 1.9)
        - Probability is unlikely
        - Impact is Minor
        - Spatial Extent is Negligible
        - Warning Time is more than 24 hours
        - Duration is less than 6 hours
- **Riverine:** Of or produced by a river.
- **Runoff:** That portion of precipitation that is not intercepted by vegetation, absorbed by land surface, or evaporated, and thus flows overland into a depression, stream, lake, or ocean (runoff, called immediate subsurface runoff, also takes place in the upper layers of soil).
- **Scale**: A proportion used in determining a dimensional relationship; the ratio of the distance between two points on a map and the actual distance between the two points on the earth's surface.
- **Scarp:** A steep slope.
- **Scour:** Removal of soil or fill material by the flow of flood waters. The term is frequently used to describe storm-induced, localized conical erosion around pilings and other foundation supports where the obstruction of flow increases turbulence.
- **Seismicity:** Describes the likelihood of an area being subject to earthquakes.
- **Special Flood Hazard Area (SFHA):** An area within a floodplain having a 1 percent or greater chance of flood occurrence in any given year (100year floodplain); represented on Flood Insurance Rate Maps by darkly shaded areas with zone designations that include the letter A or V.
- **Stafford Act:** The Robert T. Stafford Disaster Relief and Emergency Assistance Act, PL 100 œ 107 was signed into law November 23, 1988 and amended the Disaster Relief Act of 1974, PL 93-288. The Stafford Act is the statutory authority for most Federal disaster response activities, especially as they pertain to FEMA and its programs.
- **Stakeholder:** Individual or group that will be affected in any way by an action or policy. They include businesses, private organizations, and citizens.
- **State Hazard Mitigation Officer (SHMO):** The representative of state government who is the primary point of contact with FEMA, other state and Federal agencies, and local units of government in the planning and implementation of pre- and post-disaster mitigation activities.
- **State Hazard Mitigation Team:** Composed of key State agency representatives, the team evaluates hazards, identifies strategies, coordinates resources, and implements measures that will reduce the vulnerability of people and property to damage from hazards.
- **Stormwater Detention:** The storing of stormwater runoff for release at a restricted rate after the storm subsides, or the flood crest passes.
- **Stormwater Management:** Efforts to reduce the impact of stormwater or snowmelt runoff on flooding and water quality.
- **Stream:** A body of water flowing in a natural surface channel. Flow may be continuous or only during wet periods. Streams that flow only during wet

periods are termed —intermittent streams."

- **Structure:** Something constructed. (see also Building)
- **Subsidence:** Sinking of the land surface, usually due to withdrawals of underground water, oil, or minerals.
- **Substantial Damage:** Damage of any origin sustained by a structure in a Special Flood Hazard Area whereby the cost of restoring the structure to its before-damaged condition would equal or exceeds 50 percent of the market value of the structure before the damage.
- **Surface Faulting:** The differential movement of two sides of a fracture œ in other words, the location where the ground breaks apart. The length, width, and displacement of the ground characterize surface faults.
- **Tectonic Plate:** Torsionally rigid, thin segments of the earth's lithosphere that may be assumed to move horizontally and adjoin other plates. It is the friction between plate boundaries that cause seismic activity.
- **Topographic:** Characterizes maps that show natural features and indicate the physical shape of the land using contour lines. These maps may also include man-made features.
- **Tornado:** A violently rotating column of air extending from a thunderstorm to the ground.
- **Variance:** Variance means a grant of relief by a community from the terms of a floodplain management regulation.
- Venting: A system designed to allow floodwaters to enter an enclosure, usually the interior of foundation walls, so that the rising water does not create a dangerous differential in hydrostatic pressure. This is usually achieved through small openings in the wall, such as a missing or rotated brick or concrete block or small pipe.
- **Vulnerability Assessment:** The extent of injury and damage that may result from a hazard event of a given intensity in a given area. The vulnerability assessment should address impacts of hazard events on the existing and future built environment.
- **Vulnerability:** Describes how exposed or susceptible to damage an asset is. Vulnerability depends on an asset's construction, contents, and the economic value of its functions. Like indirect damages, the vulnerability of one element of the community is often related to the vulnerability of another. For example, many businesses depend on uninterrupted electrical power œ if an electric substation is flooded, it will affect not only the substation itself, but a number of businesses as well. Often, indirect effects can be much more widespread and damaging than direct ones.
- **Water Table:** The uppermost zone of water saturation in the ground.
- **Watercourse:** A natural or artificial channel in which a flow of water occurs either continually or intermittently.
- **Watershed:** An area that drains to a single point. In a natural basin, this is the area contributing flow to a given place or stream.
- **Wetlands:** Areas that are inundated or saturated at a frequency and for a duration sufficient to support a prevalence of vegetative or aquatic life requiring saturated or seasonally saturated soil conditions for growth and reproduction.
- **Wildfire:** An uncontrolled fire spreading through vegetative fuels, exposing and possibly consuming structures.
- **Zone:** A geographical area shown on a Flood Insurance Rate Map (FIRM) that reflects the severity or type of flooding in the area.
- **Zoning Ordinance:** An ordinance under the State or local government's police power that divides an area into districts and, within each district, regulates the use of land and buildings, height and bulk of buildings or other structures, and the density of population.

APPENDIX G: COMMUNITY PROFILES

Augusta - Richmond County Planning Area Profile.
Maps, engineering study, additional data were produced where appropriate.

Location
Augusta, Georgia, located in the east central section of the state, is approximately 150 miles east of Atlanta on Interstate 20. The Savannah River serves as the boundary between Augusta and Aiken County, South Carolina. Augusta's current population is about 200,000. Neighboring Columbia County is home to about 100,000. Along with several other Georgia and South Carolina counties the region is known as the Central Savannah River Area commonly referred to as the CSRA and is home to approximately half a million people. Augusta is Georgia's second oldest and second largest city, founded during the British colonial period as trading outpost. (**Source**: Augusta, Ga. Official Website: http://www.augustaga.gov/index.aspx?nid=397).

Augusta - Richmond County History

Augusta has a rich history dating as far back as the early 1700s. The settlement was established in 1736 by British General James Oglethorpe, and named in honor of the bride of Frederick Louis, Prince of Wales. Built on the flat slopes of the Savannah River, in the area now known as Summerville, Augusta was also home to many neighboring tribes of Creek and Cherokee Indians. A pivotal site during the Revolutionary and Civil Wars, Augusta also boasts the only structure ever built by the Confederate States of America, the site of the old Confederate Powderworks.

With the construction of the Augusta Canal in 1847, Augusta became the second largest inland cotton market in the world during the cotton boom. Augusta has nine neighborhoods on the National Register of Historic Places, and several historic monuments and cemeteries.

Augusta served as the state capital of Georgia from 1785 until 1795, and has many historically significant homes and buildings, such as the Cotton Exchange, established in 1872; the boyhood home of Woodrow Wilson (28th president of the United States); Ezekiel Harris House (1797); George Walton home (signer of the Declaration of Independence) and Springfield Baptist Church, the oldest African American church in America.

Springfield Historic District Mitigation
Recent road improvements in downtown Augusta have brought attention to the Springfield Historic District. For additional information click here.

In 1996 the City of Augusta consolidated with Richmond County to form Augusta-Richmond County. This consolidated governing body consists of a Mayor and 10 Augusta-Richmond County commissioners. Augusta-Richmond County is one of only three consolidated governments in Georgia. Augusta is perhaps best known as home of the Masters Golf Tournament held the first full week in April. The area is also a center for medicine, manufacturing, and military.

History of Blythe

The history of Blythe is an important factor to the city's residents. Beginning as a farming community in the early 1800s, it grew when the railroad was built in 1881. The current city, incorporated in 1920, includes about 230 households (760 residents) within its 2.84 square miles of area (2005 - 2009 estimate). Located in the southwest corner of Augusta, GA, Blythe is essentially a residential community for nearby employment centers, including Fort Gordon. The city is partially in Burke County.

History of Hephzibah

The Hephzibah area was originally inhabited by the Uchees Indian tribe, one of the minor tribes of the Creeks. The first land grants were made in the mid-1700s. The first community, organized around the Hephzibah Baptist Association, initially was named Brothersville for three brothers of the Anderson family who built homes in the early 1800s. **WHAT IT MEANS:** "In her is my delight." In the Bible, Hephzibah was the wife of Hezekiah. The City, chartered by the General Assembly in 1870, is located in the southern part of Richmond County. Hephzibah is essentially a residential community for nearby employment centers, including Fort Gordon. The City's 2005 - 2009 estimated population of 4,500 includes about 1,500 households.

Climate

According to Köppen classification, Augusta has a humid subtropical climate. The city experiences mild winters and a humid summer. The average high temperature for the summer months is 90.6 °F (32.6 °C). Summer daytime temperatures can soar to 100 or above. The average low temperature is 67.8 °F (19.9 °C). The average high temperature for the winter months is 58.9 °F (14.9 °C); the average low temperature is 34.4 °F (1.3 °C).

Snowfall is not nearly as common as in Atlanta, due largely to Augusta's elevation, with downtown Augusta being about 900 feet lower than downtown Atlanta. Still, snow flurries are typically seen annually. Freezing rain is also a threat in wintertime.

Augusta-Richmond County has a relatively mild climate characterized by long hot summers and short cool winters. Prevailing winds are from the southeast and southwest, bringing in moist tropical air from the Atlantic Ocean and the Gulf of Mexico. In summer the average temperature is 79 degrees, and the average daily high exceeds 90 degrees F in June, July and August. In winter the average temperature is 47 degrees F, and the average daily minimum temperature is 35 degrees. Total annual precipitation is 46 inches, with 23 inches falling in April through September. Annual precipitation amounts have been below normal for the last 50 years. The average relative humidity in mid afternoon is about 50 percent. Humidity is higher at night, and the average at dawn is about 90 percent.

Climate data for Augusta

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Record high °F (°C)	84 (28.9)	86 (30)	93 (33.9)	96 (35.6)	100 (37.8)	105 (40.6)	107 (41.7)	112 (44.4)	106 (41.1)	97 (36.1)	90 (32.2)	82 (27.8)	112 (44.4)
Average high °F (°C)	56 (13.3)	61 (16.1)	69 (20.6)	77 (25)	84 (28.9)	90 (32.2)	92 (33.3)	90 (32.2)	85 (29.4)	77 (25)	68 (20)	59 (15)	76 (24.4)
Average low °F (°C)	33 (0.6)	36 (2.2)	43 (6.1)	48 (8.9)	57 (13.9)	65 (18.3)	70 (21.1)	68 (20)	62 (16.7)	50 (10)	41 (5)	35 (1.7)	51 (10.6)
Record low °F (°C)	-1 (-18.3)	3 (-16.1)	12 (-11.1)	26 (-3.3)	35 (1.7)	46 (7.8)	55 (12.8)	52 (11.1)	36 (2.2)	22 (-5.6)	11 (-11.7)	5 (-15)	-1 (-18.3)
Precipitation inches (mm)	4.50 (114.3)	4.11 (104.4)	4.61 (117.1)	2.94 (74.7)	3.07 (78)	4.19 (106.4)	4.07 (103.4)	4.48 (113.8)	3.59 (91.2)	3.20 (81.3)	2.68 (68.1)	3.14 (79.8)	3.72 (94.5)

Source: The Weather Channel[11]

Location and Topography

Augusta, the county seat for Richmond County, is located in east central Georgia adjacent to the state's border with South Carolina. There are two other incorporated places in Richmond County, the city of Hephzibah and the city of Blythe. Augusta is a central city in the Augusta-Richmond County, GA-SC Metropolitan Statistical Area (MSA). Other counties in the MSA are Columbia, McDuffie and Burke in Georgia and Aiken and Edgefield in South Carolina. Burke County was added to the MSA in 2003.

Richmond County is situated in three major land resource areas: the Southern Piedmont, the Carolina and Georgia Sand Hills, and the Southern Coastal Plain. The Southern Piedmont covers the extreme northern part of

the county and consists of broad to narrow ridgetops and long irregular hillsides bisected by numerous small winding drainageways. The Carolina and Georgia Sand Hills are located in the northern and western parts of the county and separate the Southern Piedmont from the Southern Coastal Plain. The Southern Coastal Plain covers the southern and southeastern parts of the county and is characterized by broad ridgetops and hillsides extending to drainageways. Nearly level floodplains of the Savannah River are located in the eastern and northern parts of the county and on the narrower basins of its tributaries.

Elevations range between 100 and 140 feet along the Savannah River and 500 feet or more on high ridges on Fort Gordon. More than half of the total land area has a slope of less than 5%, and more than 85% of the land has less than 10% slope. Less than 2% of the land area has slope greater than 15%. The steepest slopes are found along Butler, Spirit and Little Spirit Creeks. The majority of areas with steep slopes are either within floodplains, which are regulated by local ordinance, or are located on Fort Gordon.

Natural resources

Augusta-Richmond County is located in east central Georgia next to the Savannah River. The Savannah River separates Georgia from the neighboring state of South Carolina. Adjoining counties include Columbia and McDuffie to the north and west and Burke and Jefferson to the south. Richmond County occupies a land area of 207,386 acres, or 324.04 square miles, plus 2,823 acres (4.41 sq. mi.) of water area. Augusta accounts for approximately 93% of the total acreage in the county. Richmond County straddles the "Fall Line", a geologic boundary following the Appalachian Mountain range from Alabama to New York. In Georgia and South Carolina the Fall Line separates the Piedmont from the Coastal Plain. The Savannah River and its tributaries drain most of the county.

Soils

Soils in Richmond County are grouped into eight (8) associations. A soil association is a landscape that has a distinctive proportional pattern of soils. A soil association usually consists of one or more major soils, for which it is named, and at least one minor soil. Soils in one association may also occur in another, but in a different pattern.

Soils on ridgetops and hillsides of the Southern Piedmont: well-drained soils on very gently sloping and sloping ridgetops and hillsides. Slopes range from 2 to 15 percent. The soils have a loamy surface layer and predominantly firm clayey or loamy subsoil.

1. Georgeville-Wedowee - Very gently sloping to sloping, well drained soils that have a loamy surface layer and predominantly firm clayey or loamy subsoil. Moderate permeability limits the use of these soils for septic tanks absorption fields. These soils account for 3 percent of all soils and are found in the northeastern part of the county. The areas are a combination of woods, residential subdivisions, shopping centers and industry.

Soils on ridgetops and hillsides of the Sand Hills: well-drained and excessively drained soils on very gently sloping and gently sloping ridgetops and hillsides. Slopes range from 1 to 10 percent. The soils have a thick sandy surface layer and friable loamy subsoil and others that are sandy throughout.

2. Troup -Lakeland - Very gently sloping and gently sloping, well drained soils that have a thick sandy surface layer and friable loamy subsoil and excessively drained soils that are loose and sandy throughout. These soils are well suited to most urban uses. These soils account for 27 percent of all soils and are scattered throughout the central and southern parts of the county. The areas are a combination of urban land uses and woodlands.

3. Troup - Vaucluse - Ailey - Very gently sloping and gently sloping, well drained soils that have a predominantly sandy surface layer and friable or mostly firm and brittle loamy subsoil. These soils are well suited to most urban uses. These soils account for 17 percent of all soils and are scattered throughout the northern part of the county. The areas are a combination of urban land uses and woodlands.

Soils on ridgetops and hillsides of the Southern Coast Plain: well-drained soils on nearly level to gently sloping ridgetops and hillsides. Slopes range from 0 to 8 percent. The soils have a predominantly sandy surface layer and friable loamy subsoil.

4. Orangeburg-Lucy-Dothan - Nearly level to gently sloping, well drained soils that have a predominantly sandy surface layer and friable loamy subsoil. These soils account for about 13 percent of all soils and are found in the south central part of the county. Areas are used mainly for farming and woodlands.

Soils on hillsides of the Sand Hills and Southern Coastal Plain: well-drained soils on strongly sloping and moderately steep hillsides. Slopes range from 8

to 17 percent. The soils have a sandy surface layer and friable or mostly firm and brittle loamy subsoil.

5. Troup-Vaucluse-Ailey - Strongly sloping and moderately steep, well drained soils that have a sandy surface layer and friable or most firm and brittle subsoil. These soils are poorly suited for farming and only moderately suited for wood crops and must urban uses. These soils account for about 14 percent of all soils and are located across the southern part of the county.

Soils on/near Floodplains: poorly drained soils that are nearly level. Soils have a loamy surface layer and friable loamy or firm clayey subsoil.

6. Riverview-Chewacla-Chastain - Nearly level, well drained and somewhat poorly drained soils that are friable throughout and poorly drained soils that have a loamy surface layer and firm clayey subsoil. These soils are located in the floodplains of the Savannah River in the eastern part of the county. They comprise about 11 percent of the county. Primarily wooded, this association does have areas that are used for cultivated crops or pasture. There is considerable industrial and residential development in areas protected by the Savannah River levee. Clay has been mined for the manufacture of bricks, and the excavated areas are filled with water.

7. Bibb-Osier - Nearly level, poorly drained, predominantly loamy soils that are friable and sandy soils that are loose. These soils are located on floodplains of the major tributaries of the Savannah River and account for 9 percent of all soils. Major tributaries include the following creeks: Rae's, Rocky, Butler, Spirit, Little Spirit and McBean. Primarily wooded, this association is poorly suited for farming and urban uses.

8. Dogue-Goldsboro-Roanoke - Nearly level, moderately well drained and poorly drained soils that have a loamy surface layer and friable loamy or firm clayey subsoil. These soils are located on stream terraces and low-lying uplands adjacent to flood plains. They comprise about 6 percent of all soils and are found primarily in the northeastern part of the county. This association includes a mix of urban development, industry, wooded areas, and swampland.

Wetlands

Under the Clean Water Act, the term wetlands means "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do

support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas." (EPA Regulations at 40 CFR 230.3) Wetlands are important to both the environment and the economy. Wetlands provide a wide range of benefits that include habitat, support of commercial and recreational fisheries, reduction of flood damages, and abatement of water pollution.

In Augusta-Richmond County wetlands are located adjacent to the Savannah River, the Augusta Canal, and the major creeks and tributaries that drain the county. The largest concentration of wetlands is found in the Phinizy Swamp, the large floodplain of the Savannah River located on the east side of the county. Local wetlands provide a habitat for native plants and animals, provide a place for migrating birds to rest and feed, absorb and slow floodwaters, and filter pollutants before they reach the Savannah River and other water bodies. The Phinizy Swamp is being used to educate children and adults about the important functions of wetlands and the need to protect and preserve them.

