

ALBANY-DOUGHERTY PRE-DISASTER MITIGATION PLAN



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Chapter 1

Introduction

Not a lot of changes occurred to this chapter because the requirements for an introduction did not warrant drastic changes. The changes that were made include a brief description of the update process as well as a description of how each section was analyzed and the changes that were made to each section.

Purpose and Need (Executive Summary)

Disasters caused by natural, man-made or technological hazards have become increasingly costly, not only for the disaster victims but also for all taxpayers. During the last decade, the Federal Emergency Management Agency (FEMA) estimates that financial losses caused by disasters in the United States total tens of billions of dollars each year. The cost of a major disaster to our community goes well beyond those damages that are directly sustained. Recovery from disasters requires resources to be diverted from other important public and private programs, and adversely impacts the productivity of our workforce. The magnitudes of these losses are most appropriately considered at local, rather than national levels. As the costs of disasters continue to rise, it becomes more and more evident that pre-disaster steps or strategy must be taken to reduce the damage and destruction to our community. This strategy is known as mitigation.

Building a disaster resistant community is an initiative that challenges Dougherty County. Reducing the effects of disasters makes economic sense, and it is good public policy because it protects our citizens and our future. This hazard mitigation plan is being developed in hopes of limiting these losses to individuals, families, businesses, and taxpayers, and seeks to: 1) assess natural and manmade risks; 2) identify specific mitigation actions to help reduce identified risks; 3) foster collaborative partnerships and community relationships between business owners, citizens, and the media; and 4) increase public awareness of and support for related initiatives.

The Pre-Disaster Mitigation (PDM) Plan was produced through a Georgia Emergency Management Agency (GEMA) Hazard Mitigation Grant Program (HMGP) Planning Grant

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and the joint efforts of the Albany Dougherty Pre-Disaster Mitigation Committee. This plan is required to make the County eligible for federal and state public assistance and mitigation funds in the event of an emergency situation.

The Plan identifies activities that can be undertaken by both the public and the private sectors to reduce safety hazards, health hazards, and property damage caused by natural, technological or man-made hazards, and outlines activities that can be implemented to reduce or eliminate exposure to all twelve natural hazards that could impact Southwest Georgia. The following chapters and appendices to the plan cover hazard identification and analysis; an assessment of the County's risk assessment and vulnerability to natural hazards; and an assessment of the County's capability to address natural hazards that influence hazard mitigation planning. The essence of the plan is contained in Chapters 4 and 5 Mitigation Goals and Objectives, which outlines activities that can be implemented to reduce or eliminate exposure to natural hazards. The emphasis of the strategies section is on reducing exposure to severe weather (thunderstorms), flood, hazardous materials and tornados damages. While these are not the only hazards within Dougherty County, they were identified as those hazards most likely to impact the greatest number of citizens and the greatest land area.

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

Community Profile

Located in Southwest Georgia, Dougherty County was created December 15, 1853 from Baker County as Georgia's 103rd county. Portions of Worth County were later added to Dougherty County in 1854 and 1856. The County seat is Albany, founded in 1836 and incorporated on December 27, 1838. According to the year 2000 census figures, the population of Dougherty County is 96,065, and Albany is 76,939.

The County covers approximately 330 square miles and has a population density of 291 persons per square mile. While much of the land area in the County is classified as rich agricultural land, most of the population, about 80%, is located in the urban area concentrated in the County seat, Albany.

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The County is bisected by the Flint River, running north to south, dividing Albany into eastern and western parts. A significant part of the City lies in the floodplain of the Flint River. The floodplain is highly developed with commercial, industrial, and residential land uses, including public facilities.

Authority

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

Statement of the Problem

Since 1994, the Dougherty County has experienced four Presidential Disaster Declarations and numerous emergencies. Hapless, poorly planned development or a lack of disaster recovery resources can exacerbate our community's susceptibility to natural and man-made hazards.

In order to develop a dynamic plan for managing hazard risk in Dougherty County we need to develop a model that educates the public regarding hazard mitigation, incorporates hazard mitigation into the development planning process, and continue to update the hazard mitigation planning process and seek funding for emerging needs.

Purpose of the Plan

The purpose of this plan is to fulfill Dougherty County's hazard mitigation plan requirements, and facilitate implementation of hazard mitigation management activities through an action plan. The Federal Emergency Management Agency (FEMA) defines

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hazard mitigation as “any sustained action taken to reduce long- term risk to human life and property from natural hazards.” An effective plan will improve the County's ability to deal with disasters and will document valuable local knowledge on the most efficient and effective ways to reduce losses. Preparing a plan to lessen the impact of a disaster before it happens will provide the following benefits to the County:

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

Mitigation is the ongoing effort to lessen the impact of natural disasters on people and property. The Federal Emergency Management Agency (FEMA) has designated mitigation as the cornerstone of emergency management. Albany Dougherty County Emergency Management Agency (EMA) also believes that the best response to natural disaster is to prevent or diminish its impact before it occurs. Mitigation begins with local communities assessing their risks and repetitive problems and making a plan for creating solutions to these problems and reducing the vulnerability of its citizens and property to risk. There are a variety of mitigation measures. They are organized under six general strategies:

- Structural control projects – e.g., wind design speed, levees, bridge improvements
- Property protection – e.g., relocation out of harm's way, retrofitting buildings, insurance
- Preventive – e.g., zoning, building codes, safe rooms, and other development regulations
- Emergency services – e.g., warning, sandbagging, evacuation
- Natural resource protection – e.g., wetlands protection, urban forestry programs
- Public information – e.g., outreach projects, technical assistance to property owners

Through the application of mitigation technologies and practices, we can ensure that fewer County citizens become victims of natural/technological disasters. For example, mitigation measures can be applied to strengthen your home, so that your family and belongings are better protected from floods, fires, earthquakes, wind damage, and other natural hazards. They can be utilized to help business and industry avoid damages to their facilities and remain operational in the face of catastrophe. Mitigation technologies can be used to strengthen hospitals, fire stations, and other critical service facilities so

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that they can remain operational or reopen more quickly after an event. In addition, mitigation measures can help reduce disaster losses and suffering so that there is less demand for money and resources in the aftermath. The end result of Mitigation is a reduction in the cost of natural, technological or man-made disaster response and recovery to each individual Dougherty County taxpayer; and also in the losses suffered by each homeowner in the event of a natural or man-made disaster.

In practice, mitigation can take many forms. It can involve actions such as:

- Promoting sound land use planning based on known hazards.
- Buying flood insurance to protect your home and belongings.
- Relocating or elevating structures out of the floodplains.
- Developing, adopting, and enforcing effective building codes and standards.
- Engineering roads to carry a 25-year and bridges a 100-year event without damage
- Using fire-retardant materials in new construction; and
- Developing and implementing a plan in your business or community to reduce your susceptibility to identified hazards.

Local Methodology

Original Plan

Information in the Albany Dougherty Pre-Disaster Mitigation Plan is based on research from a variety of sources, to include the Southwest Georgia Regional Commission, Georgia Department of Transportation, Georgia Department of Natural Resources, National Climatic Data Center (NCDC), National Weather Service, Albany Dougherty Comprehensive Plan, Albany Dougherty Flood Hazard Mitigation Plan, Albany Dougherty Community Greenspace Plan, and the Albany Dougherty Local Emergency Operations Plan. See Appendices B and C.