The U. S. Environmental Protection Agency (EPA) estimates that more than half of the original wetlands in the continental United States have been drained and converted to other uses. Common human activities that degrade wetlands include hydrologic alterations, pollution inputs, and vegetation damage.

Aquifer and Groundwater Recharge Areas

Aquifers are soils or rocks in which groundwater is stored. Aquifers vary widely in size and depth and are used for drinking water, irrigation, and manufacturing processes. Recharge is the process by which precipitation infiltrates soil and rock to add to the volume of water stored in aquifers. A recharge area is any portion of the earth's surface where water infiltrates into the ground to replenish an aquifer

The two major aquifers in Augusta-Richmond County are the Upper Cretaceous and Basal Cretaceous aquifers. The Upper Cretaceous aquifer is the shallower of the two reservoirs, and is not extensively developed. Most of the groundwater used in the city is pumped from the Basal Cretaceous aquifer. The recharge area for the Cretaceous aquifer covers the majority of Richmond County, and is classified as a significant groundwater recharge area by the Georgia Department of Natural Resources. According to DNR's Ground-Water Pollution Susceptibility Map of Georgia, Hydrologic Atlas 20, some of the recharge area has a high susceptibility to pollution and some has a medium susceptibility to pollution.

At the present time, groundwater availability in the aquifers is still good. However, DNR is concerned about the stress placed on the aquifers and has urged the city to pursue surface water as an alternative source of supply for drinking water. A new surface water treatment facility has been constructed and placed into service, enabling the city to reduce the use of groundwater in the water system.

In October 1998 the Augusta Commission adopted a Groundwater Recharge Area Protection Ordinance in accordance with the state *Rules for Environmental Planning Criteria*.

Protected Rivers

The Savannah River is a protected river under the Georgia Mountain and River Corridor Protection Act. The Savannah River is a unique resource and has played a central role in the history and development of Augusta and surrounding communities. At Augusta the river rolls over the fall line separating the Piedmont and Coastal Plain physiographic provinces. The river supports a variety of plants, animals and wildlife and enhances the quality of life for residents.

Floodways, floodplains and wetlands are the predominant land uses along the Savannah River. The shallow waters at the fall line expose several small islands in the river just upstream from downtown Augusta. Other land uses within the river corridor include part of a stone quarry, part of the Augusta Canal, the Augusta Waterworks pumping station, part of the Savannah River levee, and some single-family residences.

In 1994 the city adopted a River Corridor Protection Plan as an amendment to the Comprehensive Plan. The Protection Plan includes an overview of the river corridor, an assessment of corridor protection measures and an implementation strategy. In 1998 the city amended the zoning ordinance by establishing the Savannah River Corridor Protection District. The river corridor protection district extends 100 feet horizontally from the river bank.

The existing natural vegetative buffer must be maintained within the district and new land uses are limited to single-family residences (minimum 2-acre lot), agricultural and timber production, wildlife and fisheries management, recreational uses, and some other public facilities and utilities. Handling, receiving, storage and disposal of hazardous wastes are prohibited in the district.

Water Supply Watersheds and Water Supply Sources

Richmond County contains one large watershed and one small watershed. The Middle Savannah River Watershed is the large watershed. The City of Augusta's water supply comes from the Savannah River via the Augusta Canal. The Augusta Lock and Dam, located on the canal approximately 4 miles above the raw water pumping station, controls water flow into the canal.

The part of the Butler Creek Watershed above Butler Reservoir is the small watershed. The watershed is located in northwest Richmond County, and a portion of Columbia County, and covers approximately 15 square miles. The watershed drains to Butler Reservoir, which has historically served as the source of water for Fort Gordon. The Fort is permitted to withdraw 5.4 MGD from the reservoir. The watershed is characterized by low-density residential development, woodlands and scattered commercial uses. Since the opening of the Jimmie Dyess Parkway in 1998, urban development has increased in the watershed area. Other planned road improvement projects will no doubt increase development pressure. Fort Gordon has recently entered into an agreement with Augusta to purchase water from the Augusta Utilities Department for use on the Fort and to have Augusta transport the wastewater from the Fort to Augusta's existing facilities for treatment. The Fort has indicated that it wishes to retain the existing water withdrawal permit for other possible uses.

Augusta currently has in place several ordinances and programs to protect water supply watersheds from pollution or alteration. This includes a group of land use and development ordinances, as well as an ordinance that applies to the large Middle Savannah River Watershed.

Steep Slopes

Augusta - Richmond County lies in the Georgia Piedmont region which is characterized by rolling hills. Slopes greater than 18 percent are found primarily in the northwestern corner of Augusta - Richmond County along the flanks of Backbone Ridge, part of the Brevard Fault system, and in the city of Ephesus. The county has an approved Erosion and Sedimentation Control Ordinance in accordance with the Environmental Planning Criteria. This ordinance is an addendum of the county subdivision regulations and is administered via the county Zoning and Planning Office.

Agricultural and Forest Land

The Georgia County Guide classified 12,439 acres as non-forestry farmland in 2002 or 6.0 % of the land in Richmond County. This total represents a

22.0% reduction from the 15,919 acres of land in farms in 1997. In 2002 there were 140 farms in the county, compared to133 in 1997. The average farm size was 89 acres and the median size was 46 acres. Crops include corn, soybeans and peanuts. Commodities include forestry, dairy, beef cows and ornamental horticulture. The county ranked 135th within the state for acres of harvested cropland. The 2,541 acres of harvested cropland is down 65.9% from 7,462 acres reported in 1997.

In 2004, 111,200 acres in Richmond County were classified as forested or 53.6% of the entire county. Of this total 93,700 acres are owned by private entities, 13,300 acres by the Federal government (Fort Gordon), and 4,300 acres by the state of Georgia. The breakdown of major forest groups is Loblolly-short leaf pine - 34,100 acres, Oak-Gum-Cypress – 29,900 acres, Oak-Hickory – 23,100 acres, Oak-pine - 12,700 acres, and Long-leaf slash pine – 5,300 acres. Much of the forested land is undeveloped at the present time. Outside of Fort Gordon, forestlands in the county are subject to more intense development.

As Richmond County continues to grow, the remaining farmland and forestland will come under more development pressure. A number of local development regulations help to minimize the impact of proposed land use changes. These include zoning restrictions on allowable densities, landscaping requirements for commercial development, and soil erosion and sediment control requirements. Augusta-Richmond County also has in place regulations for the protection of wetlands, groundwater recharge areas, water supply watersheds, and the Savannah River corridor. These regulations were adopted in compliance with the Georgia Department of Natural Resources, Rules for Environmental Planning Criteria.

Floodplains

As a body of water (e.g. river, stream, or creek) erodes and deposits material, it may shift its course and over a period of time build up a deposit of material in its valley bottom. This deposited material takes the shape of a plain, called a floodplain, which forms at elevations near that of the water's surface. About 25 percent of Richmond County (43,600 acres) is comprised of floodplains, stream terraces, and inter-stream divides. According to Flood Insurance Rates Maps / Flood Boundary and Floodway Maps published by the Federal Emergency Management Agency (FEMA), floodplains are located within and adjacent to the Savannah River and its tributaries (e.g. Rock, Rae's, Crane, Rocky, Butler, Spirit and McBean Creeks). The 100-year flood also referred to as the "base flood" is defined as the flood having a one percent probability of being equaled or exceeded in any given year.

Congress established the National Flood Insurance Program (NFIP) with the passage of the National Flood Insurance Act of 1968. The National Flood Insurance Program enables property owners in participating communities to purchase insurance protection against losses from flooding. The insurance is designed to provide an insurance alternative to disaster assistance to meet the escalating cost of repairing damage to buildings and their contents caused by floods. The NFIP was broadened and modified with the passage of the Flood Disaster Protection Act of 1973 and other legislative measures. The program is administered by the Federal Insurance Administration, a division of the Federal Emergency Management Agency (FEMA).

Augusta has participated in the NFIP for approximately 35 years. The city also has Flood Damage Prevention Ordinance that is based on FEMA's model ordinance. The ordinance requires anyone who wants to grade, fill, erect a structure, or otherwise develop in a floodplain to obtain a permit before starting any land disturbance or construction. The ordinance includes specific standards for development in floodplains and requires the filing of an Elevation Certificate before the city issues a certificate of occupancy. A group of maps delineate the applicable areas in the city susceptible to flooding during the 100-year and 500-year design floods. The maps are the basis for determining the areas regulated by the Flood Damage Prevention Ordinance.

The flood ordinance is amended on occasion to conform to new federal regulations, to correct deficiencies, and to address new issues. Area-wide flooding caused by tropical downpours in October 1990 is one event that triggered ordinance revisions in recent years

Plant and Animal Habitats

Richmond County is home to several plants and one animal (an invertebrate) classified as endangered, threatened, unusual or rare. Four of the plants are listed as ―candidates‖ for federal protection under the Endangered Species Act of 1973. One plant, the Sweet Pitcher Plant, has ―partial status‖, meaning that the plant is federally protected in only a portion of the species' range. All projects that require a direct federal approval, permit, grant, loan or loan guarantee must comply with provisions of the Endangered Species Act. This includes consulting with the Department of the Interior to avoid adverse impacts on endangered species.

Figure 1: Endangered Species in Augusta - Richmond County

Table N-2
State and Federally Protected Plants and Animals
Richmond County, GA

Plants:	**Federal Status**	**State Status**
Georgia Aster	Candidate	None
Atlantic White-cedar	None	Rare
Pink Ladyslipper	None	Unusual
Shoals Spider lily	Candidate	Endangered
Indian Olive	None	Threatened
Sweet Pitcher Plant	Partial Status	Endangered
Ocmulgee Skullcap	Candidate	Threatened
Silky Camellia	None	Rare
Pickering Morning-glory	Candidate	Threatened
Animals:		
Pigtoe Mussel	None	Endangered

Source: Georgia Department of Natural Resources, Wildlife Protection Division
Endangered: In danger of extinction throughout all parts of its range
Threatened: Likely to become endangered in the foreseeable future throughout all or parts of its range.
Candidate: Listing is warranted but immediate listing is precluded due to other priorities
Rare: May not be endangered or threatened but which should be protected because of itsscarcity
Unusual: Deserving special consideration such as plants that may be subject to commercial exploitation

Some plants are protected solely under provisions of the Georgia Wildflower Preservation Act of 1973. The act authorizes rules for the collection, transport, sale and listing of protected plants. The Georgia Environmental Policy Act (GEPA) requires that impacts to protected species be addressed for all projects on state-owned lands and for all municipal or county projects if funded half or more by state funds, or by a state grant of more than $250,000.

Significant Natural Resources

MAJOR PARKS, RECREATION AND CONSERVATION AREAS

Richmond County has several conservation, recreation and natural areas. Following is a brief description of the major natural attractions within the county. Additional information can be found in the Cultural Resources and Community Facilities chapters.

Savannah River

The Savannah River is an exceptional resource that has had a tremendous impact on the history and development of the community. The stretch of the river adjacent to Augusta and Richmond County is one of the more unique parts of the waterway. It is just upstream from the city where the river rolls over the fall line separating the Piedmont and Coastal Plain physiographic provinces. The shallow waters at the fall line served as a river crossing for centuries, and have characteristics that are in sharp contrast to the deeper, navigable reaches downstream. This change in the river's environment allows it to support a variety of plants, animals, and wildlife, and gives residents a greater appreciation of the natural environment. Over the years, a number of archaeological sites have been identified in the area, many of which are located in the floodplains and swamps near the river corridor.

Augusta Canal

The Augusta Canal is a man-made resource located adjacent to the Savannah River in Richmond and Columbia Counties. The canal is owned by the city of Augusta, and overseen by the Augusta Canal Authority. Its functions as a water supply source and flood-control mechanism are the responsibility of the Augusta Utilities Department. Columbia County leases the parcel of land at the headgates that contains the lock keeper’s cottage and vintage recreation structures and maintains this area as Savannah Rapids Park. The canal was designated a National Historic Landmark (1977), a Regionally Important Resource (Georgia-1994), and a National Heritage Area (U. S. Congress-1996). National Heritage Area designation recognizes the canal as a treasure of national significance, spotlights Augusta on national tourist maps, and makes technical assistance and resources available through the National Park Service.

Constructed in 1845, and enlarged in 1876, the Augusta Canal is among the nation's best examples of a 19th century industrial canal system. When first built the canal's three main functions were to provide water power for industry, waterborne transportation for commodities (e.g. cotton), and a source of water for the community. Today, the canal continues to provide water power for electrical generation and to power the pumps at the city's raw water pumping station. The canal provides residents and visitors with a variety of recreational opportunities, including hiking, boating, bicycling and fishing. There are scenic views of the Savannah River and several historic structures adjoining the canal.

Phinizy Swamp Wildlife Management Area
This 1,500-acre, state-owned cypress wetland is located in east Augusta approximately two miles south of downtown. The wildlife management area is owned by the Georgia Department of Transportation (GDOT) and managed by the Georgia Department of Natural Resources. It was created as a result of a compromise brokered with environmental agencies to allow construction of Bobby Jones Expressway through the swamp. GDOT agreed to purchase and preserve the acreage in exchange for approval of the road project by the U. S. Fish and Wildlife Service and the U. S. Environmental Protection Agency. The expressway extension, which opened in the summer of 1998, bisects the wildlife management area.

The wildlife management area is home to over 100 species of waterfowl, and a variety of wildlife that includes deer, alligators, bald eagles, bobcat, beaver, snakes, and panthers. Permitted public use activities include hunting (archery only), fishing, hiking, and bird watching. Access points are located off of Gravel Pit Road and from a half-mile long gravel road behind the Messerly Wastewater Treatment Plant. The Merry Brickyard ponds border the wildlife management area on one side and the 1,100-acre Phinizy Swamp Nature Park on another.

Phinizy Swamp Nature Park

This 1,100-acre nature park is located south of the Phinizy Swamp Wildlife Management Area and adjacent to the Messerly Wastewater Treatment Plant. The Nature Park is owned by the city of Augusta and managed by the Southeastern Natural Sciences Academy - a nonprofit educational organization. Like the wildlife management area, the Swamp Park is home to a variety of plant and animal life coexisting in an ancient wetland area. The mission of the Southeastern Natural Sciences Academy is to promote environmental stewardship through education, research, land conservation and public outreach. The Academy has established partnerships with area school systems and has offers classes, tours and workshops at the Nature Park. A typical monthly calendar of events includes a tour of the park, a family bike tour, a "waterfowl" walk, and a clean-up day. The park offers endless opportunities for learning, volunteering, and working with others to promote environmental stewardship.

Included within the park is an innovative sewage treatment system where semi-treated wastewater from the Messerly Wastewater Treatment Plant flows into a series on man-made wetland cells. There microbes and bacteria break down harmful waste products and the cleansed water then flows back into Butler Creek on its way to the Savannah River. The constructed wetlands clean municipal wastewater, provide habitat for plants and wildlife,

and serve as a learning environment for park visitors. The Academy has plans for improvements at the Nature Park including construction of a research facility, visitor's center, and extension of the Floodplain Boardwalk. The Academy is also finalizing an agreement with GDOT and GA DNR to incorporate part of the Phinizy Swamp WMA into its education programs.

Merry Brickyard Ponds

Merry Brickyard Ponds is a semi-public fishing area located immediately north of the Phinizy Swamp Wildlife Management Area. The ponds are actually a series of strip mines that nature has transformed into a nationally known waterfowl habitat. The ponds lie among 3,100 acres owned by Merry Land Properties, Inc., which still has active clay mining leases on parts of the site.

Plans have been made to transform much of the area into new uses that will include a wetland mitigation bank. A wetlands mitigation bank offers credits to developers whose projects disrupt sensitive natural areas elsewhere. A developer can "buy" land in a mitigation bank to offset losses of wetlands elsewhere. The result is the preservation and restoration of large habitats such as the Brickyard Ponds. What the owners envision is the gradual transition of the ponds from a fishing resource to more of a conservation resource. While there will be fishing for many years to come, some ponds will be drained, filled and planted with trees to foster more diversity in the ecosystem.

Spirit Creek Education Forest

Spirit Creek Education Forest is 570 acres of wetlands, planted loblolly pine and bottomland hardwoods located in the midst of urban development in south Richmond County. The Georgia Forestry Commission owns and maintains the property.

Spirit Creek Educational Forest is a working forest. This means that forest management methods are used to maximize the potential of the land for various goals; timber production, wildlife habitat, water quality, and educational opportunities. The goal of all education programs is to teach conservation, which means the wise use of natural resources. The Forestry Commission offers a number of educational programs and activities on-site

Demographic Profiles for Augusta - Richmond County and the Cities of Blythe and Hephzibah

Augusta-Richmond County consolidated government (balance), Georgia. Population and Housing Narrative Profile: 2005-2009. American Community.

HOUSEHOLDS AND FAMILIES: In 2005-2009 there were 74,000 households in Augusta-Richmond County consolidated government (balance). The average household size was 2.4 people.

Families made up 63 percent of the households in Augusta-Richmond County consolidated government (balance). This figure includes both married-couple families (36 percent) and other families (27 percent). Nonfamily households made up 37 percent of all households in Augusta-Richmond County consolidated government (balance). Most of the nonfamily households were people living alone, but some were composed of people living in households in which no one was related to the householder.

NATIVITY AND LANGUAGE: Three percent of the people living in Augusta-Richmond County consolidated government (balance) in 2005-2009 were foreign born. Ninety-seven percent was native, including 60 percent who were born in Georgia.

Among people at least five years old living in Augusta-Richmond County consolidated government (balance) in 2005-2009, 6 percent spoke a language other than English at home. Of those speaking a language other than English at home, 48 percent spoke Spanish and 52 percent spoke some other language; 35 percent reported that they did not speak English "very well."

GEOGRAPHIC MOBILITY: In 2005-2009, 77 percent of the people at least one year old living in Augusta-Richmond County consolidated government (balance) were living in the same residence one year earlier; 12 percent had moved during the past year from another residence in the same county, 4 percent from another county in the same state, 6 percent from another state, and 1 percent from abroad.

EDUCATION: In 2005-2009, 82 percent of people 25 years and over had at least graduated from high school and 20 percent had a bachelor's degree or higher. Eighteen percent were dropouts; they were not enrolled in school and had not graduated from high school.

The total school enrollment in Augusta-Richmond County consolidated government (balance) was 52,000 in 2005-2009. Nursery school and kindergarten enrollment was 6,000 and elementary or high school enrollment was 31,000 children. College or graduate school enrollment was 15,000.