Albany, Georgia 31701 In January 2003, the Albany Dougherty Pre-Disaster Mitigation Team was formed to begin the initial planning stages for the Albany Dougherty Pre-Disaster Mitigation Plan. The Team held meetings to collect information, compile the plan, and review the draft plan. These meetings consisted of representatives from

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various local agencies including the Fire, Police, Engineering, and Public Works Departments, Water, Gas and Light Commission, Community Development, and Emergency Management Services, local Industry, among other citizen representatives. The following is a summary of the process conducted to compile the Plan:

- Step 1 – Map the Hazards. Team members identified areas where damage from historic natural disasters have occurred and areas where critical man-made facilities and other features may be at risk in the future for loss of life, property damage, environmental pollution and other risk factors. Planning generated a set of base maps with GIS (Geographic Information Systems) that were used in the process of identifying past and future hazards.
- Step 2 – Identify Critical Facilities and Areas of Concern. Team members identified facilities and areas that were considered to be important to the community for emergency management purposes, for provision of utilities and community services, evacuation routes, and for recreational and social value.
- Step 3 – Identify Existing Mitigation Strategies/Policies. After collecting detailed information on each critical facility in Dougherty County, the Team identified existing mitigation strategies and policies which are already implemented in the County relative to flooding, drought, tornados, and hazardous materials.
- Step 4 – Identify the Gaps in Protection/Mitigation. The Team then reviewed the existing strategies for coverage, effectiveness and implementation, as well as the need for improvement.
- Step 5 – Developing an Action Plan. The Team developed a list of possible alternative hazard mitigation actions and strategies for the County. Potential actions include improving emergency services (*i.e.*, upgrading the communication system) and public information (*i.e.*, cable access programs).
- Step 6 – Prioritize the Action Plan. The Team reviewed each of the proposed alternative hazard mitigation actions and strategies. Each strategy was rated for its effectiveness. Strategies were ranked by overall score for preliminary prioritization.
- Step 7 – Determine Priorities. The Team reviewed the preliminary prioritization list in order to make changes and determine a final prioritization for new hazard mitigation actions and existing protection strategy improvements identified in previous steps.
- Step 8 – Draft an Action Plan. The Team prepared the draft utilizing the GEMA Template.
- Step 9 - Adopt and Monitor the Plan. The draft document was then reviewed, revised and approved by the Albany Dougherty Pre-Disaster Mitigation Team. A

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revised, draft document was then submitted by the Team to the County and City Commissions for final review.

Update Plan

In June 2009, the Southwest Georgia Regional Commission (SWGRC) began working with Albany/Dougherty County to update the Pre-Hazard Mitigation Plan. The Commission staff had an initial meeting with the Albany/Dougherty EMA director to figure out the best course of action would be to proceed in this process. The result of that meeting was that Albany/Dougherty County was very pleased with the way the initial plan was created and how it had functioned up to that point. It was decided that the executive committee consisting of member from both Albany and Dougherty County from the current plan would reconvene to discuss how to proceed in creating an updated plan. At this meeting it was decided that instead of creating sub-committees for different portions of the plan, as was done in the current plan, the executive committee would deal with all portions because most of the data had already been assembled from the current plan and needed minor updating and tweaking to be usable. Each section of the plan was scrutinized by the SWGRC and the executive committee to assess the current content and offer additions/alternatives if the need arises. Other local documents were scrutinized to determine if any inconsistencies exist. These documents include the Local Flood Mitigation Plan, The Comprehensive Plan, The Albany/Dougherty Emergency Operations Plan, The Comprehensive Economic Development Strategy, The Albany/Dougherty Greenspace Plan, and the Southwest Georgia Regional Plan.

After changes had been proposed, the SWGRC looked at the newest requirements for PHMP from FEMA and GEMA and how to reassemble the plan with proposed changes into an initial draft to be presented to GEMA for comments. At this time a public hearing was held to allow public comment. The comments from GEMA were presented to the executive committee and data deficiencies, questions and concerns were worked out and a second draft was created for GEMA to comment on. Finally, when all comments and concerns were addressed appropriately in the plan, a final draft was completed, a public hearing was held for public comment and the final draft was submitted to GEMA and FEMA for approval.

Brief Description of the Planning Process

The Albany Dougherty County Pre-Disaster Mitigation (PDM) Plan is the result of a collaborative effort between Dougherty County citizens, public agencies, and regional, state, and federal organizations. Public participation played a key role in identifying historic disasters and setting priorities for development of goals and mitigation projects.

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Interviews were conducted with the Dougherty County Administrator, Albany City Manager, and elected officials, and two public meetings were held to include the input of Dougherty County residents. Using this planning process also means the County can increase chances for obtaining planning and implementation funds from a variety of sources including continued eligibility for credit under the Community Rating System (CRS).

The PDM planning process was facilitated by the existence of a comprehensive list of individuals or stakeholders whose input was needed to help develop the Plan. This list was developed for the Local Emergency Planning Committee (LEPC) and included elected officials, the Emergency Management Agency, as well as County/City Police, Sheriff, Fire Department Chiefs and Public Works Directors. Federal and State agencies on the contact list included the Army Corps of Engineers, GEMA, FEMA and Georgia Department of Natural Resources. Private entities contacted included local industry and local power providers. The existence of the active, broad based LEPC group greatly facilitated the process of obtaining public input. Persons on the contact list received a variety of information during the planning process, including project maps and documents for review, meeting notifications, and mitigation strategy documents.

Two public meetings were conducted in Albany/Dougherty County during plan development. The purpose of the meetings was to gather information on historic disasters, update the list of critical facilities, and gather ideas from citizens about mitigation planning and priorities for mitigation goals.

An initial public forum was held to inform the community as to the difference between pre-disaster mitigation and emergency operation planning. During this meeting the Planning Committee had hoped to develop a corps of community stakeholders. Even though the Forum was publicly promulgated, public attendance was zero. Prior to submitting the Plan to the Dougherty County Administrator the Planning Committee announced a second public forum where the Pre-Disaster Plan was to be presented for comments and approval. Committee Members Steve O'Neil and Jim Vaught and two City of Albany Planning Department Staff attended. The community attendance was zero.

The Albany Dougherty County Emergency Management Agency (EMA) shall be the lead agency in coordinating the efforts of the Albany Dougherty Pre-Disaster Mitigation Planning Committee in formulating and supporting the Plan promulgation and maintenance. Future comments or questions regarding this Plan should be addressed to:

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Albany Dougherty Emergency Management Agency

320 North Jackson Street

(229)431-2155

Pre-Disaster Mitigation Committee Tasks:

- Coordinate with the Albany Dougherty County Emergency Management Agency to oversee planning process
- Prioritize hazards vs. resources
- Select highest and best mitigation recommendations
- Review planning drafts, recommendations and updates
- Develop and implement long and short term goals
- Integrate the plan with all phases of Emergency Management Planning
- Provide for the implementation of committee decisions
- Encourage, coordinate and provide a methodology for the implementation of public input
- Meet on an annual basis to review the work of and contribute to the Albany Dougherty Pre-Disaster Mitigation Planning Committee activities
- Bring forth the concerns and views of the Community to the Planning Committee for inclusion in the hazard mitigation planning process
- Assist in informing the public and community of the hazard mitigation strategies recommended by both the Steering and Planning Committee
- Determine implementation ability and constraints for proposed hazard mitigation planning steps and measures
- Identify implementation resources

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- Provide for the update of Albany Dougherty Pre-Disaster Plan on a scheduled basis
- Evaluate and carry out mitigation activities
- Assist in implementation of funding identification and procurement

Participants in the Planning Process

Executive Committee Representatives:

- Michael McCoy, Assistant County Administrator (County)
- James Vaught, Deputy Director Emergency Management Agency (City)
- Tracy Hester, Development Services Manager (City)
- Karen Goff, Finance Director (County)
- Randy Weathersby, GIS Specialist (City)
- Charles Mathis, Public Works Assistant Director (County)
- Larry Cook, Public Works Director (County)
- Chuck Mitchell, Palmyra Medical Hospital
- Chief Don Cheek, Police Chief (County)

Organization of the Plan

The plan contains seven chapters. The first chapter is introduction and explains the process used to develop the plan. The second chapter identifies the natural hazard, risk and vulnerability summary. The third chapter further defines man-made or technological hazard, risk and vulnerability summary. The fourth chapter contains the plans natural hazard mitigation goals and objectives. The fifth contains the plans man-made or technological hazard mitigation goals and objectives. The sixth chapter is how the plan will be executed. The seventh chapter is the conclusion. Finally, there are six

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appendices that include additional technical information and summaries of the data collected during the community participation process.)

In June 2009, a HMPC (HMPC) was re-established consisting of department heads various Albany/Dougherty County offices to examine the existing document and analyze its contents. Each section of the plan reviewed and analyzed to determine if the contents are still valid and whether the contents need to be updated. The Local Hazard, Risk, and Vulnerability section was scrutinized to determine the top three disasters that face Albany/Dougherty County and it was found that drought is no longer the biggest threat to Albany/Dougherty County. Severe Weather took the top spot in natural disasters because of the frequency with which it occurs and the indirect results (flooding) of this naturally occurring phenomenon. The goals and implementation strategy for severe weather centers around education, public awareness and preparation, because it is believed that if citizens are aware/reminded of the dangers posed by severe weather, they will take that information more seriously and make preparations for weathering the storm.

Floods are a natural hazard that Albany/Dougherty County knows all too well given their history of repeated flooding. Flooding stayed as the second most threat to Albany/Dougherty County. The HMPC decided this because they realize that past flooding and the aftermath have created a “flood aware” community. Citizens realize how susceptible areas of Albany/Dougherty County are to flooding and consequently the topic stays fresh in the minds of citizens, developers and elected officials.

Tornados stayed in the top three natural hazards facing Albany/Dougherty County because of their frequency in southwest Georgia and their potential to do very serious damages. The most frustrating part of tornados is not being able to predict where they are going to hit which means that mitigation plans for them need to be applied with a broad brush approach. The goals and implementation measures for tornados have changed slightly but many of the measures are ongoing. The HMPC goals and implementation measures include topics dealing directly with early warning and different ways for citizens to be informed, but also education about how to prepare (where to go, what to have ready, etc.) for tornados.

Multi-Hazards were reviewed by the HMPC and it was found that the level of exposure has not changed but minor changes were put into the goals and implementation of the mitigation strategy. These include renewing the subscription to the Code Red early alert system that was instituted since this plan was originally done, and also developing information packets for citizens regarding preparedness, response and recovery.

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Technological hazards were reviewed by the HMPC and, although still a threat, the situation relative to this threat in Albany/Dougherty County has not changed and public outreach and education is still the goal and implementation method of choice regarding technological hazards.

The goals and objectives were reviewed by the HMPC to first determine whether the goals had changed and if so to what degree. The objectives and tasks were then reviewed based on the following basic criteria:

- Is the objective or task still in line with the goals?
- Are the objectives and tasks appropriate for accomplishing the goal?
- Are the tasks associated with each objective cost effective?
- Are there more efficient ways to accomplish the stated goal and objective?

The plan Maintenance section was reviewed based on the following criteria:

- Are action steps being overlooked?
- Is measurable progress being made towards goals?
- Is the plan maintenance section cost effective?

There were no changes made to this section because it was determined that the criteria were being met.

Local Hazard, Risk and Vulnerability (HRV) Summary

Identifying the hazards that face our community is the first step in reducing the community's vulnerability. Hazard analysis involves identifying all of the hazards that potentially threaten our community and analyzing them individually to determine the degree of threat they pose. A comprehensive hazard analysis determines:

- What hazards threaten the community;
- How often they are likely to occur;

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- How severe the situation is likely to get;
- Their likely effect on the community; and
- How vulnerable is the community to the threat.

The information identified in the hazard analysis is used to develop both mitigation plans and emergency response plans. A typical hazard analysis consists of five objectives:

- Identify the hazards.
- Profile each hazard.
- Develop a community profile.
- Compare and prioritize the hazards.
- Create and apply scenarios.

Dougherty County is located in southwest Georgia, a southern state. Southern states are defined as the following: Texas, Louisiana, Mississippi, Alabama, Arkansas, Oklahoma, Florida, Virginia, Kentucky, **Georgia**, Tennessee, South Carolina, and North Carolina. Within these southern states, the following are considered the hazards that are most prevalent.

- Coastal Erosion
- Droughts
- Earthquakes
- Expansive Soils
- Extreme Heat
- Floods
- Hurricanes
- Land Subsidence
- Storm Surges

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- Thunder and Lightning
- Tornadoes
- Windstorms

Hazard Rating Process

During the development of this hazard analysis, all events which could pose a threat to Dougherty County were analyzed and rated according to history, vulnerability, maximum threat, and probability of occurrence. The events which were identified as high priority in terms of significant threat, and for which preparedness, planning, and mitigation efforts are required, are:

- Severe Weather (Thunderstorms)
- Floods
- Hazardous Materials
- Tornadoes

Local Mitigation Goals and Objectives

Plan goals are broad statements describing the principles that guide the actions suggested in this document. The plan goals set County priorities for reducing susceptibility to natural, man-made or technological hazards. The goals serve as the basis for development of the more specific plan objectives. These goals are:

- Educate the citizenry about hazards.
- Reduce exposure to natural, man-made or technological Hazards.
- Protect public infrastructure and critical facilities from Hazards.
- Improve warning to the public during disasters.

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Plan objectives are more targeted statements that define strategies and implementation steps to attain the goals; they serve as a “measuring stick” upon which individual Hazard Mitigation projects can be evaluated. Specific objectives will be defined in Chapters 4 and 5.

Multi – Jurisdictional Special Considerations (Hazard Risk Vulnerability (HRV), Goals, Special Needs)

Dougherty County includes the City of Albany. Both Albany and Dougherty County were working partners in the development of the Pre-Disaster Plan. To reduce duplication of efforts, many of the governmental services provided by one department support both the County and City.

Adoption, Implementation, Monitoring and Evaluation

Albany and Dougherty County Commissioners will be responsible for adopting the Albany Dougherty Pre-Disaster Mitigation Plan. Now that the plan is complete, the real work effort begins. Over the next several years, Albany and Dougherty County will be implementing the identified hazard mitigation strategies that the public benefits from this planning effort. Albany Dougherty Emergency Management Agency is the lead agency and has overall cognizance as the program coordinator.

The plan recognizes the varied conditions that exist and can be found throughout Dougherty County. No single mitigation strategy will effectively meet the needs of the entire County. However, by embracing the coordinated approach and objectives found in this plan, Dougherty County can take significant strides toward the efficient and effective use of its resources to resolve and mitigate the community's identified hazards.

One of the most important accomplishments of the Hazard Mitigation planning project was the process itself, where the participants shared information, resources, and methodologies -- community wide, for the benefit of reducing or eliminating risk to critical areas.

The Albany Dougherty Pre-Disaster Mitigation Executive Committee will meet on an annually basis to review the progress made on the identification of resources and

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implementation of the Hazard Mitigation strategies. It shall also seek input on future unidentified Hazard Mitigation programs and strategies.

- Contact and work with each Hazard Mitigation Strategy's Lead Agency for an annual progress report on funding and implementation of the program recommended.
- Submit an annual report to the Albany Dougherty Emergency Management Agency (EMA) on the status of the strategies adopted and implemented.
- Meet annually, to identify new Hazard Mitigation strategies to be pursued, review the progress and implementation of those programs already identified, bring forth community input on new strategies, and produce a plan revision every five years.
- Coordinate with and support the Albany Dougherty Emergency Management Agency (EMA) efforts to promote and identify resources and grant money for implementation of the recommended Hazard Mitigation Strategies.

Chapter 2

Local Natural Hazard, Risk and Vulnerability (HRV) Summary

The Albany Dougherty Pre-Disaster Mitigation sub-committee, Identify/Profiling Hazards, evaluated each of the ten natural hazards prevalent to Southern States. The following three natural hazards (thunderstorms, flooding, and tornadoes) are regarded as having the greatest likelihood of recurrent impact to our community.

Natural Hazards:

Severe weather has replaced drought as the natural hazard that poses the most risk to Albany and Dougherty County. The State of Georgia is actually now, at the time of updating this plan, out of a drought period that last many years. Severe weather was chosen because of how it ranks on the hazard frequency table located in appendix A. The hazard frequency table notes that there is a 152% chance of having a severe weather event in a single year. Based on that number Albany/Dougherty County can expect to see at least one severe weather event but statistically there will most likely be two. Of course this is all based upon statistics from past events that is used to predict the possibility of future events and is in no way a sure thing. Unfortunately, the data does not allow us to break down the probability by jurisdiction.

Severe Weather (Thunderstorms)

- A. Severe Weather Identify.** Thunderstorms are formed when moist air near the earth's surface is forced upward through some catalyst (convection or frontal system). As the moist air rises, the air condenses to form clouds. Because condensation is a warming process, the cloud continues to expand upward. When the initial updraft is halted by the upper troposphere, both the anvil shape and a downdraft form. This system of updrafting and downdrafting air columns is termed a "cell".

As the process of updrafts and downdrafts feeds the cell, the interior particulates of the cloud collide and combine to form rain and hail which falls when the formations are heavy enough to push through the updraft. The collision of the

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water and ice particles within the cloud creates a large electrical field that must discharge to reduce charge separation. This discharge is the lightning that occurs from cloud to ground or cloud to cloud in the thunderstorm cell. In the final stage of development, the updraft weakens as the downdraft-driven participation continues until the cell dies.

Each thunderstorm cell has the ability to extend several miles across its base and to reach 40,000 feet in altitude. Thunderstorm cells may compound and move abreast to form a squall line of cells, extending farther than any individual cell's potential.