DISABILITY: In Augusta-Richmond County consolidated government (balance), among people at least five years old in 2005-2009, percent reported a disability. The likelihood of having a disability varied by age - from percent of people 5 to 15 years old, to percent of people 16 to 64 years old, and to percent of those 65 and older.
INDUSTRIES: In 2005-2009, for the employed population 16 years and older, the leading industries in Augusta-Richmond County consolidated government (balance) were Educational services, and health care, and social assistance, 26 percent, and Retail trade, 13 percent.

OCCUPATIONS AND TYPE OF EMPLOYER: Among the most common occupations were: Management, professional, and related occupations, 31 percent; Sales and office occupations, 26 percent; Service occupations, 21 percent; Production, transportation, and material moving occupations, 14 percent; and Construction, extraction, maintenance, and repair occupations, 8 percent. Seventy-five percent of the people employed were Private wage and salary workers; 21 percent was Federal, state, or local government workers; and 4 percent was Self-employed in own not incorporated business workers.

TRAVEL TO WORK: Seventy-seven percent of Augusta-Richmond County consolidated government (balance) workers drove to work alone in 2005-2009, 11 percent carpooled, 1 percent took public transportation, and 7 percent used other means. The remaining 3 percent worked at home. Among those who commuted to work, it took them on average 18.9 minutes to get to work.

INCOME: The median income of households in Augusta-Richmond County consolidated government (balance) was $36,823. Seventy-seven percent of the households received earnings and 20 percent received retirement income other than Social Security. Twenty-eight percent of the households received Social Security. The average income from Social Security was $13,381. These income sources are not mutually exclusive; that is, some households received income from more than one source.

POVERTY AND PARTICIPATION IN GOVERNMENT PROGRAMS: In 2005-2009, 23 percent of people were in poverty. Thirty-five percent of related children under 18 were below the poverty level, compared with 13 percent of people

65 years old and over. Twenty percent of all families and 41 percent of families with a female householder and no husband present had incomes below the poverty level.

POPULATION OF Augusta-Richmond County consolidated government (balance): In 2005-2009, Augusta-Richmond County consolidated government (balance) had a total population of 193,000 - 102,000 (53 percent) females and 91,000 (47 percent) males. The median age was 32.5 years. Twenty-six percent of the population was under 18 years and 12 percent was 65 years and older.

For people reporting one race alone, 43 percent was White; 52 percent was Black or African American; less than 0.5 percent was American Indian and Alaska Native; 2 percent was Asian; less than 0.5 percent was Native Hawaiian and Other Pacific Islander, and 1 percent was Some other race. Two percent reported Two or more races. Three percent of the people in Augusta-Richmond County consolidated government (balance) was Hispanic. Forty-one percent of the people in Augusta-Richmond County consolidated government (balance) was White non-Hispanic. People of Hispanic origin may be of any race.

HOUSING CHARACTERISTICS: In 2005-2009, Augusta-Richmond County consolidated government (balance) had a total of 85,000 housing units, 13 percent of which were vacant. Of the total housing units, 67 percent was in single-unit structures, 25 percent was in multi-unit structures, and 8 percent was mobile homes. Twenty-two percent of the housing units were built since 1990.

OCCUPIED HOUSING UNIT CHARACTERISTICS: In 2005-2009, Augusta-Richmond County consolidated government (balance) had 74,000 occupied housing units - 42,000 (57 percent) owner occupied and 32,000 (43 percent) renter occupied. Eight percent of the households did not have telephone service and 9 percent of the households did not have access to a car, truck, or van for private use. Multi Vehicle households were not rare. Thirty-four percent had two vehicles and another 17 percent had three or more.

HOUSING COSTS: The median monthly housing costs for mortgaged owners was $1,038, nonmortgage owners $335, and renters $676. Thirty-five percent of owners with mortgages, 13 percent of owners without mortgages, and 50 percent of renters in Augusta-Richmond County consolidated government (balance) spent 30 percent or more of household income on housing.

Source: U.S. Census Bureau, 2005-2009 American Community Survey.

Richmond County, Georgia
Population and Housing Narrative Profile: 2005-2009 Survey

HOUSEHOLDS AND FAMILIES: In 2005-2009 there were 75,000 households in Richmond County. The average household size was 2.5 people.

Families made up 63 percent of the households in Richmond County. This figure includes both married-couple families (37 percent) and other families (27 percent). Nonfamily households made up 37 percent of all households in Richmond County. Most of the nonfamily households were people living alone, but some were composed of people living in households in which no one was related to the householder.

NATIVITY AND LANGUAGE: Three percent of the people living in Richmond County in 2005-2009 were foreign born. Ninety-seven percent was native, including 60 percent who were born in Georgia.
Among people at least five years old living in Richmond County in 2005-2009, 6 percent spoke a language other than English at home. Of those speaking a language other than English at home, 47 percent spoke Spanish and 53 percent spoke some other language; 36 percent reported that they did not speak English "very well."

GEOGRAPHIC MOBILITY: In 2005-2009, 77 percent of the people at least one year old living in Richmond County were living in the same residence one year earlier; 12 percent had moved during the past year from another residence in the same county, 4 percent from another county in the same state, 6 percent from another state, and 1 percent from abroad.

EDUCATION: In 2005-2009, 82 percent of people 25 years and over had at least graduated from high school and 20 percent had a bachelor's degree or higher. Eighteen percent were dropouts; they were not enrolled in school and had not graduated from high school.

The total school enrollment in Richmond County was 54,000 in 2005-2009. Nursery school and kindergarten enrollment was 6,200 and elementary or high school enrollment was 32,000 children. College or graduate school enrollment was 15,000.

DISABILITY: In Richmond County, among people at least five years old in 2005-2009, percent reported a disability. The likelihood of having a disability varied by age - from percent of people 5 to 15 years old, to percent of people 16 to 64 years old, and to percent of those 65 and older.

INDUSTRIES: In 2005-2009, for the employed population 16 years and older, the leading industries in Richmond County were Educational services, and health care, and social assistance, 26 percent, and Retail trade, 13 percent.

OCCUPATIONS AND TYPE OF EMPLOYER: Among the most common occupations were: Management, professional, and related occupations, 31 percent; Sales and office occupations, 26 percent; Service occupations, 21 percent; Production, transportation, and material moving occupations, 14 percent; and Construction, extraction, maintenance, and repair occupations, 9 percent. Seventy-four percent of the people employed were Private wage and salary workers; 21 percent was Federal, state, or local government workers; and 4 percent was Self-employed in own not incorporated business workers.

TRAVEL TO WORK: Seventy-seven percent of Richmond County workers drove to work alone in 2005-2009, 11 percent carpooled, 1 percent took public transportation, and 7 percent used other means. The remaining 3 percent worked at home. Among those who commuted to work, it took them on average 19.2 minutes to get to work.

INCOME: The median income of households in Richmond County was $37,339. Seventy-seven percent of the households received earnings and 20 percent received retirement income other than Social Security. Twenty-eight percent of the households received Social Security. The average income from Social Security was $13,420. These income sources are not mutually exclusive; that is, some households received income from more than one source.

POVERTY AND PARTICIPATION IN GOVERNMENT PROGRAMS: In 2005-2009, 22 percent of people were in poverty. Thirty-five percent of related children under 18 were below the poverty level, compared with 13 percent of people 65 years old and over. Nineteen percent of all families and 41 percent of families with a female householder and no husband present had incomes below the poverty level.

POPULATION OF Richmond County: In 2005-2009, Richmond County had a total population of 198,000 - 105,000 (53 percent) females and 93,000 (47 percent) males. The median age was 32.5 years. Twenty-six percent of the population was under 18 years and 12 percent was 65 years and older.

For people reporting one race alone, 43 percent was White; 52 percent was Black or African American; less than 0.5 percent was American Indian and Alaska Native; 2 percent was Asian; less than 0.5 percent was Native

Hawaiian and Other Pacific Islander, and 1 percent was Some other race. Two percent reported Two or more races. Three percent of the people in Richmond County was Hispanic. Forty-two percent of the people in Richmond County was White non-Hispanic. People of Hispanic origin may be of any race.

HOUSING CHARACTERISTICS: In 2005-2009, Richmond County had a total of 87,000 housing units, 13 percent of which were vacant. Of the total housing units, 67 percent was in single-unit structures, 24 percent was in multi-unit structures, and 9 percent was mobile homes. Twenty-two percent of the housing units were built since 1990.

OCCUPIED HOUSING UNIT CHARACTERISTICS: In 2005-2009, Richmond County had 75,000 occupied housing units - 43,000 (57 percent) owner occupied and 32,000 (43 percent) renter occupied. Eight percent of the households did not have telephone service and 9 percent of the households did not have access to a car, truck, or van for private use. Multi Vehicle households were not rare. Thirty-four percent had two vehicles and another 17 percent had three or more.

HOUSING COSTS: The median monthly housing costs for mortgaged owners was $1,039, nonmortgage owners $334, and renters $676. Thirty-five percent of owners with mortgages, 13 percent of owners without mortgages, and 50 percent of renters in Richmond County spent 30 percent or more of household income on housing. **Source**: U.S. Census Bureau, 2005-2009 American Community Survey.

Blythe city, Georgia
Population and Housing Narrative Profile: 2005-2009

HOUSEHOLDS AND FAMILIES: In 2005-2009 there were 230 households in Blythe town. The average household size was 3.2 people.

Families made up 76 percent of the households in Blythe town. This figure includes both married-couple families (61 percent) and other families (15 percent). Nonfamily households made up 24 percent of all households in Blythe town. Most of the nonfamily households were people living alone, but some were composed of people living in households in which no one was related to the householder.

NATIVITY AND LANGUAGE: One percent of the people living in Blythe town in 2005-2009 were foreign born. Ninety-nine percent was native, including 64 percent who were born in Georgia.

Among people at least five years old living in Blythe town in 2005-2009, 4 percent spoke a language other than English at home. Of those speaking a language other than English at home, 72 percent spoke Spanish and 28 percent spoke some other language; 21 percent reported that they did not speak English "very well."

GEOGRAPHIC MOBILITY: In 2005-2009, 93 percent of the people at least one year old living in Blythe town were living in the same residence one year earlier; 6 percent had moved during the past year from another residence in the same county, 1 percent from another county in the same state, less than 0.5 percent from another state, and less than 0.5 percent from abroad.

EDUCATION: In 2005-2009, 65 percent of people 25 years and over had at least graduated from high school and 9 percent had a bachelor's degree or higher. Thirty-five percent were dropouts; they were not enrolled in school and had not graduated from high school.

The total school enrollment in Blythe town was 270 in 2005-2009. Nursery school and kindergarten enrollment was 2 and elementary or high school enrollment was 240 children. College or graduate school enrollment was 29.

DISABILITY: In Blythe town, among people at least five years old in 2005-2009, percent reported a disability. The likelihood of having a disability varied by age - from percent of people 5 to 15 years old, to percent of people 16 to 64 years old, and to percent of those 65 and older.

INDUSTRIES: In 2005-2009, for the employed population 16 years and older, the leading industries in Blythe town were Educational services, and health care, and social assistance, 17 percent, and Professional, scientific, and management, and administrative and waste management services, 15 percent.

OCCUPATIONS AND TYPE OF EMPLOYER: Among the most common occupations were: Production, transportation, and material moving occupations, 25 percent; Sales and office occupations, 23 percent; Service occupations, 20 percent; Management, professional, and related occupations, 18 percent; and Construction, extraction, maintenance, and repair occupations, 13 percent. Seventy-five percent of the people employed were Private wage and salary workers; 21 percent was Federal, state, or local government workers; and 3 percent was Self-employed in own not incorporated business workers.

TRAVEL TO WORK: Eighty-eight percent of Blythe town workers drove to work alone in 2005-2009, 11 percent carpooled, less than 0.5 percent took

public transportation, and less than 0.5 percent used other means. The remaining 1 percent worked at home. Among those who commuted to work, it took them on average 39.6 minutes to get to work.

INCOME: The median income of households in Blythe town was $45,724. Eighty-one percent of the households received earnings and 21 percent received retirement income other than Social Security. Thirty percent of the households received Social Security. The average income from Social Security was $15,961. These income sources are not mutually exclusive; that is, some households received income from more than one source.

POVERTY AND PARTICIPATION IN GOVERNMENT PROGRAMS: In 2005-2009, 8 percent of people were in poverty. Three percent of related children under 18 were below the poverty level, compared with 30 percent of people 65 years old and over. Eight percent of all families and 36 percent of families with a female householder and no husband present had incomes below the poverty level.
POPULATION OF Blythe town: In 2005-2009, Blythe town had a total population of 760 - 350 (46 percent) females and 410 (54 percent) males. The median age was 37.1 years. Thirty-five percent of the population was under 18 years and 10 percent was 65 years and older.

For people reporting one race alone, 75 percent was White; 20 percent was Black or African American; less than 0.5 percent was American Indian and Alaska Native; 1 percent was Asian; less than 0.5 percent was Native Hawaiian and Other Pacific Islander, and less than 0.5 percent was Some other race. Five percent reported Two or more races. Two percent of the people in Blythe town was Hispanic. Seventy-four percent of the people in Blythe town was White non-Hispanic. People of Hispanic origin may be of any race.

HOUSING CHARACTERISTICS: In 2005-2009, Blythe town had a total of 250 housing units, 8 percent of which were vacant. Of the total housing units, 65 percent was in single-unit structures, less than 0.5 percent was in multi-unit structures, and 35 percent was mobile homes. Thirty-seven percent of the housing units were built since 1990.

OCCUPIED HOUSING UNIT CHARACTERISTICS: In 2005-2009, Blythe town had 230 occupied housing units - 190 (82 percent) owner occupied and 43 (18 percent) renter occupied. Nine percent of the households did not have telephone service and 3 percent of the households did not have access to a car, truck, or van for private use. Multi Vehicle households were not rare. Forty-two percent had two vehicles and another 32 percent had three or more.

HOUSING COSTS: The median monthly housing costs for mortgaged owners was $864, nonmortgage owners $316, and renters $893. Thirty-eight percent of owners with mortgages, less than 0.5 percent of owners without mortgages, and 40 percent of renters in Blythe town spent 30 percent or more of household income on housing. **Source:** U.S. Census Bureau, 2005-2009 American Community Survey.

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Hephzibah city, Georgia
Population and Housing Narrative Profile: 2005-2009

HOUSEHOLDS AND FAMILIES: In 2005-2009 there were 1,500 households in Hephzibah city. The average household size was 3.1 people.

Families made up 82 percent of the households in Hephzibah city. This figure includes both married-couple families (54 percent) and other families (29 percent). Nonfamily households made up 18 percent of all households in Hephzibah city. Most of the nonfamily households were people living alone, but some were composed of people living in households in which no one was related to the householder.

NATIVITY AND LANGUAGE: Two percent of the people living in Hephzibah city in 2005-2009 were foreign born. Ninety-eight percent was native, including 55 percent who were born in Georgia.

Among people at least five years old living in Hephzibah city in 2005-2009, 5 percent spoke a language other than English at home. Of those speaking a language other than English at home, 22 percent spoke Spanish and 78 percent spoke some other language; 40 percent reported that they did not speak English "very well."

GEOGRAPHIC MOBILITY: In 2005-2009, 85 percent of the people at least one year old living in Hephzibah city were living in the same residence one year earlier; 13 percent had moved during the past year from another residence in the same county, 1 percent from another county in the same state, 1 percent from another state, and less than 0.5 percent from abroad.

EDUCATION: In 2005-2009, 82 percent of people 25 years and over had at least graduated from high school and 11 percent had a bachelor's degree or higher. Eighteen percent were dropouts; they were not enrolled in school and had not graduated from high school.

The total school enrollment in Hephzibah city was 1,500 in 2005-2009. Nursery school and kindergarten enrollment was 190 and elementary or high

school enrollment was 850 children. College or graduate school enrollment was 420.

DISABILITY: In Hephzibah city, among people at least five years old in 2005-2009, percent reported a disability. The likelihood of having a disability varied by age - from percent of people 5 to 15 years old, to percent of people 16 to 64 years old, and to percent of those 65 and older.

INDUSTRIES: In 2005-2009, for the employed population 16 years and older, the leading industries in Hephzibah city were Educational services, and health care, and social assistance, 24 percent, and Construction, 23 percent.
OCCUPATIONS AND TYPE OF EMPLOYER: Among the most common occupations were: Construction, extraction, maintenance, and repair occupations, 29 percent; Service occupations, 20 percent; Sales and office occupations, 20 percent; Management, professional, and related occupations, 18 percent; and Production, transportation, and material moving occupations, 12 percent. Seventy-one percent of the people employed were Private wage and salary workers; 20 percent was Federal, state, or local government workers; and 8 percent was Self-employed in own not incorporated business workers.

TRAVEL TO WORK: Seventy-nine percent of Hephzibah city workers drove to work alone in 2005-2009, 16 percent carpooled, less than 0.5 percent took public transportation, and 3 percent used other means. The remaining 2 percent worked at home. Among those who commuted to work, it took them on average 27.8 minutes to get to work.

INCOME: The median income of households in Hephzibah city was $50,743. Ninety-two percent of the households received earnings and 21 percent received retirement income other than Social Security. Twenty-five percent of the households received Social Security. The average income from Social Security was $15,101. These income sources are not mutually exclusive; that is, some households received income from more than one source.

POVERTY AND PARTICIPATION IN GOVERNMENT PROGRAMS: In 2005-2009, 13 percent of people were in poverty. Nineteen percent of related children under 18 were below the poverty level, compared with 4 percent of people 65 years old and over. Nine percent of all families and 16 percent of families with a female householder and no husband present had incomes below the poverty level.

POPULATION OF Hephzibah city: In 2005-2009, Hephzibah city had a total population of 4,500 - 2,300 (50 percent) females and 2,200 (50 percent)

males. The median age was 33.1 years. Twenty-nine percent of the population was under 18 years and 11 percent was 65 years and older.

For people reporting one race alone, 67 percent was White; 28 percent was Black or African American; less than 0.5 percent was American Indian and Alaska Native; 1 percent was Asian; 1 percent was Native Hawaiian and Other Pacific Islander, and 1 percent was Some other race. Two percent reported Two or more races. One percent of the people in Hephzibah city was Hispanic. Sixty-seven percent of the people in Hephzibah city was White non-Hispanic. People of Hispanic origin may be of any race.