In terms of temporal characteristics, thunderstorms exhibit no true seasonality in that occurrences happen throughout the year. Convectively driven systems dominated in the summer while frontal driven systems dominate during the other seasons. The rate of onset is rapid in that a single cell endures only 20 minutes. However, various cells in different stages of development may form a thunderstorm that lasts up to a few hours as it moves across the surface.

Estimates show that at any given moment nearly 2,000 thunderstorms are actively dispersed over the earth's surface. This accounts for nearly 45,000 daily thunderstorms and 16 million annual thunderstorms around the world. Within the United States, annual estimates reach at least 100,000 thunderstorms. Georgia experiences thunderstorms during an average 50 to 80 days.

In terms of magnitude, the NWS defines thunderstorms in terms of severity. A severe thunderstorm produces winds greater than 57 miles per hour and/or hail greater than $\frac{3}{4}$ inches in diameter. The NWS chose these measures of severity as parameters more capable of producing considerable damage. Therefore, these are measures of magnitude that may project intensity.

As previously stated two hazardous elements of thunderstorms are lightning and hail. By definition all thunderstorms produce lightning. Lightning occurs when the difference between the positive and negative charges of the upper layers of the cloud and the earth's surface becomes great enough to overcome the resistance of the insulating air. The current flows along the forced conductive path to the surface (in cloud to ground lightning) and reaches up to 100 million volts of

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electrical potential. In Georgia, lightning strikes peak in July with June and August being second highest in occurrence.

Hail is a form of precipitation that forms during the updraft and downdraft-driven turbulence within the cloud. The hailstones are formed by layers of accumulated ice (with more layers creating larger hailstones) that can range from the size of a pea to the size of a grapefruit. Hailstones span a variety of shapes but usually take a spherical form. Hail storms mostly endanger crops but have been known to damage automobiles, aircraft, and structures.

- B. Severe Weather Profile.** Severe weather events are difficult to profile simply because there is no definitive rhyme or reason for their occurrence in Dougherty County. Severe weather typically moves west to east across the county and into neighboring counties. In the historic record there have been 90 severe weather events in Dougherty County, 28 of which happened in the past 10 years.
- C. Assets Exposed to Severe Weather.** Dougherty County has experienced no documented record of buildings, infrastructure, or critical facilities affected during the severe weather events. Occasionally, power lines go down due to high winds but no direct damage to buildings; this type of damage is considered incidental.
- D. Estimate Potential Losses to Severe Weather.** In the 59 years of recording severe weather events there have been approximately \$1.227 Million worth of damages due mainly to the winds associated with severe weather. The dollar figure losses documented through the National Climate Data Center (NCDC) reflect mostly, if not all, cleanup of debris and damage to power lines, pump stations and holding ponds caused by the effects of severe weather. Cleanup of roads and down power lines is something that Albany/Dougherty County will have to live with when dealing with severe weather, because until they cut all the trees down and put all utilities underground, which is prohibitively expensive, there is not a lot that can be done.

According to the NCDC most of the recorded damages have been within the last 20 years, but because of data collection inconsistencies between 1950 and 2009 it is difficult to say with any accuracy if the severe weather events are getting more intense or frequent.

Two formats prescribed by the Office of Homeland Security - Georgia Emergency Management Agency were used in estimating potential losses: the Georgia

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Mitigation Information System Critical Facility Inventory and the Assets Worksheet. Data input for the Critical Facilities inventory included the replacement value, structure content value and structure functional use value of each critical facility identified. According to the critical facilities inventory the replacement value totals for Albany is \$776.7 million, the content value totals \$28.6 million, and there was no total for functional use value. The replacement value totals for Dougherty County is \$37.4 million, and there was no total for functional use value or content value. The full GMIS report for Dougherty County is in Appendix A.

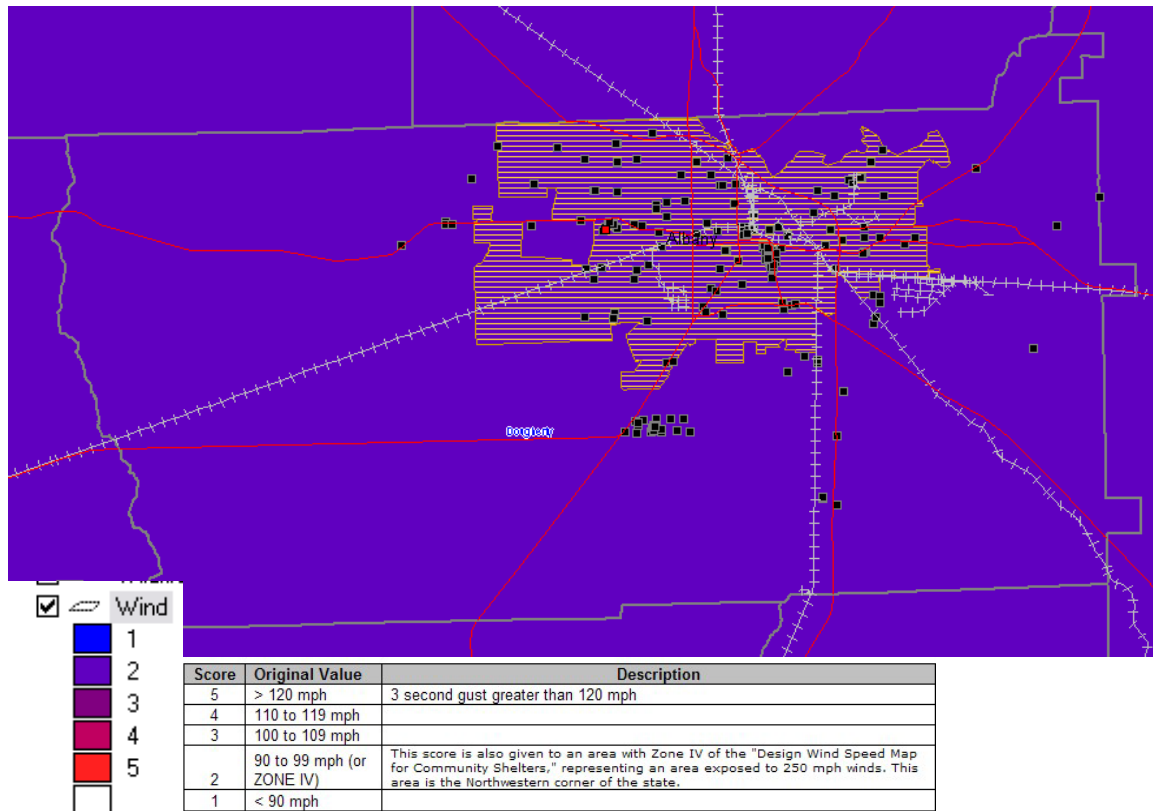


Figure 1 Wind map for Dougherty County from the Georgia Mitigation Information System.

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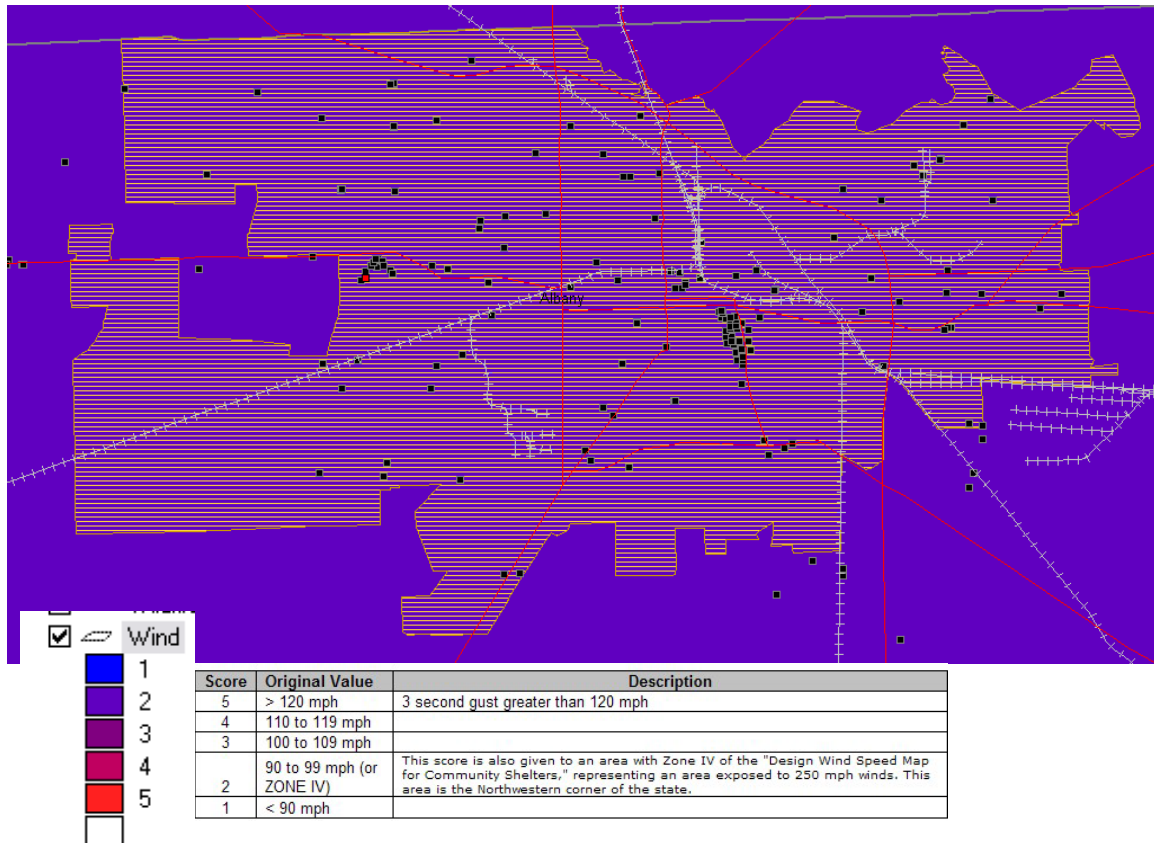


Figure 2 Wind Map for the City of Albany from Georgia Mitigation Information System.

The Wind Hazard Scores are based on the 2000 International Building Code, figure 1609 contours showing 3 second gust wind speeds with a 50 year return interval. The Northwest portion of the state scored an additional point for the 250 mph community tornado shelter design zone according to FEMA publications.

There are no new or planned structures/buildings/infrastructure/developments that would be considered critical or non-critical facilities planned for Albany or Dougherty County that would be subject to other requirements above and beyond that of the adopted building codes.

- E. Land Use and Development Trends related to Severe Weather.** Dougherty County does not at this time have a plan for land use or development trends germane to severe weather. Citizens of both Albany and Dougherty County are still allowed to develop where severe weather may have an impact on them. Mitigative actions for severe weather are typically the responsibility of the homeowner. Development that occurs in wind zones must be built according to the adopted building codes of Albany/Dougherty County.

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- F. Multi-Jurisdictional Severe Weather.** Dougherty County includes the City of Albany, and there is no evidence to suggest that either jurisdiction faces more risk or could be considered more vulnerable than the other with regard to severe weather. Wind zone 2 (90-99 mph) covers all of Albany/Dougherty County. Both Albany and Dougherty County were working partners in the development of the Pre-Disaster Mitigation Plan. Severe weather concerns of City and County committee members were received, discussed, and consolidated into the Plan. The critical facilities report is broken down by jurisdiction and is available in Appendix A. Worksheet 3A could not be broken down by jurisdiction but is available in Appendix D.
- G. General Summary of Severe Weather.** Thunderstorms can generally form and develop in any geographic location, perhaps most frequently within areas located at mid-latitude when warm moist air front collides and border cool air fronts. Thunderstorms are responsible for the development and formation of many severe weather phenomena. Thunderstorms, and the phenomena that occurs along with it, can produce numerous risks and hazards to populations and landscapes. Damages that result from thunderstorms are mainly inflicted by downburst winds, large hailstones, and flash flooding caused by heavy precipitation. Stronger thunderstorm cells are capable of producing tornadoes. Chapter 4 provides the Albany Dougherty Pre-Disaster Mitigation Committees Severe Weather Goals, Objectives, and Tasks. According to the Hazard frequency Table in Appendix A there is a 153% of severe weather affecting Albany and Dougherty County any given year. In short, they are going to happen and be quite common.

Flooding

- A. Flooding Identify.** Susceptibility of a stream to flooding is dependent upon several different variables. Among these are topography, ground saturation, previous rainfall amounts, soil types, drainage, basin size, drainage patterns of streams, and vegetative cover. Most floods occur because the ground is already saturated with moisture and cannot absorb any further runoff. Georgia's infamous red clay soil contributes to the problem in the piedmont area of the state because the particles of the clay are flat and lie in a dense, compact matrix which leaves little inter-particle space for water. As a result, the clay soil has poor "percolation" capability, and quickly becomes saturated. Additional rainfall results in more runoff. Urbanization and development also contributes to flash flooding in that the vegetative ground cover is removed and replaced with extensive amounts of asphalt, concrete, and buildings. Water is no longer absorbed and quickly runs off into adjacent lowlands and streams. Flooding may

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occur relatively slowly or become a flash flood. Both Albany/Dougherty County participate in the National Flood Insurance Program through the Federal Emergency Management Agency (FEMA). They both plan to continue participating by working to accomplish the goals outlined in the Flood Mitigation Plan located in Appendix C.

B. Flooding Profile. Throughout history, people have settled next to waterways because of the advantages in transportation, commerce, and water supply. Floods have caused a greater loss of life and property, and have disrupted more families and communities in the United States, than all other natural hazards combined. Dougherty County contains five principle bodies of water: the Flint River, Kinchafoonee Creek, Kiokee Creek, Muckalee Creek and Lake Chehaw. The worst hazard events experienced in Dougherty County were incidences of flooding.

In a county of approximately 330 square miles, almost 27% is designated floodway or flood plain by FEMA's Flood Insurance Rate Map, effective September 25, 2009. The Flint River Basin, the Kinchafoonee and Muckalee Creek drainages have become more responsive and have a slightly increased risk potential of minor flooding. Major flood-prone areas are found along the Flint River which flows west across the northern portion of the county, then south through the city of Albany to the Mitchell County line. Property along Kinchafoonee and Muckalee Creeks and on the shores of Lake Worth is also vulnerable. Areas in and near the river corridor are affected by over-bank flow, while discharges from sinkholes fed by high river levels affect some neighborhoods before the river overflows its banks. Localized drainage problems away from the river may cause flooding at times of heavy rainfall. Relatively flat topography necessitates the installation of drainage canals, retention and detention ponds, and stormwater discharge systems throughout the city and county. Upgrades to this system are undertaken on a regular basis as funding is made available.

Western Dougherty County contains large areas of designated flood plains. However, these areas are sparsely populated and represent limited damage vulnerability. Much of the property is in large agricultural and timber holdings, some publicly owned and protected from development.

Since 1994 Dougherty County, survived three major (94/98/09) and one minor (2000) floodings, suffering six dead and six injured. Loss of property and crops

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surpassed \$666M. Appendix D Worksheet # 2 addresses hazard events since 1951. There is a 10% chance of Dougherty County experiencing flood conditions during any given year (see Appendix A, Albany Dougherty Hazard Frequency Table).

C. Assets Exposed to Flooding. The Albany Dougherty Pre-Disaster Mitigation Committee established a list with the location of all critical facilities within the County. Planning and Community Development prepared maps of the County showing the boundaries of the 1994 flood. Next, the critical facilities were overlaid onto the map. The resulting map verified that most of the County's critical facilities are located outside of the floodplain. The Planning Committee is not aware at this time of any future building in the floodplain area. A list of critical facilities is located in Appendix D, Worksheet # 5, and the maps are available in Appendix A.

Other infrastructure that needs to be discussed includes roads, bridges, water and power lines. Roads will continue to flood and when replacement is finally needed they are built as practical to an appropriate elevation. Bridge condition is monitored closely before and after flooding to keep up the physical ability of the bridges to handle traffic after having the bridge footings battered by debris and current from floods. Water lines aren't a major concern during a flood because they are underground. Power lines are going to go down at times, however, Albany/Dougherty County is willing to deal with that because the alternative of relocating the power lines underground is prohibitively expensive.