HOUSING CHARACTERISTICS: In 2005-2009, Hephzibah city had a total of 1,700 housing units, 14 percent of which were vacant. Of the total housing units, 69 percent was in single-unit structures, less than 0.5 percent was in multi-unit structures, and 31 percent was mobile homes. Fifty percent of the housing units were built since 1990.

OCCUPIED HOUSING UNIT CHARACTERISTICS: In 2005-2009, Hephzibah city had 1,500 occupied housing units - 1,100 (72 percent) owner occupied and 410 (28 percent) renter occupied. Five percent of the households did not have telephone service and 5 percent of the households did not have access to a car, truck, or van for private use. Multi Vehicle households were not rare. Thirty-seven percent had two vehicles and another 31 percent had three or more.

HOUSING COSTS: The median monthly housing costs for mortgaged owners was $1,153, nonmortgaged owners $277, and renters $737. Thirty percent of owners with mortgages, 5 percent of owners without mortgages, and 11 percent of renters in Hephzibah city spent 30 percent or more of household income on housing. **Source:** U.S. Census Bureau, 2005-2009 American Community Survey**.**

Land Use Characteristics

INTRODUCTION

Land use is at the heart of planning for the future of the city. The extent, timing, and location of new development, or reuse of existing developed land, depend in large part on the factors covered in the other chapters. Population change, economic development, community facilities, housing, the transportation system, and natural and historic resources all impact land use. This chapter summarizes existing land use and development patterns in Augusta and, in accordance with state planning standards, highlights areas requiring special attention. It also describes and maps the preliminary recommended ―character areas‖ in the county. The character area format provides the community with a framework for establishing the policies,

strategies, projects, incentives and or regulations to guide future development in a manner consistent with the city's vision. **Note that while the "character areas" were identified based on the definition in O.C.G.A. Chapter 110-12-1-.09, the term "neighborhood area" is used throughout the text of the Comprehensive Plan in describing each "character area." The change from "character area" to "neighborhood area" is based on public input received during development of the *Community Agenda*.**

LAND USE CATEGORIES

The Georgia Department of Community Affairs' (DCA) —Standards and Procedures for Local Comprehensive Planning includes a list of standard land use categories. The following section provides an overview of the land use categories Augusta-Richmond County has opted to utilize in order to inventory current land uses. A breakdown of current land uses in Augusta-Richmond County is also included on the Existing Land Use map.

Rural Residential – This category includes residential uses at a density of less than one unit per acre. The majority of this acreage consists of single-family detached homes and manufactured homes on relatively large lots, most of which are located in the extreme southern part of the city.

Low-Density Urban Residential – This category includes residential uses at a density of one-to-six units per acre. The majority of this acreage consists of single-family, detached houses clustered in subdivisions located between major arterial highways and collector streets. Several older neighborhoods contain high concentrations of historic single-family and duplex residential structures. Manufactured homes comprise about 8% of the housing market and are located on individual lots and in manufactured home parks.

High-Density Urban Residential - The bulk of the high-density residential land use is in apartment complexes located in close proximity to major roads, shopping centers and entertainment facilities. It also includes Augusta Housing Authority complexes scattered around the city.

Professional Office – Professional offices are located in a variety of settings, including high-rise office buildings, office parks, stand-alone structures, and converted residences. In Augusta they tend to be concentrated near institutional uses, such as hospitals and government facilities, and in suburban locations visible and accessible to the general public. The few high-rise office buildings in Augusta are located downtown, in the mid-town medical complex and in the vicinity of the I-520 / Wheeler Road interchange.

Commercial – Commercial uses are concentrated in downtown Augusta, in strip centers and individual lots on arterial streets, in shopping centers, and on scattered sites in older neighborhoods. The largest centers are located at interstate highway interchanges or in close proximity to them. In terms of square footage, the largest shopping centers in Augusta are the Augusta Mall and the Augusta Exchange Shopping Center.

Industrial – This category includes manufacturing, warehousing, and surface mining land uses. It also includes the city landfill. Major manufacturing plants are situated in industrial parks, or on individual sites, in the east and southeast portions of the city. Some are also located on scattered sites in the downtown area and in the older city neighborhoods. Light industrial uses and warehousing operations are located along some of the collector roads near Interstate 20 and the Bobby Jones Expressway. Surface mining operations (e.g. rock, clay, kaolin) are located in the north and east parts of the city and near Hephzibah.

Public / Institutional – This category includes certain government offices and facilities, and institutional land uses. Government uses include the municipal building and other government structures, police and fire stations, libraries, prisons, post offices, schools, military installations and similar uses. Examples of institutional land uses include hospitals, churches, cemeteries and colleges.

A number of government offices and facilities are located in downtown Augusta, including the city's municipal building, the state Department of Labor, the main U.S. Post Office, the main branch of the regional library, and federal, state and local courts. The mid-town area includes a mix of public and institutional uses, including University Hospital, the Medical College of Georgia (MCG), MCG Hospital and Clinics, MCG Children's Medical Center, the Charlie Norwood Veterans Administration Medical Center (Downtown Division), Paine College, Walton Rehabilitation Hospital and Select Specialty Hospital. Augusta State University, the Uptown Division of the Charlie Norwood VA Medical Center, Trinity Hospital of Augusta Hospital and Doctors Hospital are other major institutional uses. Elementary and secondary schools, churches, city fire stations, branch libraries and post offices are scattered throughout the city. Major state and federal institutions include Gracewood State School and Hospital, Georgia Regional Hospital, the Youth Development Center, and the Fort Gordon Military Reservation.

Transportation / Communications / Utilities - The vast majority of this acreage is in street and highway rights-of-way, but there are also two airports, parts of two railroad mainlines and two switchyards, utility substations, radio towers and cellular towers.

Park / Recreation / Conservation – This category includes land dedicated to active or passive recreational uses. Examples include the city's park and recreation facilities scattered throughout the community, several public and private golf courses, the Augusta Canal National Heritage Area, the Phinizy Swamp Wildlife Management Area, and land purchased or donated under the Community Greenspace Program. The largest recreation facilities include Diamond Lakes Regional Park, Pendleton King Park, Lake Olmstead and Julian Smith Casino. Golf Courses include the Augusta Golf Club, Forest Hills Golf Course, and Augusta Country Club, the Augusta National, Goshen Plantation, Green Meadows and Pointe South.

Agriculture – This category includes land dedicated to agriculture, farming (cropland, livestock production, specialty farms) or other similar rural uses such as pasture land not in commercial use. Such uses are scattered across the southern part of the city.

Forestry – This category includes land dedicated to commercial timber or pulpwood harvesting or similar uses such as woodlands not in commercial use. Such uses are scattered across the southern part of the city and on Fort Gordon.

Undeveloped and Unused – These categories include land not developed or not being used for a specific purpose. Examples include vacant lots scattered throughout many neighborhoods, vacant structures that are dilapidated, and floodplains of the Savannah River and local creeks.

Mixed Use – This land use category was not included because there are no areas in the city in which a mix of land uses are required or are balanced in some way. The Central Business District does contain more of a mix of land uses than any other area of the city, including an increasing number of loft apartments, but commercial and institutional land uses tend to predominate on their own individual lots in the CBD.

In addition, there are approximately twelve (12) Planned Unit Developments (PUDs) scattered throughout the city. The PUD regulations do not mandate a specific mix of land uses and have been employed primarily as a means to develop residential subdivisions at a slightly higher density than in other zoning classifications.

EXISTING LAND USE

Augusta is characterized by land uses reflecting an older city combined with newer suburbs and semi-rural areas. Land use within the old city limits includes neighborhoods of varying ages, a central business district,

concentrations of public / institutional uses, commercial uses in shopping centers and on individual sites, and industrial uses on scattered sites. These uses are connected by a series of streets and highways, most of which are laid out on a grid pattern. In many cases, residential, commercial and industrial uses are in close proximity to one another, reflecting development that occurred prior to enactment of the local zoning ordinance. In contrast, that part of the city formerly in unincorporated Richmond County is characterized by a land use pattern more like a community that developed after World War II. Major urban land uses (residential, commercial, industrial and institutional) are separated from one another. Detached, single-family residences in subdivisions, apartment complexes, and manufactured homes are the predominant residential uses. Strip commercial development is prevalent along all of the major arterial highways and consists of shopping centers, office complexes, and businesses on individual sites. Major manufacturing plants are situated in industrial parks or on individual sites in close proximity to highways and railroad lines. At the fringe of the urbanized part of the city, development becomes sparse and gives way to more open space, the occasional farm, residences on larger lots, and woodlands.

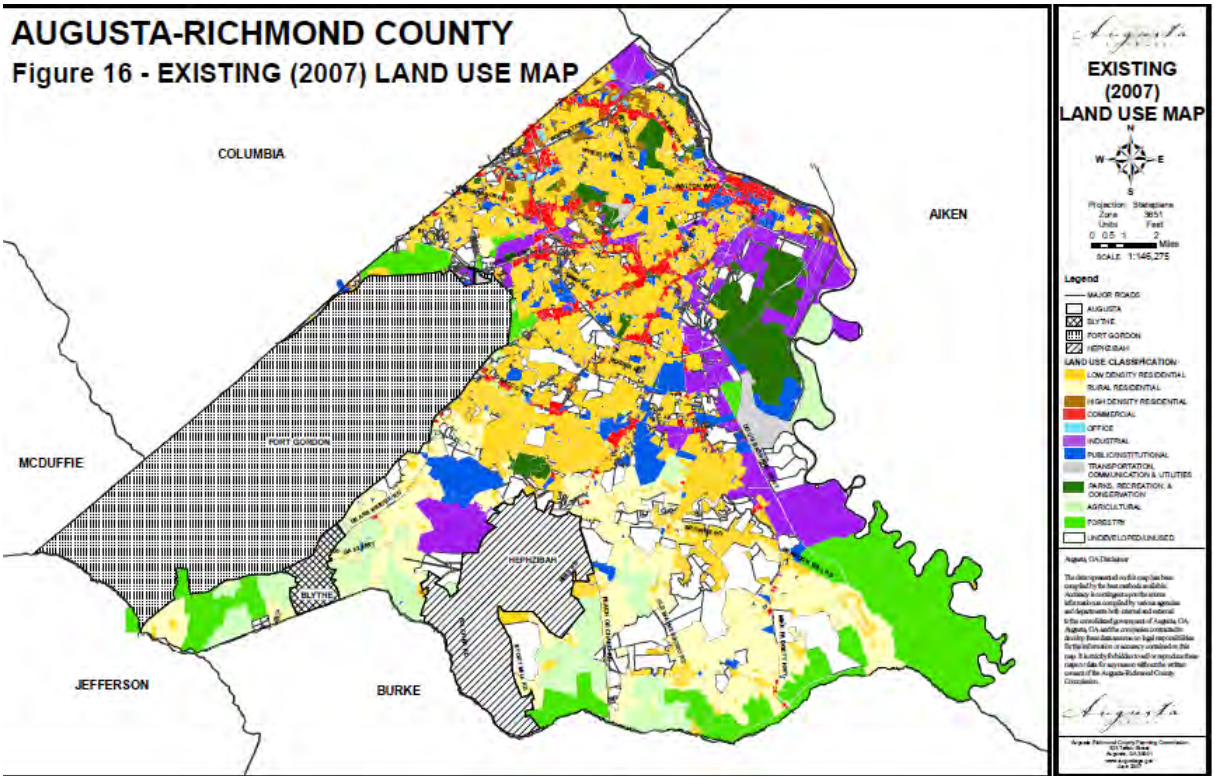

Table 2 shows the breakdown of existing land use in acres. Of note is the high percentage of low-density residential land use and the fact that Fort Gordon covers approximately one-fifth of Richmond County's land area. It is important to note that a large percentage of Fort Gordon is forested land.

Table 2 Existing Land Use Augusta and Richmond County, 2007

	Augusta		Richmond County	
LAND USE CATEGORY	**Acres**	**Percent**	**Acres**	**Percent**
RESIDENTIAL	55,240	36.4%	57,516	27.4%
Low - Density Urban Residential	33,675	22.2%	34,746	16.5%
High - Density Urban Residential	1,506	1.0%	1,506	0.7%
Rural Residential	20,059	13.2%	21,264	10.1%
COMMERCIAL	4,552	3.0%	4,573	2.2%
OFFICE / PROFESSIONAL	655	0.4%	657	0.3%
INDUSTRIAL	10,372	6.8%	10,571	5.0%
PUBLIC / INSTITUTIONAL	8,177	5.4%	8,314	4.0%
FORT GORDON (Other Public)			44,416	21.1%
TRANSPORTATION / COMM. / UTILITIES	8,300	5.5%	8,673	4.1%
PARKS / RECREATION / CONSERVATION	6,789	4.5%	6,819	3.2%
AGRICULTURE	3,189	2.1%	10,592	5.0%
FORESTRY	26,595	17.5%	26,687	12.7%
UNDEVELOPED	23,524	15.5%	26,857	12.8%
UNUSED (Water)	4,371	2.9%	4,533	2.2%
TOTAL	151,731	100.0%	210,208	100.0%

SOURCE: Augusta-Richmond County Geographic Information System, Calculations by the Augusta-Richmond County Planning Commission,

The total amount of undeveloped land is a little deceptive because rural residential and forest lands also have the potential for being converted to more intense uses.

Economic Trends

Commercial Development

DOWNTOWN AREAS

Historically, Broad Street has anchored downtown Augusta and ensured its status as the metropolitan area's financial hub. There are 895 businesses employing approximately 17,476 people located downtown. The service sector accounts for the largest share of businesses and jobs. Over 463 service businesses (51.7% of all downtown businesses) employ 9,187 people (52.6%). Downtown is well diversified with a significant number of businesses and employees in Finance, Insurance & Real Estate (5.5%), Retail Trade (7%) and Government (19.8%). Approximately 1,228 (7%) workers are employed in the manufacturing sector. Major downtown employers include: Medical College of Georgia (7,800), University Hospital (3,860), and the Augusta-Richmond County Government (2,600).

Unlike many downtowns engulfed by residential land uses, the number of businesses around downtown increases substantially. Within a 1-mile radius of downtown, the number of businesses grows by 33% to 1,190 while employment increases by approximately 4,000. Within a 3-mile radius, there are an additional 1,913 business and 22,108 workers. For residents living downtown, this means access and convenience of neighborhood shops and larger retail areas.

Downtown Spending Patterns

Downtown retail goods & services expenditures reflect the need for a wide variety of products. Approximately $45 million is spent annually on products ranging from apparel and computers to food and home furnishings. Expenditures within a 3-mile radius of downtown climb to nearly $725 million. The primary downtown expenditure is home services ($6,231 per person), which include rents or mortgages. Other major expenditures include financial services ($5,817), food ($5,188), and transportation ($4,593).

Downtown Investment

Downtown is undergoing significant private investment. Castleberry/Snow's Brands Foods has invested $9 million at its 15th Street factory, adding as many as 200 new jobs. Additionally, dozens of smaller commercial establishments, ranging from antique shops to restaurants, have opened along Broad Street, revitalizing the downtown area. Retail in downtown is in the midst of recovery after being hit hard by the suburban development of the 1980s and 1990s. These new commercial establishments are beginning to anchor residential development.

Renovation and rehabilitation of existing properties is also occurring at record pace:

* Commerce Building– On the 600 block of Broad Street, the historic 1880s building is undergoing a $30,000 face-lift with Augusta Façade Program grants and another $1 million in private funds is being invested to turn the building into office space, loft apartments and a restaurant.

- DeLaigle House – The mid-1800s residence once considered for the wrecking ball and a parking lot is undergoing $700,000 in major rehab. An accounting firm will be relocating to the renovated facility and a new coffee shop will open later in the year.
- Miller Theatre – This landmark dating back to 1940 was purchased this summer and is undergoing approximately $400,000 in rehabilitation while a complete redevelopment plan is put in place.
- SunTrust Building– Purchased this summer for $4.7 million, plans are underway to spruce-up the building with $1 million for renovation of the interior and the installation of new windows.

Over $3 million in public and private funds has recently been invested to develop the Augusta Common, conceived as an urban park and gathering place for residents and visitors, and venue for special events. Reaching from the riverfront across to Broad Street, anchored by the Morris Museum of Art to the north and commercial areas to the south, the park is ideally situated between the existing financial sector and the emerging Artist Row/Marbury Sectors.

With a capacity of 10,000 to 15,000, the Common has been wired for live music, and is used for a variety of outdoor festivals, including the Arts in the Heart festival. The residential development generated by the Common will likely lead to more retail development and business opportunities. Restaurant and café owners have invested in seating capacity anticipating growth.

The City of North Augusta, located along the Savannah River just across downtown, is in the process of redeveloping 200 acres along the River in a well-designed effort to re-link the city with its riverfront. The project includes mixed-use traditional scaled residential and town center of over 800 single-family homes, condominiums and apartments with a wide range of affordability. The riverfront portion, extending approximately one mile from the Thirteenth Street Bridge west, will encompass a riverfront park, open to

the entire area, and linked by the existing North Augusta Greenway Trail system.

Public Investment

The City of Augusta, through the Augusta Housing & Economic Development Department, is helping to restore downtown commercial structures through its Façade Rehabilitation Program. The program has been designed to assist commercial property owners improve the exterior of their buildings through appropriate rehabilitation. Façade Grants of up to $30,000 have been awarded to numerous downtown businesses.

The Richmond County Board of Education recently moved its administrative office to downtown in an adaptive reuse of a large retail property. A new courthouse and judicial center, U.S. Bankruptcy Court building and expanded library also are being planned in the area.

Downtown's main colleges - Medical College of Georgia, Paine College and Cambridge College, along with nearby Augusta State University some 3 miles from downtown – collectively enroll approximately 10,000 students and are a major generator of downtown investment, jobs and street traffic.

Augusta State University has just invested $18.5 million for housing for over 500 students at the Wrightsboro Road Campus and additional units are planned. A 50,000 square foot student center is under construction at a total cost of $12.5 million. The Georgia University system has committed $65 million to upgrading the Augusta State University Campus. Downtown will benefit from ASU's continued growth.

Medical District Investment

Investment in downtown's renowned medical facilities is also occurring at a rapid pace. University Hospital is undergoing an $84.5 million upgrade of its facility - one of the single largest investments in downtown Augusta. This venture includes a new $50 million cardiovascular center, a one-stop outpatient center and surgical suites designed to accommodate emerging technology.

Major medical construction is also underway at the Medical College of Georgia, and includes a $54 million Cancer Research Center. Also under construction at MCG are a Health Science Building ($38 million) and an energy plant ($7 million).