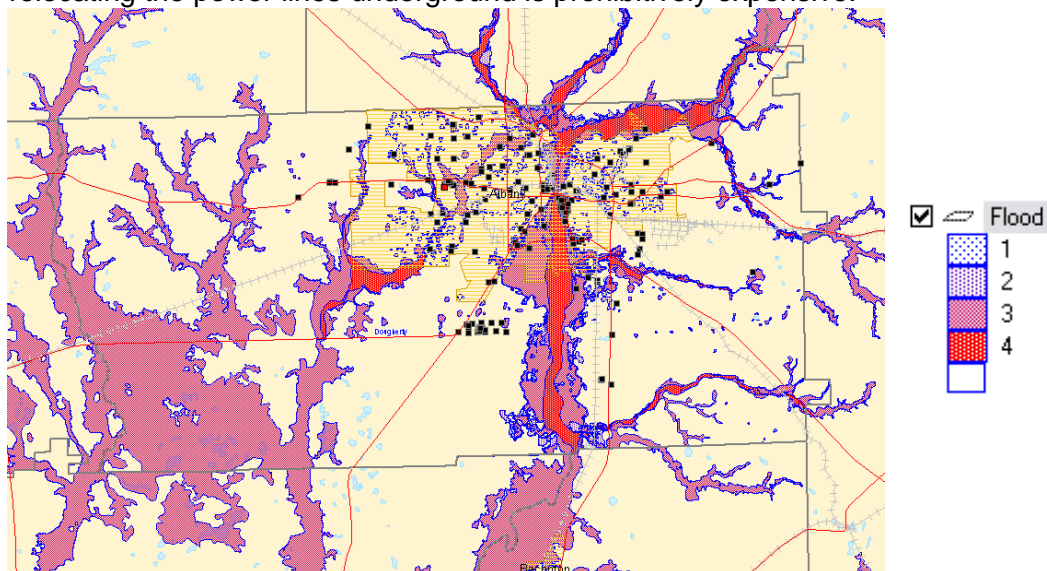


Figure 3 Dougherty County Flood Map from Georgia Mitigation Information System

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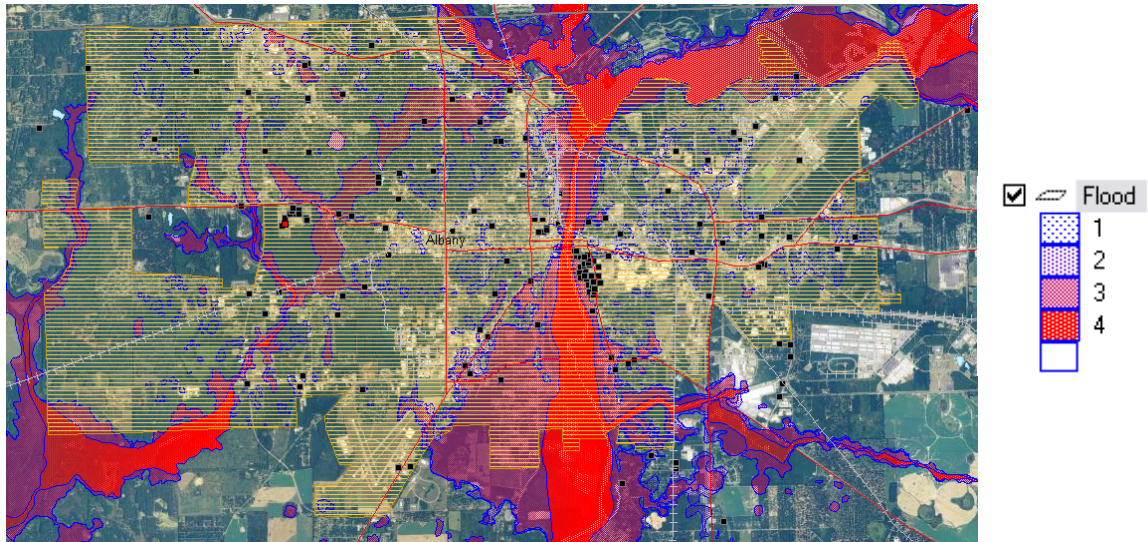


Figure 4 City of Albany Flood Map from Georgia Mitigation Information System

D. Estimated Potential Losses to Flooding. All flooding would be preceded by ample warning time. It requires a severe weather event and substantial rain to produce a flood condition, allowing time for Dougherty County to prepare for the event. Again, estimating loss is a guess depending on the severity of the flooding. Planning and Community Development's methodology to estimate potential losses utilizes the GEMA provided Excel worksheet with embedded loss estimate formula, resulting in an inventory of potential flooding losses in Appendix D, Worksheet # 3a. The total value of potential damage to properties with a structure in the 100 year floodplain of both the city and county totals \$46,040,059 based on tax assessor valuations. Appendix D Worksheet # 5 provides Albany/Dougherty County critical facilities, with potential loss estimates of \$132.7 million for the City of Albany and \$1.6 million for Dougherty County. There have been 81 properties, all residential, identified as repetitive loss in Albany and Dougherty County. However, 12 of these have been mitigated through elevation, demolition or acquisition and removal. Therefore, there are 69 properties currently listed as repetitive loss. 41 are in the city and 28 in the county.

There are no new or planned structures/buildings/infrastructure/developments that would be considered critical or non-critical facilities planned for the flood hazard area in Albany or Dougherty County.

E. Land Use and Development Trends Related to Flooding. Albany and Dougherty County Land Use and Development Ordinances do not prohibit building in flood prone areas, but require adherence to applicable codes.

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Development does still occur in the floodplain, despite being discouraged,, particularly near the major rivers, however the development is required to meet the applicable local building codes for building in the floodplain. This generally requires that the structure and its utilities be elevated above the base flood elevation. Any enclosed areas below the base flood elevation are required to be wet proofed with flood vents. In Albany, structures must be raised one foot above the base flood elevation. In the county, structures must be raised three feet above the base flood elevation.

Albany and Dougherty County adopted a joint Flood Hazard Mitigation Plan in 2009. This plan is monitored, evaluated and updated annually by the Flood Hazard Mitigation Plan Steering Committee. Progress toward meeting the plan's mitigation actions is reviewed and reported to FEMA and the Georgia Department of Natural Resources. Floodplain management ordinances to implement this plan and minimize losses due to flooding conditions were also adopted by the city and county in 2009.

F. Multi-Jurisdictional Flooding. Dougherty County includes the City of Albany, however Dougherty County is more prone to flooding due to the larger areas of low lying land. However, Albany has more structures in the floodplain and if flooded would have significantly higher dollar losses. Both Albany and Dougherty County were working partners in the development of the Pre-Disaster Mitigation Plan. Flooding concerns of City and County committee members were received discussed and consolidated into the Plan.

G. General Summary Flooding. The worst hazard events experienced by Dougherty County were incidences of flooding. The County will continue to implement the identified hazard mitigation strategies to ensure that the public benefits from this planning effort. Through the implementation of this plan, all city and county leaders will be promoting the public health, safety, and welfare of its citizens. Chapter 4 provides the Albany Dougherty Pre-Disaster Mitigation Committee's Flood Goals, Objectives, and Tasks.

Tornados

A. Tornadoes Identify. A tornado is a violently rotating column of air in contact with the ground. The air column can be seen when it contains condensation in the form of a cloud or when it contains surface dust and debris. Usually, a combination of both is present. When the column of air is aloft, it is called a funnel cloud. A waterspout is a tornado in contact with a water surface. The

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classic “funnel” shape may not be present in exceptionally large tornadoes. The tornado may appear to be a large, turbulent cloud near the ground, a large rain shaft, or even a non-weather event such as a fire.

Except for weak tornadoes and coastal water spouts, tornadoes usually develop from strong or severe thunderstorms. Most significant tornadoes have their origin within the right rear quadrant of the thunderstorm where a circulation develops at heights between 15,000 and 30,000 feet. A tornado or funnel cloud is observed when this circulation develops further downward toward the surface. Tornado development can also occur along the leading edge of a single thunderstorm or line of thunderstorms. While dangerous, such tornadoes are usually weak and short-lived.

Tornadoes can topple buildings, roll mobile homes, uproot trees, hurl people and animals through the air for hundreds of yards, and fill the air with lethal wind-borne debris. Tornadoes do their destructive work through the combined action of their strong rotary winds and the impact of wind-borne debris. Contrary to popular opinion, buildings do not “explode” as a result of reduced atmospheric pressure associated with the tornado. Instead, the force of the winds pushes the windward wall of the building inward. The roof is lifted up and the other walls fall outward. Opening a window, once thought to be a way to minimize damage by allowing inside and outside atmospheric pressure to equalize, is not recommended. Research during the 1970’s discovered that the pressure drop was responsible for only a small fraction of the destructive force within a tornado. All buildings have some ventilation and it is believed that this ventilation is enough to overcome the difference in pressure in all except the most violent storms.