With the recent opening of the Augusta BioBusiness Center, downtown Augusta added another building block to the infrastructure needed to attract and support a growing life sciences industry. Recently designated by

Governor Purdue as one of the Georgia's Innovation Centers, the Center is focusing on the development of medical device and medical software companies. Its current tenants include related organizations such as East Bay Capital, the MCG Innovation Center Outreach, and the Development Authority of Richmond County.

The Center is a complement to the Medical College of Georgia Life Sciences Business Development Center (MCG Biotech Incubator), which opened its doors in mid-2004. The two incubators are essential in nurturing the fledging downtown life sciences industry. Client companies in either incubator have access to the services of the other, including core lab space and state-of-the-art equipment, furnished offices, and access to MCG basic and clinical research programs.

Canal Area Investment

The Augusta Canal is one of downtown's jewels. Originally devised to harness the power of the Savannah River for mills, today the Canal is being restored for recreation and includes trails, hiking, as well as memorable paddling and boat tours. The only National Heritage Area-designated in Georgia, the Canal's nine-mile corridor follows the full length of the best preserved canal of its kind remaining in the southern United States.

Over $84.9 million ($16.9 million public and $68 million private) has been invested along the Canal in recent years. Approximately 91% of the funding has been invested in the downtown section of the Canal. The $15 million reconstruction of portions of the second and third levels of the Canal at Walton Way at has resulted in a beautiful waterfront setting for future development. The development potential around the Canal is estimated at $300 million.

Industrial Development

A great diversity of companies are located in Augusta-Richmond County, including E-Z-GO Textron, International Paper, Covidien, Kellogg's, Thermal Ceramics, PCS Nitrogen, Solvay Advanced Polymers, General Chemical, Monsanto, CRL Warehouse & Logistics, Procter & Gamble, NutraSweet, DSM, Electrolux, SOLO Cup, Olin, Con-Agra, Finnchem, US Battery, Automatic Data Processing, T-Mobile, FedEx Ground, and many others. In 2007, Augusta was named by BizJournals.com as "The Most Affordable Place in the United States to Own a Home". Housing in Augusta is approximately 38% of the national average. Overall, the cost of living is about 78% of the national average. This translates in to overall lower operating costs for companies, making Augusta even more attractive for new

locations.

Also, Southern Business & Development magazine named Augusta as one of the "Top Ten Places in the South With Plenty of Talented Labor." The 1800-acre Augusta Corporate Park was also named by the publication as one of the "Top Ten SuperSites in the South". Major corporations have facilities in Augusta, including:

Amoco	Southern Company
Covidien	Wachovia/Wells Fargo
Olin	DuPont
AT&T	ConAgra
Electrolux	SunTrust Bank
Automatic Data Processing	Georgia Bank & Trust
Merrill Lynch	SCE&G
Elanco	T-Mobile
Coca-Cola	Textron
Bank of America	Equity Residential
Sprint	FedEx
Delta Airlines	

GATEWAY CORRIDOR AREAS

The clean appearance and regular maintenance of gateways make a positive first impression with visitors. There are a number of important gateways into the city, such as interstate interchanges, 13th Street, Gordon Highway, Doug Barnard Parkway, Peach Orchard Road, Sand Bar Ferry Road, the Calhoun Expressway and Riverwatch Parkway. The recent completion of Phase I of a Wayfinding Signage Program is one component of gateway improvements. The Corridor and Gateway Action Plan (June 2000) could serve as a template for upgrades to these gateways and corridors.

The Augusta Canal is a historic resource and linear greenspace trail of regional, state and national significance. Additional greenspace areas and potential linear trail routes are scattered throughout the area. Gateways into the city include I-20 at Riverwatch Parkway, I-20 at Washington Road and Riverwatch Parkway from I-20 to downtown. The Augusta National Golf Course is a major landmark in the area.

Blythe

Blythe is a small city of approximately 790 residents (Census Estimate, 2006) located in southwest Richmond County. Blythe is a historic community consisting of a residential / institutional core surrounded by agricultural and

rural residential uses. Residential uses include a mix of older stick-built homes and manufactures houses. Until some small annexations in the early 1990s, the limits of the community extended in a one-mile radius from the center of Blythe. At 2.5 square miles, Blythe is still relatively small. Blythe also participates with Augusta in a Service Delivery Strategy.

Blythe Government, Development, Services

Blythe is governed by a Mayor/Council form of government; the mayor and four council members are elected. The City Council appoints the Planning Commission and the Building Inspector; there are two departments: Police and Waterworks.

Blythe is primarily a residential farming community that desires to maintain this character. It does not experience significant development activity, largely due to its rural location. Soils and drainage limitations influence development which may be subject to regulatory requirements associated with wetlands. Areas shown on the generalized wetlands map are subject to approval by the U.S. Army Corps of Engineers.

The City lies completely within a significant aquifer recharge area and development must follow guidelines established by the Georgia Department of Natural Resources to limit exposure of subsurface waters to excessive pollution and/or contamination. Protection standards apply to certain activities such storage of agricultural chemicals, hazardous waste handling and disposal, chemical and petroleum storage tanks, on-site septic fields, and manufactured home parks.

Activities that require a building permit must conform to the State Building Code and permits are issued after approval by the City's Building Inspector and the Planning Commission. In 2003, 28 building permits were issued; 37 permits were issued in 2004. The Subdivision Ordinance requires conformance with the Augusta-Richmond County technical manual for streets and road design. Manufactured houses must be affixed to a permanent foundation and anchored to the ground to withstand wind loads per the State Building Code.

Under the Service Delivery Agreement, Augusta provides fire protection, emergency medical and 911 services; Augusta Public Works maintains roads and drainage ditches. The State, through a separate fund, handles resurfacing of City streets and roads. The City provides water to its residents, tapping two wells and a 150,000 gallon storage tank. All buildings have on-site septic systems.

The Blythe Elementary School serves grades Pre-K through 5 and is the only school in the area. Located at Church Street, the school has 21 classrooms, a media center, a music room, gym, and a cafeteria.

City of Blythe Budget 2009

CITY OF BLYTHE, GEORGIA
GOVERNMENTAL FUNDS
STATEMENT OF REVENUES, EXPENDITURES, AND
CHANGES IN FUND BALANCES GOVERNMENTAL FUNDS
FOR THE YEARS ENDED DECEMBER 31, 2009

	General Fund	Veteran's Memorial Fund	SPLOST Fund	Total Governmental Funds
REVENUES:				
Taxes	$ 72,131	$ -	$ -	$ 72,131
Intergovernmental	129,120	-	-	129,120
Licenses and permits	19,105	-	-	19,105
Charges for service	4,060	2,789	-	6,849
Fines & Forfeitures	56,248	-	-	56,248
Use of money and property	7,314	-	9,027	16,341
Other	6,134	-	-	6,134
Total revenues	294,112	2,789	9,027	305,928
EXPENDITURES:				
Current:				
Administration	10,582	1,475	-	12,057
Financial	137,116	-	-	137,116
Judicial	4,937	-	-	4,937
Public safety	118,097	-	-	118,097
Culture and recreation	6,554	-	24,878	31,432
Debt Service:				
Principal	3,117	-	-	3,117
Interest	398	-	-	398
Total expenditures	280,801	1,475	24,878	307,154
Excess of revenues over expenditures	13,311	1,314	(15,851)	(1,226)
OTHER FINANCING SOURCES (USES):				
Sale of capital assets	2,533	-	-	2,533
Transfers	-	-	(441,103)	(441,103)
Total other financing sources (uses)	2,533	-	(441,103)	(438,570)
Net change in fund balance	15,844	1,314	(456,954)	(439,796)
Fund balance, beginning	253,415	3,392	670,794	927,601
Fund balance, ending	$ 269,259	$ 4,706	$ 213,840	$ 487,805

The Notes to the Financial Statements are an integral part of this statement.

Hephzibah

Hephzibah is a small city with approximately 4,500 residents (Census Estimate, 2005-2009) located in south central Richmond County. For many years, the geographic limits of the city extended in a one-mile radius from a point in downtown Hephzibah. As a result, the oldest homes and commercial establishments are located in downtown Hephzibah. During the 1980s and early 1990s, the city annexed additional acreage in then-unincorporated Richmond County. By the time Augusta and Richmond County consolidated, Hephzibah covered over 19 square miles. Today, Hephzibah's downtown includes a mix of old and new development (residential, commercial and institutional), with county schools and recreation facilities close by. Away from downtown, Hephzibah is characterized by a mix of rural residences, suburban residences, open space, woodlands and spot commercial uses. Hephzibah participates with Augusta in a Service Delivery Strategy.

Hephzibah Government

Hephzibah is governed by a City Commission form of government; its five commissioners are elected. The City's work is performed by eight departments: Fire, Police, Finance, Planning & Zoning, Cemetery, Water & Sewer, Building & Grounds, and Streets.

The Hephzibah Planning Commission is charged with the duties and responsibilities set forth in State statute, including the responsibility to develop comprehensive planning and zoning ordinances to promote health, safety, morals and the general welfare of the people of the city.

City of Hephzibah Budget 2009

City of Hephzibah, Georgia
Statement of Revenues, Expenditures,
and Changes in Fund Balances
--Governmental Funds
Year Ended June 30, 2009
(dollars in thousands)

	General	Capital Project (SPLOST) Fund	Other Governmental Funds	Total Governmental Funds
REVENUES				
Sales tax	$ 710	$ -	$ -	$ 710
Insurance Premium	217	-	-	217
Alcoholic Beverage Taxes	92	-	-	92
Other taxes:				
Intangible	3	-	-	3
Franchise taxes (fees)	164	-	-	164
Licenses and permits	41	-	-	41
Fines and forfeitures	37	-	-	37
Investment income	113	160	-	273
Intergovernmental	-	-	-	-
Cemetery Income	10	-	-	10
Other	3	-	-	3
Total revenues	$ 1,390	$ 160	$ -	$ 1,550
EXPENDITURES				
Current:				
General government	$ 126	$ -	$ -	$ 126
Public safety:				
Police	296	-	-	296
Fire	414	-	-	414
Municipal Court	17	-	-	17
Public Works	55	-	-	55
Cemetery	5	-	-	5
Debt services:				
Principal	-	-	-	-
Interest	-	-	-	-
Capital Outlay	-	287	-	287
Total expenditures	$ 913	$ 287	$ -	$ 1,200
Excess (deficiency) of revenues over (under) expenditures	$ 477	$ (127)	$ -	$ 350
OTHER FINANCING SOURCES (USES)				
Transfers from other funds	-	-	-	-
Transfers to other funds	-	(233)	-	(233)
Capital financing	-	-	-	-
Sale of capital assets	-	-	-	-
Premium on bonds	-	-	-	-
Long-term debt issued	-	-	-	-
Net other financing sources (uses)	-	(233)	-	(233)
Net change in fund balances	$ 477	$ (360)	$ -	$ 117
Fund balances, beginning	5,175	5,115	-	10,290
Fund balances, ending	$ 5,652	$ 4,755	$ -	$ 10,407

See accompanying notes to financial statements.

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Metro Augusta – Richmond County Government

A ten-member board of commissioners and a mayor govern the city of Augusta. Eight of the commission members are elected from individual districts, and two are elected from a combination of four districts. The mayor is elected on a citywide basis. The term of office is four years, and no person can serve as either a commissioner or mayor for more than two consecutive terms. The mayor is the chief executive officer of the government and has the following powers and duties:

- To preside at all meetings of the commission;
- To serve as the official head of the government for the service of process and for ceremonial purposes;
- To administer oaths and take affidavits;

- To sign all written contracts on behalf of the City;
- To ensure that all laws, ordinances, and resolutions are faithfully executed.

The mayor has the right to vote to make or break a tie vote on any matter coming before the commission, but cannot veto ordinances, resolutions, or other actions of the commission.

Commission members sit on one or more of five standing committees: Finance, Administrative Services, Engineering Services, Public Services, and Public Safety/Information Technology. The appropriate committee first hears ordinances, resolutions and other matters. From the committee, an item is forwarded to the full Commission for consideration. The Commission meets twice each month, as do each of the committees. In January of each year the Commission elects a member to serve as Mayor Pro Tem. The Mayor Pro Tem chairs the Commission meeting in the absence of the Mayor, and performs other duties as assigned by the Commission. A member can serve no more than two consecutive one-year terms as Mayor Pro Tem.

Government Administration

The Commission employs an Administrator to coordinate the day-to-day activities of city government. The city employs approximately 2,600 people in over fifty different departments. A number of the departments are located in the Municipal Building at 530 Greene Street, and a couple of annex buildings. Other major facilities than the city owns, and some departments operate out of include:

- Public Works & License & Inspection Departments - 1815 Marvin Griffin Road
- Recreation and Parks Department - 2027-29 Lumpkin Road
- Law Enforcement Center - 401 Walton Way
- James B. Messerly Wastewater Treatment Plant - 1820 Doug Barnard Parkway
- Richmond County Correctional Institution - 2314 Tobacco Road
- Emergency Management Agency/911 Center - 911 Fourth Street
- Fleet Management - 1568 Broad Street
- Augusta Public Transit Administration & Garage - 1535 Fenwick Street
- Augusta Public Transit Transfer Facility - 1546 Broad Street
- Augusta-Richmond County Landfill - 4330 Deans Bridge Road
- Phinizy Road Jail - 1941 Phinizy Road
- Utilities Department, South Augusta Office – 2760 Peach Orchard Road
- Waterworks Filter Plant - 1425 Highland Avenue
- N. Max Hicks Waterworks Filter Plant – Tobacco Road

According to recent research by the Finance Department, the city leases 40,455 square feet of office space for other departments and agencies. The majority of the leased space - 30,445 square feet - is concentrated in three downtown buildings:

- The Hatcher Building, 501 Greene Street - the District Attorney, Facilities Management Department and Law Department
- New South Building, 360 Bay Street - Utilities Department Administration, Human Relations Commission, Coroner's Office
- ANIC Building, 925 Laney-Walker Blvd - Housing and Community Development Department and Fire Department Administration

The Municipal Building and the Law Enforcement Center together also are home to several constitutional officers, judges and their staffs. These include the Clerk of Superior Court, Tax Commissioner, Marshal's Department, Sheriff's Department, the State Court Solicitor, and judges for the following court systems: Superior Court, State Court, Probate Court, and Civil and Magistrate Court.

Augusta - Richmond County Budget – 2009

AUGUSTA, GEORGIA

FY 2011 APPROVED BUDGET

ALL FUNDS

ADOPTED NOVEMBER 16, 2010

BUDGET BY FUND

Fund Number	Fund Name	Revenues FY 2011	Expenditures FY 2011
	GENERAL FUNDS		
101	General Fund	77,767,120	77,767,120
273	Law Enforcement	56,144,770	56,144,770
	Total General Fund/Law Enforcement	133,911,890	133,911,890
104	Port Authority	108,000	108,000
111	JAG	343,230	343,230
	SPECIAL REVENUE FUNDS		
205	Drug Court	135,000	135,000
207	5% Crime Victim's Asst Program	376,560	376,560
208	Supplemental Juvenile Services	31,000	31,000
211	Federal Drug Forfeitures	200,000	200,000
212	State Drug Forfeitures	250,000	250,000
213	K-9 Forfeitures	20,000	20,000
215	Wireless Phase	603,540	603,540
216	Emergency Telephone Response	3,714,910	3,714,910
217	Building Inspections Fund	1,099,145	1,099,145
220	Grants	2,048,030	2,048,030
221	Housing & Neighborhood Development	14,979,110	14,979,110
222	Urban Development Action Grant	12,300	12,300
231	Board of Appeals	23,260	23,260
261	NPDES Permit Fees	20,000	20,000
271	Urban Services District	16,230,170	16,230,170
272	Capital Outlay	4,713,750	4,713,750
274	Fire Protection	22,131,290	22,131,290
275	Occupation Tax	2,143,160	2,143,160
276	Street Lights	5,040,000	5,040,000
277	Downtown Development Authority	167,420	167,420
278	Sheriff Capital Outlay Grant	200,000	200,000
296	Promotion Richmond County	4,103,410	4,103,410
297	Transportation and Tourism	1,030,680	1,030,680
298	Urban Redevelopment Projects	3,649,000	3,649,000

AUGUSTA, GEORGIA

FY 2011 APPROVED BUDGET

ALL FUNDS

ADOPTED NOVEMBER 16, 2010

BUDGET BY FUND

Fund Number	Fund Name	Revenues FY 2011	Expenditures FY 2011
	CAPITAL PROJECT FUNDS		
322	Special 1% Sales Tax, Phase II	2,028,130	2,028,130
323	Special 1% Sales Tax, Phase III	9,934,310	9,934,310
324	Special 1% Sales Tax, Phase IV	31,453,580	31,453,580
325	Special 1% Sales Tax, Phase V	73,467,710	73,467,710
326	Special 1% Sales Tax – Urban Phase II	244,620	244,620
327	Special 1% Sales Tax – Urban Phase III	724,800	724,800
328	Special 1% Sales Tax, Phase VI	45,160,250	45,160,250
361	Revenue Bond Series 2010	24,000,000	24,000,000
	DEBT SERVICE FUNDS		
421	Coliseum Authority Revenue Bonds 2010	1,727,090	1,727,090
431	G/O Sales Tax Bonds 06	9,695,850	9,695,850
432	G/O Sales Tax Bonds 09	9,960,250	9,960,250
	ENTERPRISE FUNDS		
506	Water & Sewerage	118,160,802	118,160,802
507	Water & Sewerage-Renewal & Extension	12,007,720	12,007,720
508	1996 W & S Bond Fund	4,732,530	4,732,530
509	2000 Bond Series	6,948,380	6,948,380
510	W&S Bond 2002 Series	9,964,660	9,964,660
511	W&S Bond 2004 Series	8,612,670	8,612,670
541	Waste Management Fund	10,301,550	10,301,550
542	Garbage Collection Fund	18,401,070	18,401,070
543	Waste Management 2004 Bonds	1,298,320	1,298,320
546	Augusta Public Transit System	10,482,480	10,482,480
551	Augusta Regional Airport	35,258,240	35,258,240
552	Daniel Field	231,780	231,780
566	Municipal Golf Course	574,000	574,000
	INTERNAL SERVICE FUNDS		
611	Risk Management	2,441,840	2,441,840
616	Employee Health Benefits Fund	20,211,920	20,211,920
621	Workers Compensation Fund	1,909,520	1,909,520
622	Unemployment Fund	245,150	245,150

AUGUSTA, GEORGIA
FY 2011 APPROVED BUDGET
ALL FUNDS
ADOPTED NOVEMBER 16, 2010
BUDGET BY FUND

Fund Number	Fund Name	Revenues FY 2011	Expenditures FY 2011
623	Long-Term Disability Insurance	568,000	568,000
626	Fleet Operations & Management	5,478,720	5,478,720
631	GMA Lease Program	2,838,280	2,838,280
	TRUST & AGENCY FUNDS		
761	1945 Pension Fund	1,030,000	1,030,000
763	Urban 1949 Pension Plan	5,935,000	5,935,000
764	Other Urban Pension Plans	1,548,560	1,548,560
791	Exp Trust Fund-Perpetual Care	76,140	76,140
792	Exp Trust Fund-Joseph Lamar	180	180
950	Urban Redevelopment Agency	4,197,130	4,197,130
	TOTAL	**$ 709,136,087**	**$ 709,136,087**

Community Facilities and Services

The Commission employs an Administrator to coordinate the day-to-day activities of city government. The city employs approximately 2,600 people in over fifty different departments. A number of the departments are located in the Municipal Building at 530 Greene Street, and a couple of annex buildings. Other major facilities than the city owns, and some departments operate out of include:

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- □ Richmond County Correctional Institution - 2314 Tobacco Road
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- □ Fleet Management - 1568 Broad Street
- □ Augusta Public Transit Administration & Garage - 1535 Fenwick Street
- □ Augusta Public Transit Transfer Facility - 1546 Broad Street
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- □ Phinizy Road Jail - 1941 Phinizy Road
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The Municipal Building and the Law Enforcement Center together also are home to several constitutional officers, judges and their staffs. These include the Clerk of Superior Court, Tax Commissioner, Marshal's Department, Sheriff's Department, the State Court Solicitor, and judges for the following court systems: Superior Court, State Court, Probate Court, and Civil and Magistrate Court.