Most tornadoes generate winds that are less than 120 miles per hour. Even though most buildings will be damaged to some extent by either the wind or windblown debris, there is nearly always a safe area, within a well-constructed building, that will provide adequate shelter from tornadic winds.

Tornadoes travel at an average speed of 30 miles per hour but speeds ranging from 0 to 70 miles per hour have been reported. Most tornadoes move from the southwest to the northeast but the direction may be erratic and subject to sudden change.







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Forecasters and researchers use a wind damage scale created by Dr. T. Theodore Fujita to classify tornadoes and sometimes the damage done by other wind storms. The F - for Fujita - scale uses numbers from 0 through 5. The ratings are based on the amount and type of wind damage. The ratings are:

- **F0** Gale tornado (40-72) **Light:** Damage to chimneys, tree branches, shallow-root trees, sign boards
- **F1** Moderate tornado (73-112) **Moderate:** Lower limit is beginning of hurricane wind speed—surfaces peeled off roofs, mobile homes pushed off foundations or overturned, cars pushed off roads
- **F2** Significant tornado (113-157) **Considerable:** Roofs torn off frame houses, mobile homes demolished, boxcars pushed over, large trees snapped or uprooted, light-object missiles generated
- **F3** Severe tornado (158-206) **Severe:** Roofs and some walls torn off well-constructed houses, trains overturned, most trees in forest uprooted, cars lifted off the ground and thrown
- **F4** Devastating tornado (207-260) **Devastating:** Well-constructed houses leveled, structures with weak foundations blown off some distance, cars thrown and large missiles generated
- **F5** Incredible tornado (261-318) **Incredible:** Strong frame houses lifted off foundations and carried considerable distance to disintegrate, automobile-sized missiles fly through the air in excess of 100 yards, trees debarked

The Fujita Scale was revised and the result is now called the “Enhanced Fujita Scale for Tornado Damage.” The new scale was implemented on February 1, 2007. The Enhanced Fujita Scale for Tornado Damage is located below:

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Scale	Wind speed		Relative frequency	Potential damage	
	mph	km/h			
EF0	65–85	105–137	53.5%	Light damage. Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over. Confirmed tornadoes with no reported damage (i.e. those that remain in open fields) are always rated EF0.	
EF1	86–110	138–178	31.6%	Moderate damage. Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.	
EF2	111–135	179–218	10.7%	Considerable damage. Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.	
EF3	136–165	219–266	3.4%	Severe damage. Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some distance.	
EF4	166–200	267–322	0.7%	Devastating damage. Well-constructed houses and whole frame houses completely leveled; cars thrown and small missiles generated.	
EF5	>200	>322	<0.1%	Explosive damage. Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 m (300 ft); steel reinforced concrete structure badly damaged; high-rise buildings have significant structural deformation.	

B. Tornadoes Profile. Severe thunderstorms produce about 1,000 tornadoes each year in the United States. FEMA reports that 106 federal disaster declarations over the past 20 years have included tornado damage. The path width of a

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tornado averages about 200 yards and therefore can have a substantial impact on human life and property. Damage from the average tornado includes roof surfaces, mobile homes pushed off of their foundations, and automobiles pushed off of the road. More severe tornadoes can lift 300-ton objects and toss homes more than 300 feet. Dougherty County has rebounded from the destructive aftermath of 15 tornadoes since 1951. Statistically, Dougherty County experiences a tornado once every three years; or a .31% chance of experiencing a tornado during any given year (see Appendix A Albany Dougherty Hazard Frequency Table). The most likely period is March through May. See Appendix D, Worksheet # 2. The tornadoes ranged in magnitude of F0 (40-72mph) to F2 (113-157mph). Damages surmounted \$11, 395, 000 with 40 citizens receiving injuries. Fortunately there were no recorded deaths.

- C. **Assets Exposed to Tornadoes.** All Dougherty County buildings, infrastructure, and critical facilities are vulnerable to the indiscriminate path of a tornado. The National Weather Service advises that tornadoes strike at random, and therefore all areas within the community are equally at risk. Damage is a factor of both storm or wind severity and what is in the path of the tornado. An F4 tornado in a densely populated area will do enormous damage. The characteristics of a structure can make it more or less vulnerable to tornado damage and its occupants more or less safe from injury if the building is hit. For example, mobile homes can be more easily damaged than permanent structures, buildings with crawl spaces are more susceptible to lift, and foundation and roof type can increase or decrease the structure's vulnerability.

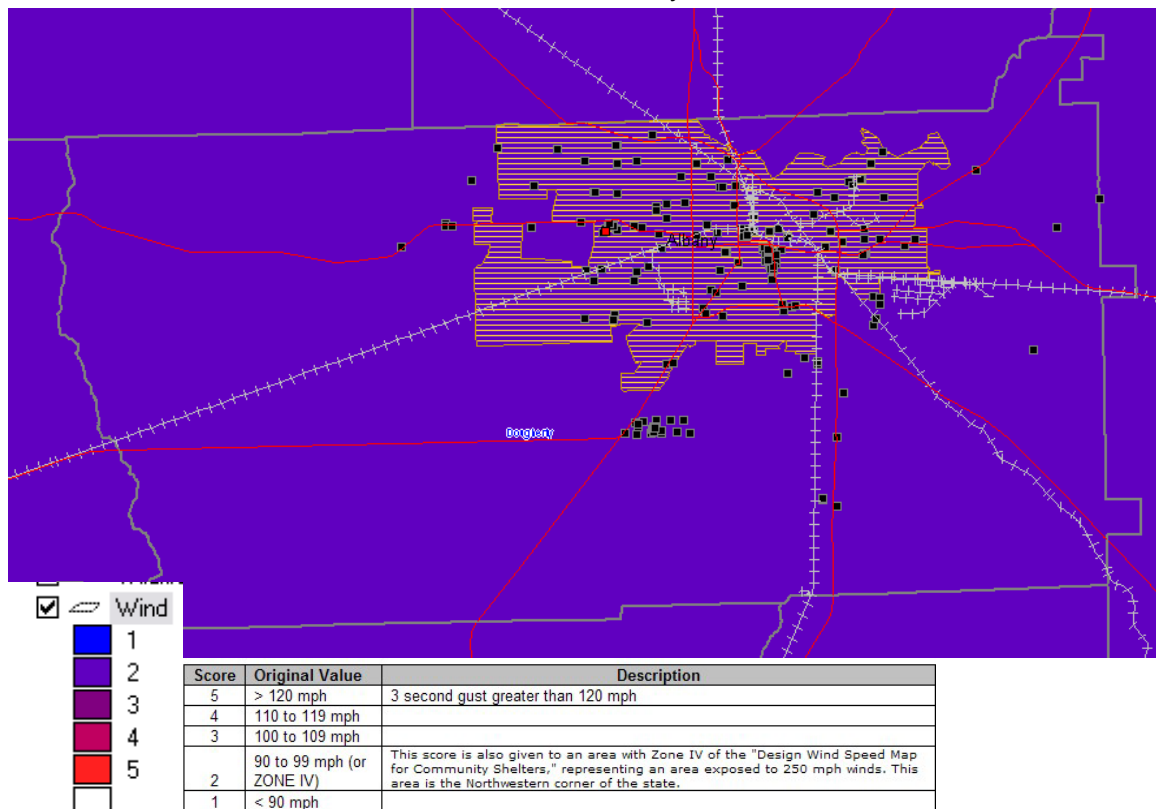


Figure 5 Wind map for Dougherty County from the Georgia Mitigation Information System.