PUBLIC SAFETY

Public safety includes police protection, fire protection, emergency medical services, 911 dispatch services, and animal control services. The Richmond County Sheriff's office provides police protection. All other public safety functions are provided through line agencies of the Augusta government.

Richmond County Sheriff's Office

The Richmond County Sheriff's Office is an independent public agency headed by an elected sheriff. The office employs 734 people and is divided into four divisions: Administrative, Uniform (or Patrol), Criminal Investigation, and the Jail Division. The Sheriff's Office also staffs and operates a training center.

The Richmond County Sheriff's Office Training Center is a 500-acre facility located on Deans Bridge Road near the Richmond County landfill. A staff of 8 coordinates all training activities at the program. The center conducts or hosts training courses 50 weeks a year to Sheriff's Office deputies and to personnel from other law enforcement agencies. The center is equipped with a "live fire" tire house and an Emergency Vehicle Operator Course.

Fire Protection

The Augusta-Richmond County Fire Department provides full-time professional fire protection to all parts of Augusta and within the city of Blythe. The service area covers approximately 214 square miles (excluding Hephzibah and Fort Gordon), and includes a mix of residential areas, high value districts, and woodlands. A high value district is an area of commercial, industrial and/or institutional land uses of unusually high

property value. Examples of high value districts include downtown Augusta, the midtown medical complex, Augusta Mall and other shopping centers, and the Miracle Mile Industrial Park on Marvin Griffin Road. The service area includes a resident population of 188,141 (2000 Census). The Fire Department has 313 employees and 39 pieces of firefighting equipment distributed among 19 fire stations.

The department's headquarters is located at 3117 Deans Bridge Road Augusta, GA. Of the total employees, 288 are combat firefighters and the rest are administrative and support personnel. Administrative offices are located with the department headquarters on Laney Walker Boulevard. Both offices will relocate to a new building on Deans Bridge Road by the end of 2009. Within the department, the Fire Prevention Bureau is responsible for arson investigation, code enforcement, and fire safety education. Schools, places of assembly, and buildings in high value districts are a top priority for life safety code enforcement. Table C-1 lists the location, number of personnel and major equipment at each fire station.

Table C-1
Fire Department Facilities and Equipment
Augusta-Richmond County

Station Number	Location	Year Built	Equipment	Personnel
1	1 Broad Street	2003	1500GPM Pumper Water Rescue Vehicle	12
2	1435 Walton Way	1957	1500GPM Pumper	12
3	1099 Reynolds St.	1970	1500 GPM Pumper 105' Aerial Truck Command Vehicle High Angle Rescue Vehicle	27
4	1866 Ellis St.	1974	1500 GPM Pumper	12
5	M.L.K. Blvd.	1996	1500 GPM Pumper Air Supply Vehicle	12
6	2618 Richmond Hill Rd.	2008	1500 GPM Pumper 104' Aerial Truck Command Vehicle	27
7	2917 Willis Foreman Road	2003	1500 GPM Pumper Hazard Mat Vehicle Tanker	12
7	2163 Central Ave. Training Center	1913	1921 American of France Fire Truck	0
8	2023 Highland Avenue	2004	1500 GPM Pumper 100' Aerial Truck Command Vehicle Light and Air Vehicle	27
9	3507 Walton Way Ext.	1974	1500 GPM Pumper 102' Aerial Truck	24
10	2625 Washington Rd.	1955	1500 GPM Pumper	12
11	2108 Old Savannah Rd.	1982	1500 GPM Pumper	12
12	1151 Hephzibah McBean Road	2004	1500 GPM Pumper 1500 GPM Tanker	12
13	2619 Lumpkin Rd.	1973	1500 GPM Pumper 1500 GPM Tanker	12
14	3507 Highway 88	1978	1500 GPM Pumper 1500 GPM Tanker	12
15	1721 Flowing Wells Road	2004	1500 GPM Pumper	12
16	3446 Old Louisville Rd	1995	1500 GPM Pumper	12
17	3705 Old Waynesboro Rd.	1975	1500 GPM Pumper Ladder Service Truck	12
18	4185 Windsor Spring Rd.		1500 GPM Pumper Haz Mat Vehicle Command Vehicle	15
19	1600 Brown Road	2004	1500 GMP Pumper	12

Source: Augusta Fire Department, December 2007

Emergency Medical Services

The Augusta 9-1-1 Center is located at 911 Fourth Street in downtown Augusta. The center is fully staffed on each shift with properly trained and equipped Emergency Medical Dispatchers. Depending on the nature of the call, an ambulance and/or the Fire Department First Responder is dispatched to the location. Gold Cross Ambulance Service has a three-year contract to provide emergency medical services in Augusta-Richmond County. Gold Cross now uses seven ambulances at all times and eight during peak periods.

Animal Control

The Augusta-Richmond County Animal Services Department provides animal control services in Augusta. Department staff includes a director, a kennel operations manager and a field supervisor. The department operates out of a relatively new 17,500 square-foot facility – it opened in January 2004 – located at 4164 Mack Lane. The facility is open for adoption of pets Tuesday through Saturday, from 12:45pm – 4:45pm, and closed on Sunday and Monday. Field Services are available Monday through Friday from 8:30 AM until 5:00PM excluding holidays. The department operates a fleet of trucks that provide coverage throughout the city. The facility takes in an average of 10,000 animals each year. After hours emergency calls are taken by the Sheriff's Department's Dispatch Office (706) 821-1080.

EDUCATION FACILITIES

The Richmond County Board of Education and several private schools provide elementary and secondary education facilities in Augusta and Richmond County. Post-secondary education facilities include Augusta Technical College, Augusta State University, Paine College, and the Medical College of Georgia. Brenau University, Troy University, the University of Phoenix and Savannah River College are other post-secondary institutions located in Augusta and offering a variety of degrees online or at a campus.

The Richmond County Board of Education consists of ten members elected by districts that coincide with the city commission district boundaries. Eight school board members are elected by single districts and the remaining two are elected by combined districts. The Board operates under a committee system established by the Board President. The Board appoints a Superintendent to administer the operations of the public school system. The Board employs approximately 5,222 people, and all administrative offices are located in renovated buildings located at 870 Broad Street in downtown Augusta.

There are currently 60 schools in the Richmond County public school system. Of these 36 are elementary, 10 are middle (including two charter schools), 8 are high schools, 3 are magnet schools and 3 are alternative / specialty schools. Enrollment as of the fall 2007 was approximately 33,070 students. The magnet school concept is designed to encourage system-wide attendance at inner-city schools. Richmond County opened its first magnet school in 1981. Currently Richmond County has three magnet schools: John S. Davidson Fine Arts Magnet School (grades 6-12), A. R. Johnson Health Science and Engineering Magnet School (grades 9-12) and C. T. Walker Traditional Magnet School (grades K-8).
Private schools include Curtis Baptist School (grades K-12), Episcopal Day School (K-8), Hillcrest Baptist School (K-8), Immaculate Conception School (K-8), St. Mary on the Hill School (K-8), Southgate Christian School (K-12), and Westminster Schools (Pre-K-12).

RECREATION AND PARKS

There are sixty-four (64) public recreation facilities located in Augusta and Richmond County. Generally speaking, the facilities include community centers, neighborhood parks, playgrounds and specialized facilities. The community centers function as district parks, drawing users from a wide area, and offer both indoor and outdoor recreation programs. Eight (8) of the community centers - Henry Brigham, Johnson, McDuffie Woods, May Park, Bernie Ward, Warren Road, Diamond Lakes and Garrett Gymnasium (a joint use facility with the Richmond County Board of Education) - have gymnasiums, and all have outdoor play equipment. Most neighborhood-level parks have an activity building, athletic field, and offer programs geared to children and pre-teens. Neighborhood parks generally draw users from within walking distance. Playground sites vary widely in their size and facilities. Some have only playground equipment, but most have athletic fields, multipurpose courts, and/or picnic areas. A number of facilities focus on individual sports such as swimming, boxing, golf, fishing and boating, tennis, soccer, and skateboarding. One example is Eisenhower Park, which has four ball fields and a playground.

Adjacent to Eisenhower Park is a bridge over the Augusta Canal. The bridge provides pedestrian and bicycle access to the 7-mile long Augusta Canal National Heritage Area. Julian Smith Park is a specialized facility that includes two recreation centers - Julian Smith Casino and the Barbecue Pit - an athletic field, playground and picnic areas, a disc golf course, Lake Olmstead, and a walking trail that connects to the Augusta Canal. Lake Olmstead provides opportunities for both active and passive recreation activities. Though not a part of the City's park system, Pendleton King Park is a unique recreation facility that benefits the entire community. This 64-acre park is located on Troupe Street and is readily accessible from surrounding neighborhoods. The park is owned by the Trustees of the Pendleton King Estate, and operated and maintained by the

City's Trees and Landscaping Department. Major facilities and attractions at the park include a large pavilion, playground equipment, picnic tables and shelters, tennis courts, an arboretum, and a disc golf course. Because of its size and location, Pendleton King attracts users from throughout the City, and hosts a number of special events each year.

The Augusta Recreation and Parks Department is the line agency responsible for recreation facilities and activities. The department's director administers all aspects of the department from programs, facilities and staff with the aid of an assistant director who handles the day to day operations along with other administrative personnel. The department has nine (9) divisions: Administrative, Athletics, Aquatics, Golf Course, Marketing, Operations, Planning and Development, Senior Services, and Special Events. In the past five years the department has entered into operating agreements with several community-based organizations. Under the agreements the organizations agree to operate selected recreation department facilities and provide volunteers to work at the facilities. Some of the organizations that have entered into agreements with the department include the Augusta Rugby Club, the Augusta Rowing Club, Sandridge Neighborhood Association, 30901 Development Corporation, Summerville Neighborhood Association, MACH Academy and the East Augusta Neighborhood Association. The agreements give the organizations an opportunity to participate in property maintenance and save the department thousands of dollars in personnel costs.

WATER AND SEWER SYSTEMS

Water System

The Augusta Utilities Department is responsible for the operation and maintenance of the water and sewerage systems in the city. In addition, the Department provides customer service functions including meter reading and customer billing, revenue collection, and inspection of new construction. The Department is headed by a director and has 284 full-time equivalent (FTE) positions authorized in its fiscal year (FY) 2004 budget.

Augusta owns and operates a water system serving over 60,105 residential and 8,008 commercial and industrial customers as of July 31, 2004. The system's surface water supply is the Savannah River, supplemented by groundwater wells located throughout the city. Water from the Savannah River is treated at the Highland Avenue Water Treatment Plant (WTP). Water from the wells is treated at one of three ground water treatment plants (GWTP). Water transmission and distribution facilities convey the water from the treatment plants throughout the 210 square mile water service area. Generally, the service area can be characterized as having complete water service coverage for potential customers who wish to connect to the system. An agreement was signed by Augusta and Fort Gordon to provide water and wastewater services in 2007. As of March 1, 2008, Augusta Utilities Department will provide potable water and wastewater collection services on Fort Gordon for the next fifty years.

The cities of Blythe and Hephzibah provide water service within their respective jurisdictions.

The Savannah River is the city's primary source of surface water. Water is also withdrawn from the Augusta Canal, which is fed by and located next to the river. Major facilities at the Raw Water Pumping Station, located on the Canal, include four raw water intakes on the canal (two primary and two secondary) and a diesel engine-driven standby raw water pump. The Raw Water Pumping Station has an aggregate pumping capacity of 88 million gallons daily (mgd).

The raw water supply is pumped to the Highland Avenue Water Treatment Plant through a system of three parallel raw water lines: a 30-inch diameter cast iron, a 36-inch steel, and a 60-inch ductile iron line. A 42-inch diameter, pre-stressed concrete cylinder pipe is currently inactive. The standby raw water supply facility is at the same general location as the primary facility but pumps water directly from the Savannah River to the Highland Avenue Water Treatment Plant through the same system of raw water supply pipelines.

The city is currently permitted to draw up to 60 mgd at the Raw Water Pumping Station. The construction of Pistol Range Road Raw Water Pumping Station (RWPS) located below downtown Augusta, and the new N. Max Hicks Water Treatment Plant (WTP) were completed in January 2005. The construction of the new water treatment plant and intake allowed an additional 15 mgd in permitted pumping capacity.

The city is also permitted to withdraw supplemental raw water from the Tuscaloosa Formation aquifer through 32 wells: 26 actively producing, 5 deactivated and 1 inactivate. The city is currently permitted to use up to 18.4-mgd monthly average groundwater, and 17.4 mgd maximum annual average. Well fields are generally located near one of three Ground Water Treatment Plants (GWTPs). One of the three plants, GWTP #3, located on Old Waynesboro Road, became operational in 2001. The other two plants date from 1966 and 1979. The wells that have been deactivated are in the vicinity of GWTP #1 located off Peach Orchard Road. Augusta holds permits for water sources as noted below in Table C-2.

Table C-2 **Water Withdrawal Permits** **Augusta-Richmond County**	**Permitted Withdrawal (mgd)**	
Surface Water Permits	**Monthly Average**	**24 hour Max. Day**
Primary Source: Savannah River/Augusta Canal EPD Permit No. 121-0191-06	60.0	60.0
North Location: Savannah River EPD Permit No. 121-0191-09 (being relocated to the new intake site)	15.0	21.0
Groundwater Permit	**Monthly Average**	**Annual Average**
26 Active Wells - located at GWTP Nos. 1, 2, & 3 and three individual sites (Rural Chlorination Sys.) EPD permit No. 121-0007	18.4	17.4
Source: Augusta, GA - Water & Sewerage Revenue Bonds, Series 2004, Engineer's Report, November 2004, Prepared by CH2MHill, Table 3-1		

Augusta owns four water treatment plants and a rural chlorination system, as illustrated in Table C-3. Augusta has raw water storage capacity of approximately 379 acre-feet or 124 million gallons at two raw water storage reservoirs located adjacent to the Highland Avenue WTP. They provide pre-settling of suspended matter in the raw water as well as storage during times of low river or canal flows. Water flows by gravity from these reservoirs to the WTP.

Table C-3 Water Treatment Plants and Chlorination System Augusta-Richmond County				
Plant	**Rated Capacity for Treatment of Raw Water**	**2003 Production of Treated Water (max day)**	**Date of Original Construction**	**Dates of Improvements**
Highland Avenue WTP	60.0 mgd	34.7 mgd	1939	1949, 1954, 1987, 1994, 2000, 2002
N. Max Hicks WTP	15.0 mgd	NA	2003-2005	New
Peach Orchard (GWTP No. 1)	5.0 mgd	5.51 mgd	1966	1969, 1996
Highway 56 Loop (GWTP No. 2)	10.0 mgd	7.92 mgd	1979	1985, 1992, 1996
Little Spirit Creek (GWTP No. 3)	5.0 mgd	4.98 mgd	2001	N/A
Rural Chlorination System	2.7 mgd	Operational Reserve Only	1972	Each year since 1981
Total	**97.7 mgd**	**53.11 mgd***		
*Current operating limit = 78.4 mgd				

Source: Augusta, GA - Water & Sewerage Revenue Bonds, Series 2004, Engineer's Report, November 2004, Prepared by CH2MHill.

Finished Water Storage

The Highland Avenue finished water storage supplies the lower pressure zones directly by gravity while the remainder is pumped to the system's storage facilities located in various pressure zones. There are five finished water storage tanks (clear wells) at the Highland Avenue WTP with a total storage capacity of 15.45 MG. The treated water is then fed by gravity or pumped throughout the water distribution network.

Water Distribution System

The system's water distribution consists of approximately 1,048 miles of pipelines, ranging in size from 6 inches to 24 inches in diameter. Most of the pipelines are made of cast iron or ductile iron. Approximately 20% of these pipelines have been in service for 50 years or more, with the oldest pipelines installed approximately 140 years ago.

Finished surface water is distributed from the Highland Avenue WTP by gravity and pumping. Finished ground water is pumped from GWTP No. 1 into the Intermediate-South pressure gradient (417ft msl) and from GWTP No. 2 into the Pine Hill pressure gradient (457 ft. msl). GWTP No.3 pumps finished water into the Pine Hill high-pressure gradient (521 ft. msl). Distribution system pump stations situated at various locations are used to feed isolated high-pressure zones. A summary of the distribution system storage facilities for the surface water plant is illustrated in Table C-4.

Table C-4
Surface Water Storage Facilities
Augusta-Richmond County

Location	Location Elevation	Pressure Systems Served	Capacity (Gallons)
Highland Ave WTP Clearwell 1	433	N/A	1,250,000
Highland Ave WTP Clearwell 2	433	N/A	3,000,000
Highland Ave WTP Clearwell 3	433	N/A	5,000,000
Highland Ave WTP Clearwell 4	433	N/A	1,600,000
Highland Ave WTP Clearwell 5	433	N/A	4,600,000
Total Clearwells			**15,450,000**
Beckman's Road	417	417	500,000
Highland Ave WTP Tank	564	564	500,000
Highpointe Tank	564	564	1,000,000
Walton Way Extension	500	500	750,000
Belair Road	630	630	1,000,000
Total Elevated Storage			**3,750,000**

Source: Augusta, GA - Water & Sewerage Revenue Bonds, Series 2004, Engineer's Report, November 2004, Prepared by CH2MHill.

Table C-5 presents a summary of groundwater system storage facilities.

Table C-5
Ground Water System Storage Facilities
Augusta-Richmond County

Location	Location Elevation	Pressure Systems Served	Capacity (Gallons)
GWTP No. 1 Clearwell	162	417	500,000
GWTP No. 2 Clearwell	128	457	1,000,000
GWTP No. 3 Clearwell	240	521	2,000,000
Faircrest Avenue	436	597	5,000,000
Faircrest Avenue	417	597	500,000
Windsor Spring Road	417	417	500,000
Richmond Hill Road	417	597	500,000
Golden Camp Road	417	597	250,000
Algernon	417	417	2,000,000
Morgan Road (placed in operation Aug. 2000)	470	597	5,000,000
Cedar Ridge	417	521	1,000,000
Rose Hill	412	457	2,000,000
Wallie Drive	457	457	300,000
Total Ground Storage			**20,550,000**
Brown Road	521	521	3,000,000
Highway 56	457	457	500,000
Tobacco Road	597	597	500,000
Fairington Drive	597	597	250,000
Georgetown	597	597	500,000
Lumpkin Road	597	597	250,000
Old Waynesboro Road	521	521	500,000
Greenland Road	597	597	500,000
Total Elevated Storage			**6,000,000**

Source: Augusta, GA - Water & Sewerage Revenue Bonds, Series 2004, Engineer's Report, November 2004, Prepared by CH2MHill.

Wastewater Treatment Facilities

The city of Augusta's sanitary sewerage system serves approximately 47,744 residential and 5,900 commercial and industrial customers (as of July 31, 2004). The sewer system covers an area of approximately 106 square miles and

serves an estimated population in excess of 150,000. For Gordon and the cities of Hephzibah and Blythe have separate sewer systems.
Augusta's wastewater collection and conveyance system consists of 8 drainage basins, 28 wastewater pumping stations, and approximately 680 miles of collection sewers. The sewers transport primarily sanitary sewage, but there is evidence of storm water infiltration in some of the basins.

Approximately 80 percent of the sewer system in drained by gravity; the remainder requires pumping at least once. Sewer lines range from 8 inches to 72 inches in diameter. Most lines are made of vitrified clay, but other materials present include brick, concrete, and polyvinyl chloride (PVC). Approximately 20 percent of the sewer lines have been in service for 50 years or more.
Augusta owns and operates two wastewater treatment plants: the J. B. Messerly Water Pollution Control Plant (WPCP) located on Doug Barnard Parkway, and the Spirit Creek WPCP on Bennock Mill Road. The Messerly WPCP is the much larger of the two plants in terms of facilities and treatment capacity (see Table C-8). The Messerly WPCP has two separate treatment facilities, the North Plant and the South Plant. The North Plant, constructed in 1976, includes equipment providing primary and secondary treatment with a capacity of 17.8 million gallons per day (mgd). The South Plant was constructed in 1984 with a design capacity of 28.4 mgd. Flow equalization basins were added in 1995. In 1997, the first stage of a wetlands system was constructed to provide additional ammonia-nitrogen removal from wastewater at the Messerly plant. The second and third stages of the wetlands system were completed in 2001 and 2002. The constructed wetlands, located on a 400-acre site next to the plant, filter sewerage before it is released into Butler Creek. Discharges from the treatment plant also flow to the river via Butler Creek. In 2004, the final retrofit projects for J.B. Messerly WPCP were completed. These retrofits included improvement to secondary clarifiers, primary clarifiers, sludge pumps, and various mechanical and electrical systems throughout the plant. The success of the retrofit program is evidenced to the WPCP’s recent performance and in maintaining full compliance for the first time in many years.

In 1999, the city hired the firm Operations Management International (OMI) to operate and maintain the Messerly WPCP. OMI also operates the Spirit Creek WPCP. The firm was hired in the wake of an order by the Georgia Environmental Protection Division (EPD) for the city to correct many deficiencies in the wastewater treatment system. Of particular concern to the EPD was the city's failure to punish industrial customers that inadequately pre-treat their wastewater. Since taking over management of the Messerly plant, OMI has issued hundreds of notices to industries for wastewater infractions, and has levied stiff fines against the violators. According to news accounts, the firm has also achieved cost savings at the plant.

The Spirit Creek WPCP, constructed in 1988, serves the Spirit Creek basin in the southern part of the city. Wastewater is subjected to chlorination and aeration,

and passes into the Savannah River. The plant has a rated treatment capacity of 2.24 mgd.

Table C-6
Wastewater Treatment Plants
Augusta-Richmond County

WPCP	Permitted Treatment Capacity (monthly Avg.)	2003 Treated Wastewater (Avg. Day)	Date of Original Construction	Dates of Improvements	Receiving Stream
James B. Messerly	46.1 mgd	33.94 mgd	1968	1976, 1984 1995, 1997 2001, 2002, 2004	Butler Creek
Spirit Creek	2.24 mgd	4.08 mgd	1988	1995	Spirit Creek
Total	**48.34 mgd**	**40.0 mgd**			

Source: Augusta, GA - Water & Sewerage Revenue Bonds, Series 2004, Engineer's Report, November 2004, Prepared by CH2MHill.

STORMWATER MANAGEMENT

Richmond County, including Augusta, is situated in the Middle Savannah River drainage basin. According to the *Augusta Watershed Assessment Report* (2003), there are nine drainage basins in the county. The northern portion of the county generally drains in an eastern and southeastern direction and includes Rock, Rae's, Oates, Rocky and Butler Creeks. Spirit Creek, including Little Spirit Creek, drains the central part of the county. McBean Creek drains the southeastern part, and Sandy Run Creek and Boggy Gut Creek, both tributaries to Brier Creek, drain the southwest portion. The ninth drainage basin, commonly referred to as the River's Edge, includes the downtown area along the Augusta Canal, the area near Phinizy Swamp, and the area south of the swamp.

The municipal stormwater drainage system includes a variety of inlets, catch basins, drain pipes, open channels, culverts, detention and retention ponds and outlet structures. Generally speaking, in the urban service district stormwater is collected in catch basins and piped to a receiving channel or creek located in one of the major drainage basins. In the suburban service district, storm water from residential and commercial development is usually piped to a retention

pond. The retention pond holds the storm water and releases it at a controlled rate either into the city's conveyance system or into a natural drainage area.

The city of Augusta has adopted a watershed approach to protect and improve water quality in local streams and the Savannah River. The city's stormwater regulations require all new commercial and residential development to maintain runoff release rates at pre-development levels. More stringent requirements are in place for development in the Rock, Rae's and Rocky Creek basins. These three basins have been heavily impacted by urban development.
The city holds a National Pollution Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit issued on April 14, 2000. In February 2003, the city submitted a Consolidated Stormwater Management Program to the Georgia Environmental Protection Division. The city's stormwater management program includes the following components:

Structural and Source Control Measures – This program is designed to reduce pollutants in runoff from commercial and residential development. Major activities under this program include maintenance of structural controls, establishing post-construction controls over new development, cleaning public streets, flood water quality assessment, monitoring of runoff from the city's landfill, reducing pollutants used in environmental control, and administering and enforcing local development ordinances and programs. Examples of regulations and programs affecting stormwater drainage and water quality include the Stormwater Management Ordinance and Technical Manual, the Flood Damage Prevention Ordinance, the Soil Erosion and Sediment Control Ordinance, the Site Plan and Subdivision Regulations, the Zoning Ordinance, and the Community Greenspace Program. The Greenspace and Natural Resources chapter provides more information on these and other ordinances affecting water drainage and quality.

Detect and Eliminate Illicit Discharges – In recent years the city has completed a series of capital improvement projects to eliminate the last of the Combined Sewer Overflows (CSOs). The city now has eliminated all known CSOs by separating storm and sanitary sewer flows. There is an ongoing effort by the Augusta Utilities Department (AUD) to replace the aging sewer conveyance system, address infiltration / inflow problems and extend sanitary sewer service to pockets currently served by septic tanks. Other measures being undertaken include periodic evaluation of significant discharge facilities, field screening of highly visible potential pollutant sources, enforcing existing ordinances and enacting new ones as necessary, responding to public complaints about discharges, and establishing procedures to prevent, contain and respond to spills.

Industrial Monitoring Program – This program involves monitoring and controlling pollutants in stormwater discharges from the city's system, the landfill, hazardous waste treatment and disposal and recovery facilities,

industrial facilities subject to the Superfund Act, and industrial facilities that the city determines are contributing a substantial pollutant loading to the system.

Reduce Pollutants from Construction Sites – This includes site planning, development of appropriate structural and nonstructural Best Management Practices (BMPs), inspection of construction sites, enforcement measures for noncompliance, and educational and training measures for construction site operators. Many of the methods and techniques needed to minimize the impact of construction on stormwater quality are addressed under existing ordinances and regulations.

Outreach and Public Education – The city of Augusta has developed an outreach program to highlight water quality issues. The outreach program includes visits to schools; presentations to civic groups, neighborhood associations, and homebuilders; and dissemination of information through the Internet, newsletters, mailings and flyers.

Activities in Impacted Water Bodies - According to analysis done as part of the Augusta Watershed Assessment (2003), water quality in Augusta's streams is good-to-excellent except for fecal coliform levels. Segments of three streams – Spirit Creek, Butler Creek, and Rocky Creek – are listed on the active 303 (d) list for fecal coliform. Butler Creek is also listed for Dissolved Oxygen and Selenium, and Rocky Creek is listed for toxicity. The city will take the following steps to address the problems in these three water bodies; delineate the limits of the drainage basin, conduct field assessment to identify possible sources of pollution, evaluate the impact of possible pollution sources, implement measures to address the pollution, and implement appropriate preventive measures.

SOLID WASTE MANAGEMENT

The Augusta-Richmond County Solid Waste Facility (the landfill), located at 4330 Deans Bridge Road, operates as an enterprise fund (i.e., it is funded by dollars generated from tipping fees) and receives municipal solid waste generated in the CSRA. Following consolidation of the city and county in 1996, solid waste collection service was gradually extended from the Urban Services District (the former city) to parts of the Suburban Services District. The goal was to provide area-wide solid waste collection service. As of 2007 approximately 90% of the suburban area is served by the city-provided collection services. At this point, all non-rural customers are serviced by the collection program. Augusta will expand with growth into new areas.

Collection services also include curbside recycling, yard waste and bulky waste collection. The Solid Waste Facility also has a courtesy drop off area for residents to dispose of one to two bags of household waste at no charge. The waste collected at the courtesy drop off area is moved to the landfill active-area by the facility staff. To keep the recyclable waste out of the waste stream, the

facility operations also include metal recycling, scrap tire recycling and mulching operations.

CULTURAL FACLITIES

Libraries

The East Central Georgia Regional Library serves the five counties of Burke, Columbia, Lincoln, Richmond and Warren. The headquarters branch for the system is located at 902 Greene Street in downtown Augusta. There are five other branches in the city: Appleby Branch, 2260 Walton Way; Diamond Lakes Branch, 101 Diamond Lakes Way, Hephzibah; Friedman Branch, 1447 Jackson Road; Maxwell Branch, 1927 Lumpkin Road, and Wallace Branch, 1237 Laney-Walker Boulevard. The Talking Book Center for the Blind and Physically Handicapped is located across the parking lot from the headquarters building. The region serves daycare centers and group housing facilities by means of book deposit deliveries.

Museums

The **Augusta Museum of History** is located at 560 Reynolds Street in a 45,000 square foot building that opened in 1995. A 10,000-square-foot addition, constructed in 2003, is used as archive and storage space. Permanent exhibits include "Augusta's Story", the community's medical history, a restored 1917-steam locomotive and a reconstructed 1930s gas station. Visitors can clean cotton in a replica cotton gin and view a 56-foot long Petersburg boat. Children can learn history through interactive exhibits in the Susan L. Still Children's Discovery Gallery. A recent exhibit commemorates the Godfather of Soul, James Brown. Documentaries are shown continuously and there is a museum shop.

The **Morris Museum of Art** is located in the Augusta Riverfront Center on the Riverwalk at 1 Tenth Street in downtown Augusta, Georgia. The first and largest museum in the country devoted to the art and artists of the South, the Morris Museum of Art is one of the region’s leading cultural institutions. Noted for its multifaceted permanent collection and a rich program of regularly changing special exhibitions, the Morris is dedicated to the continued interpretation of Southern art in all its forms.

The museum’s permanent collection includes thousands of paintings, works on paper (including watercolors, drawings, prints, and photographs), and sculpture, dating from the late-eighteenth century to the present. In addition to the permanent collection galleries, the museum hosts eight to ten special exhibitions every year and a wide variety of public programs, including lectures, readings, and concerts for a general audience, as well as more specialized programs for the museum’s affiliate membership groups, children, families, and

school groups. The museum's Center for the Study of Southern Art is a reference and research library on more than 1,000 artists who have worked in the South. The museum store offers exhibition catalogues, art books, handcrafted jewelry and unique gift items.

The **Lucy Craft Laney House and Museum of Black History** is located at 1116 Phillips Street in the Laney-Walker Historic District. Restored in the late 1980s by Delta House, Inc., the house includes a conference center, computer center and period garden. Programs include art and history exhibits, lectures and tours, Youth Leadership Academy, and senior citizens activities**.**

The **Gertrude Herbert Institute of Art** is located at 506 Telfair Street in the historic ―Ware's Folly‖ building. The Gertrude Herbert serves as the CSRA's only independent non-profit art school and gallery. The Institute offers visual arts education opportunities for students, provides outreach instruction to elementary school students and senior citizens, and hosts at least six major exhibits of contemporary art each year.

Augusta is also home to house museums reflecting the diverse history and culture of the community. Table C-7 lists the major house museums in the city.

Table C-7 Augusta House Museums	
Name & Location	**Description**
Meadow Garden (c.1795) 1320 Independence Drive	Built for George Walton, the youngest original signer of the Declaration of Independence and twice Georgia Governor. It is the oldest documented house in Augusta.
Ezekiel Harris House (c.1797) 1822 Broad Street	Built by tobacco merchant Ezekiel Harris, this Federal-era style house is a reminder of Augusta's importance as a colonial-era trading center.
Boyhood Home of Woodrow Wilson (c.1850) 419 Seventh Street	The future president lived here from 1860-1870 during the years his father served as pastor of the First Presbyterian Church. The house was recently restored by Historic Augusta, Inc.
Lucy Craft Laney House and Museum of Black History (c.1911) 1116 Phillips Street	Lucy Laney was born into slavery yet went on to become one of the most outstanding educators in post-Civil War Georgia. She started Augusta's first black kindergarten and nurses' training program. Restored in the late 1980s by Delta House, Inc., the house includes a conference center, computer center and period garden. Programs include art and history exhibits, lectures and tours, Youth Leadership Academy, and senior citizens activities.

HOSPITALS AND HEALTH CARE FACILITIES

Augusta has a long history of service in the field of medicine. As a result, medical care, research and education facilities are vital to community life and the area economy. There are several major medical facilities in Augusta employing thousands of people. These facilities include acute care hospitals, psychiatric facilities, and extended care centers. Several of these facilities are located in a medical complex near downtown, and others are on individual sites elsewhere in the City. In addition to the facility-based employment, there are 1,111 physicians in private practice and many other residents employed in nursing homes, chiropractic clinics, dental offices, medical and dental laboratories, and other health services.

University Hospital

A 581-bed acute care facility located at the intersection of Walton Way and D'Antignac Street. University Hospital is part of the University Health Care System that employs approximately 3,000 people.

Charlie Norwood Veterans Administration Medical Center
This two-division medical center, operated by the United States Department of Veterans Affairs, provides tertiary care in medicine, surgery, neurology, psychiatry, rehabilitation medicine, and spinal cord injury. With emphasis on providing the most appropriate care, out outpatient visits exceed 244,000 annually. In addition to health care, the Norwood VA is an active teaching and research facility that employs approximately 1,900 people.

The Downtown Division is a 155-bed acute care facility located at the intersection of Fifteenth Street and Walton Way in Augusta. This division provides primary care, surgical, neurosciences and spinal cord injury treatment for veterans. A Women Veterans Clinic, Agent Orange/Gulf War Examinations, Former POW and other registry services are offered at this division.

The Uptown Division, located at the intersection of Wrightsboro Road and Freedom Way, has 165 beds. In addition to psychiatry and intermediate medicine beds, this division houses a 15-bed Blind Rehabilitation Center, a 60-bed Restorative Nursing Home Care Center and a 60-bed Domiciliary. Specialty programs include Post Traumatic Stress Disorder (PTSD), substance abuse, hospice and residential care.

Trinity Hospital of Augusta (formerly St. Joseph Hospital)

A 236-bed acute care facility located at the intersection of Winter Street and Wrightsboro Road in Augusta. The hospital, a fixture in the community for over 50 years, is known for pioneering many medical firsts, including cochlear hearing implants, stereotactic mammography, and a unique treatment program for hip and knee replacements. The hospital offers a wide range of medical and surgical services including the only hospital-based, inpatient hospice unit in the state of Georgia. Trinity Hospital of Augusta is part of Triad Hospitals, Inc. and employs about 1,000 people. Triad purchased the hospital from the Carondelet Health System in 2006.

Walton Rehabilitation Hospital

A 58-bed not-for-profit hospital located at the intersection of Thirteenth Street and Independence Drive in downtown Augusta. The hospital offers adult and pediatric inpatient and outpatient programs for persons recovering from stroke, head injuries, chronic pain and other disabling illnesses and injuries. Walton's continuum of care includes Walton Community Services offering residential and

assisted living options to individuals with disabilities. Walton Options for Independent Living offers accessible housing, employment, assistive technology, alternative formats and advocacy, and Walton Foundation for Independence, which supports all of the above organizations. The Walton organizations employ approximately 300 people. In 2002, Walton was awarded the Georgia Hospital Association Community leadership Award. In 2003, Walton received a Magnolia Award for Excellence in providing affordable rental housing.

Doctors Hospital

Doctors Hospital is a 354-bed full-service facility and home to the nationally acclaimed Joseph M. Still Burn Center. The hospital is located on J. Dewey Gray Circle in west Augusta. The hospital recently added a new High Density MRI and the latest technology in diagnostic imaging support with Digital PACS (Picture Archiving and Communication System). The hospital's cancer center continues to grow with the addition of a new Cancer Care Resource Center and leading-edge radiation therapy. The newly renovated Center for Women has a new look and the progressive philosophy of Mother Baby and Family Center Care. Upcoming projects at Doctor's Hospital include the 2008 – 2010 construction of a new three floor bed tower addition to the hospital. This project will add new private rooms and a new state of the art Intensive Care Unit. The hospital employs approximately 1,400 full-time and part-time staff.

East Central Regional Hospital at Augusta

East Central Regional Hospital (ECRH) is comprised of two campuses: 3405 Mike Padgett Hwy., Augusta, Georgia (formerly Georgia Regional Hospital), and 100 Myrtle Blvd., Gracewood, Georgia (formerly Gracewood State School and Hospital). The state-supported facility serves consumers with mental health disabilities, developmental disabilities and addictive diseases. The hospital is designated as a Mental Health Emergency Receiving Facility for Region Two (2), which encompasses 39 counties in east central Georgia. Residential and other services are provided to the developmentally-disabled population. The hospital employs over 1,405 full-time staff and 185 part-time staff in support of its 645 beds.

Dwight David Eisenhower Army Medical Center

A 120-bed medical center capable of expanding to 150-beds located on Fort Gordon in south Augusta. The facility offers medical care to active duty military personnel (all branches of service), military retirees and family members. Eisenhower is the regional tertiary-care referral center for the Southeast Regional Medical Command, which covers seven southeastern states and Puerto Rico. It is operated by the U. S. Army and employees approximately 2,250 people.

Medical College of Georgia (MCG) and Hospitals

MCG is the health sciences school for the University System of Georgia. Founded in 1829 at a location in downtown Augusta, MCG currently occupies a campus in the area roughly bounded by the triangle formed by Harper Street, Fifteenth Street and R. A. Dent Blvd.
MCG Health System is composed of three separate yet affiliated organizations -- MCG Health, Inc., the clinical services offered by the faculty of the Medical College of Georgia, and the members of the Physicians Practice Group. MCG Health, Inc. is a not-for-profit corporation operating MCG Medical Center, MCG Children's Medical Center, MCG Sports Medicine Center, MCG Ambulatory Care Center, Georgia Radiation Therapy Center and related clinical facilities and services. MCG Health, Inc. was formed to support the research and education mission of the Medical College of Georgia and to build the economic growth of the CSRA, the state of Georgia and the Southeast by providing an environment for delivering the highest level of primary and specialty health care.

The MCG Medical Center complex forms the core of MCG Health System's facilities and includes a 478-bed adult hospital, an Ambulatory Care Center with more than 80 outpatient clinics in one convenient setting, a Specialized Care Center housing a 13-county Level I regional trauma center and a 154-bed Children's Medical Center. The Health System also includes a variety of dedicated centers and units and more than 90 satellite clinics. Approximately 6,300 people are employed throughout the MCG complex.

Select Specialty Hospital

Select Specialty, an 80-bed hospital located at 1537 Walton Way, specializes in providing inpatient long-term acute care and rehabilitation, and outpatient rehabilitation services, related to the treatment of the most critical and complex medical and surgical conditions. All of the hospital's programs and services are designed to match the patent's acuity and individual needs. The programs are also designed to move patients from an acute care setting toward achieving their highest level of wellness possible. The hospital employs 292 physicians, nurses, therapists, and others. The hospital moved to its current location, a brand new facility, in March 2007.

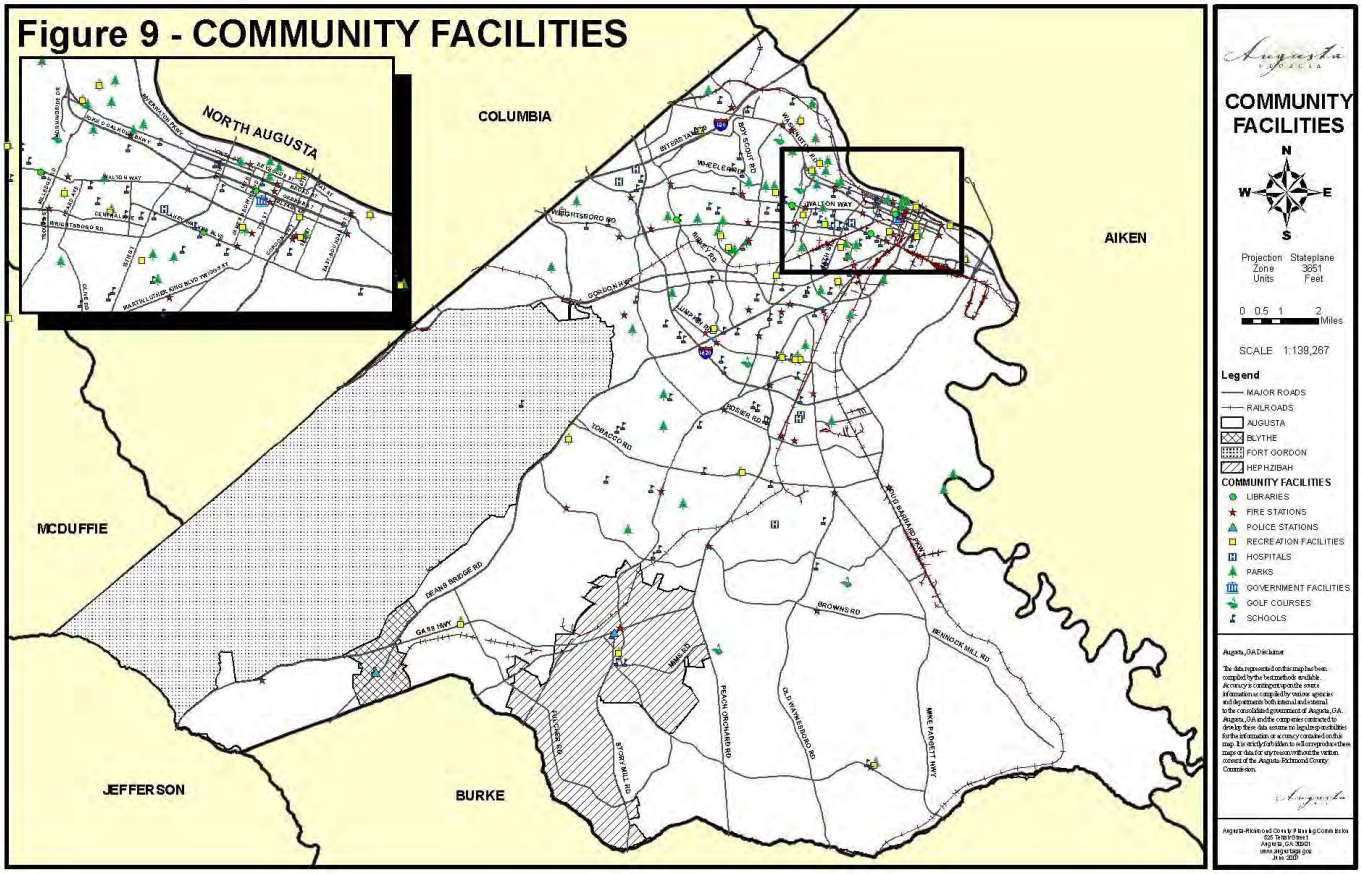
Figure 9 - COMMUNITY FACILITIES
NORTH AUGUSTA
COLUMBIA
AIKEN
MCDUFFIE
JEFFERSON
BURKE
COMMUNITY FACILITIES
N
W
E
S
Projection Stateplane
Zone 3651
Units Feet
0 0.5 1 2 Miles
SCALE 1:139,267
Legend
MAJOR ROADS
RAILROADS
AUGUSTA
BLYTHE
FORT GORDON
HEPHZIBAH
COMMUNITY FACILITIES
LIBRARIES
FIRE STATIONS
POLICE STATIONS
RECREATION FACILITIES
HOSPITALS
PARKS
GOVERNMENT FACILITIES
GOLF COURSES
SCHOOLS

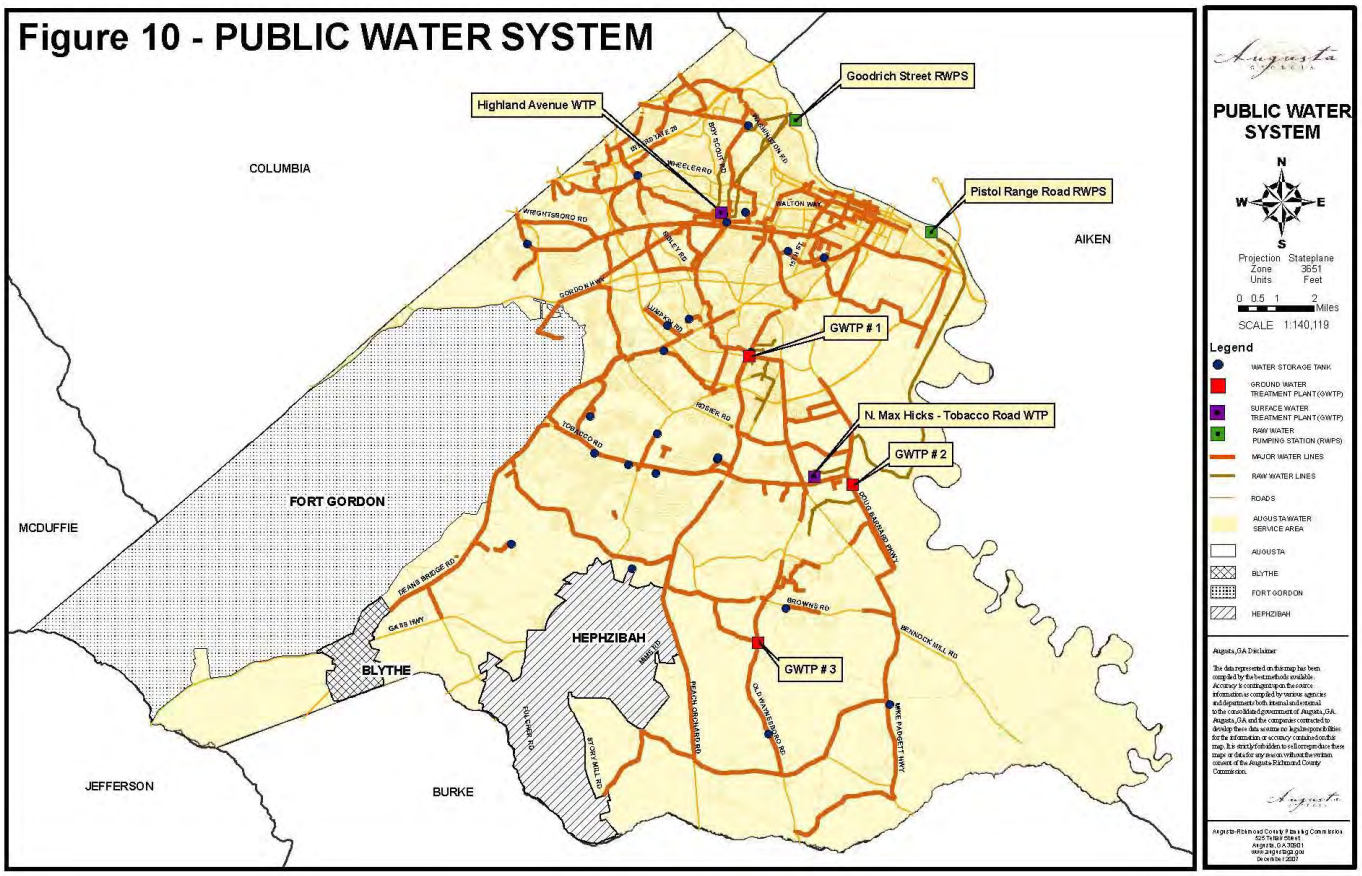
Figure 10 - PUBLIC WATER SYSTEM
Highland Avenue WTP
Goodrich Street RWPS
Pistol Range Road RWPS
GWTP # 1
N. Max Hicks - Tobacco Road WTP
GWTP # 2
GWTP # 3
COLUMBIA
AIKEN
MCDUFFIE
FORT GORDON
HEPHZIBAH
BLYTHE
JEFFERSON
BURKE
WRIGHTSBORO RD
WHEELER RD
BOY SCOUT RD
WALTON WAY
BILLY RD
GORDON HWY
LUMPKIN RD
TOBACCO RD
HOBSON RD
DEANS BRIDGE RD
GARRS HWY
BROWNS RD
CRAIG BARNARD PKWY
BENNOCK MILL RD
MIKE PARNELL HWY
OLD WAYNESBORO RD
BEACH ORCHARD RD
JAMES RD
FOLCHER RD
BUSY MILL RD
PERRIN RD
Augusta GEORGIA
PUBLIC WATER SYSTEM
N
W
E
S
Projection Stateplane
Zone 3651
Units Feet
0 0.5 1 2 Miles
SCALE 1:140,119
Legend
WATER STORAGE TANK
GROUND WATER TREATMENT PLANT (GWTP)
SURFACE WATER TREATMENT PLANT (GWTP)
RAW WATER PUMPING STATION (RWPS)
MAJOR WATER LINES
RAW WATER LINES
ROADS
AUGUSTA WATER SERVICE AREA
AUGUSTA
BLYTHE
FORT GORDON
HEPHZIBAH
Augusta, GA Disclaimer
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Augusta-Richmond County Planning Commission
525 Telfair Street
Augusta, GA 30901
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December 1, 2007

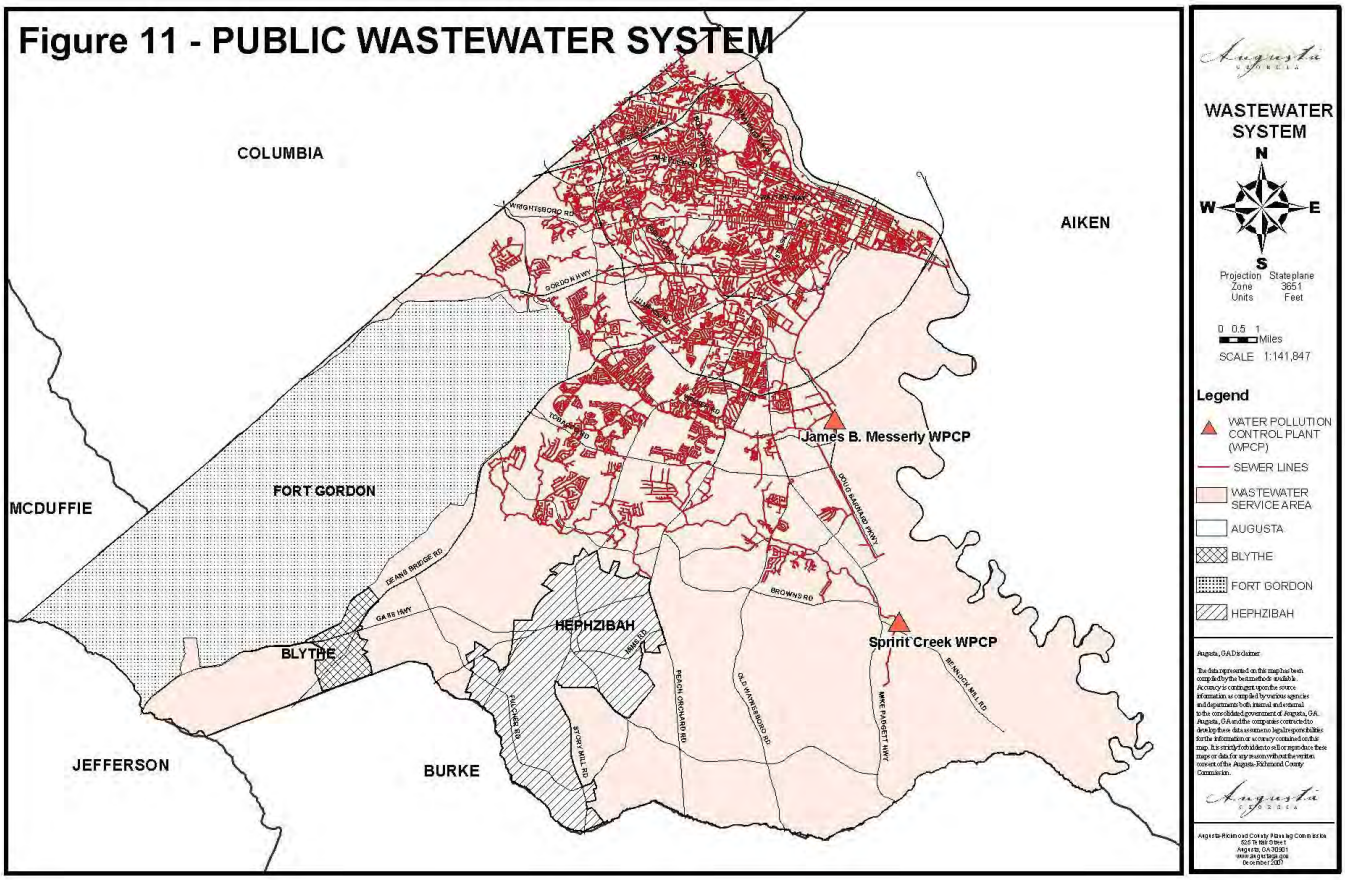
Figure 11 - PUBLIC WASTEWATER SYSTEM
COLUMBIA
AIKEN
MCDUFFIE
FORT GORDON
BLYTHE
HEPHZIBAH
JEFFERSON
BURKE
James B. Messerly WPCP
Sprint Creek WPCP
WRIGHTSBORO RD
GORDON HWY
JEANNE BRIDGE RD
GA 88 HWY
BROWNS RD
PEACH ORCHARD RD
OLD WARRENTON RD
MIKE PADGETT HWY
BENNOCH MILL RD
STONY HILL RD
WASTEWATER SYSTEM
N
W
E
S
Projection Stateplane
Zone 3651
Units Feet
0 0.5 1
Miles
SCALE 1:141,847
Legend
WATER POLLUTION CONTROL PLANT (WPCP)
SEWER LINES
WASTEWATER SERVICE AREA
AUGUSTA
BLYTHE
FORT GORDON
HEPHZIBAH
Augusta, GA Disclaimer
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