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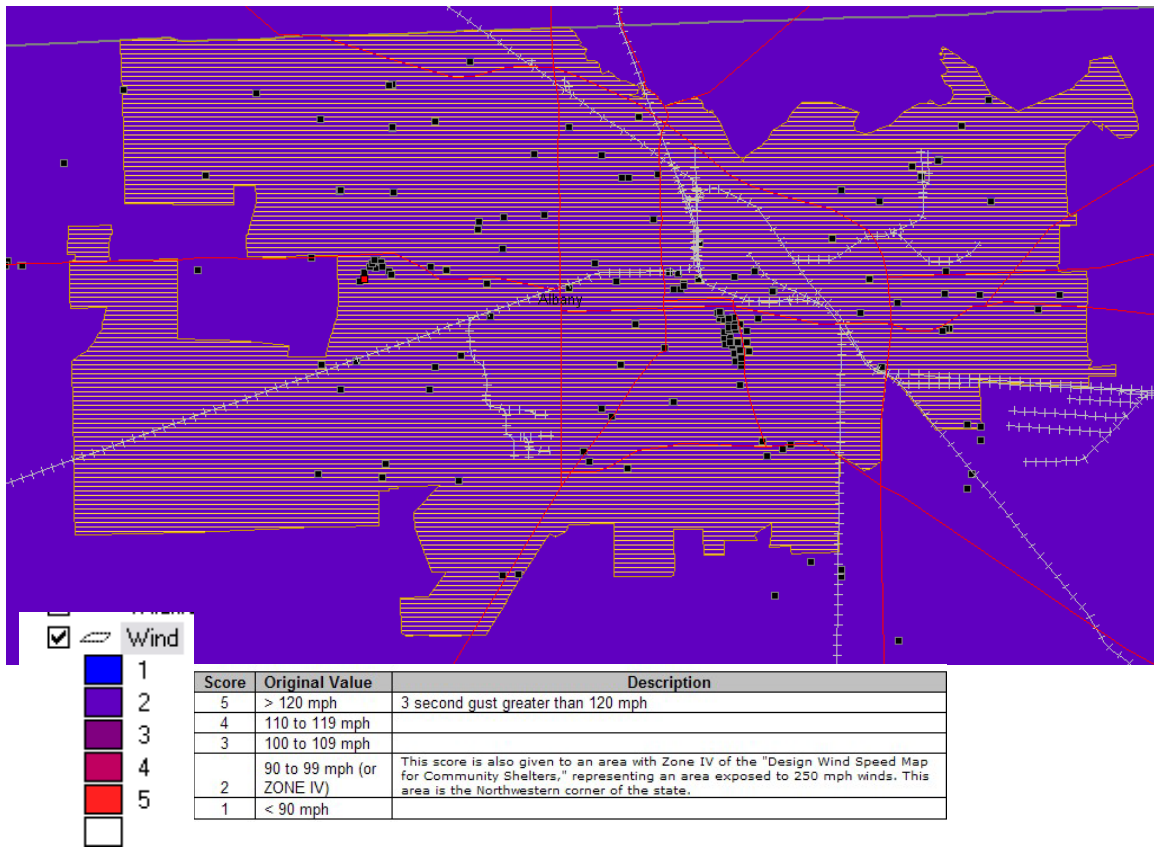


Figure 6 Wind map for the City of Albany from the Georgia Mitigation Information System.

Other infrastructure that needs to be discussed includes roads, bridges, water and power lines. Roads are generally not a problem during tornado events. Water lines aren't a major concern during a tornado because they are underground. Power lines are going to go down from time and Albany/Dougherty County is willing to deal with that because the alternative (underground power) is prohibitively expensive.

D. Estimate Potential Losses to Tornadoes. Predicting the potential losses from a tornado is similar to predicting where a tornado will touchdown. If the tornado is confined to a remote rural area the losses would be minimal; however, if the touchdown is a manufacturing plant, hospital, college, or downtown Albany, the damage to infrastructure and critical facilities would be in the millions of dollars. Planning and Community Development's methodology to estimate potential losses was to make use of the GEMA provided Excel worksheet with embedded loss estimate formula, and has prepared an inventory of potential losses in Appendix D, Worksheet # 3a. Worksheet #3a could not be broken down by

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jurisdiction. Appendix D Worksheet # 5 provides Albany/Dougherty County critical facilities, with potential loss estimates.

Two formats prescribed by the Office of Homeland Security - Georgia Emergency Management Agency were used in estimating potential losses: the Georgia Mitigation Information System Critical Facility Inventory and the Assets Worksheet. Data input for the Critical Facilities inventory included the replacement value, structure content value and structure functional use value of each critical facility identified. According to the critical facilities inventory the replacement value totals for Albany is \$776.7 million, the content value totals \$28.6 million, and there was no total for functional use value. The replacement value totals for Dougherty County is \$37.4 million, and there was no total for functional use value or content value. The full GMIS report for Dougherty County is in Appendix A.

There are no new or planned structures/buildings/infrastructure/developments that would be considered critical or non-critical facilities planned for tornado hazard areas in Albany or Dougherty County.

- E. Land Use and Development Trends Related to Tornadoes.** Dougherty County design wind is 90 -100mph (Appendix D Worksheet # 3). However, the County has no land use or development plan addressing tornadoes. Due to the random nature of where tornadoes develop it is difficult to plan development around them. Development is allowed in wind zones however, it is required to adhere to special construction methods and codes adopted by Albany/Dougherty County.
- F. Multi-Jurisdictional Tornadoes.** Dougherty County includes the City of Albany, and there is no evidence to suggest that either jurisdiction faces more risk or could be considered more vulnerable than the other with regard to tornadoes. Both Albany and Dougherty County were working partners in the development of the Pre-Disaster Mitigation Plan. Tornado concerns of City and County committee members were received, discussed and consolidated into the Plan.
- G. General Summary Tornadoes.** Tornadoes are a fact of life in Georgia; the question is not whether the event will happen, but when and where. Tornadoes tend to strike in somewhat random fashion, making the task of calculating a recurrence interval difficult. Depending on the severity of the tornado, damage can range from light damage to trees and roofs (Fujita Category F0) to destruction of well-built houses (Fujita Category F4 and F5). Mobile homes and houses with crawl spaces are more susceptible to lift and therefore at the greatest risk of damage. While Dougherty County has not been hit by the most

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violent storms, tornadoes have injured 40 people since 1951. Preparedness planning involves those efforts undertaken before a tornado to prepare for, or improve capability to respond to the event. Chapter 4 provides the Albany Dougherty Pre-Disaster Mitigation Committees Tornado Goals, Objectives, and Tasks.

Chapter 3

Local Technological Hazard, Risk and Vulnerability (HRV)

Summary

Updates were made regarding how many incidences happened in Dougherty County with data provided by the Georgia EPD. But overall, the threat is always there and hasn't decreased nor has it increased since this plan was created.

The following technological hazard is regarded as having the greatest likelihood of impact to our community. Included is a description of the hazard.

Hazardous Materials

A. Hazardous Materials (HAZMAT) Identify. Hazardous materials are chemical substances that, if released or misused, can pose a threat to the environment or human health. These chemicals are used in industry, agriculture, medicine, research, and consumer goods. Hazardous materials come in the form of explosives, flammable and combustible substances, poisons, and radioactive materials. Jurisdictions with facilities that produce, process or store hazardous materials are at risk, as are facilities that treat, store, or dispose of hazardous wastes. A major source of hazardous material accidents are spills along roadways, railways, pipelines, rivers and port areas.

In addition to spills, disasters can come about through radiological incidents and nuclear power plant accidents. The ingestion exposure pathway is within a 50-mile Emergency Planning Zone of any nuclear power plant. Radioactive materials are products in the operation of nuclear reactors.

B. Hazardous Materials Profile. Hazardous material spills are common in areas where hazardous materials are fabricated, processed, and stored. Transportation of hazardous materials by truck is the cause of the greatest number of hazardous materials events. Many products containing hazardous chemicals are routinely used and stored in homes. These products are also shipped daily on the nation's highways, railroads, waterways, and pipelines. In

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most cases, disasters involving hazardous materials are confined to a localized area, whether an accidental release occurs at a fixed facility or in association with a transportation incident. The United States Environmental Protection Agency sorts hazardous materials into six categories:

1. Toxic Agents (irritants, asphyxiates, narcotics)
2. Other Toxic Agents (hepatotoxic, nephrotoxic)
3. Hazardous Wastes
4. Hazardous Substances
5. Toxic Pollutants
6. Extremely Hazardous Substances

Currently Dougherty County does not currently maintain statistical records recording the annual number of hazardous materials incidents. However, the fire and police departments and organizations like the American Red Cross and Local Emergency Planning Committee (LEPC) stress the safe and proper handling of hazardous materials. Given the County's common utilization in commercial, manufacturing, and private sectors, and the required transportation of hazardous materials, the likely future probability of reoccurrence within the County is high. The Environmental Protection Division (EPD) of the Georgia Department of Natural Resources (GDNR) responds to and investigates hazardous materials spills in Georgia. Since 1999 the EPD has responded to 328 reported spills in Dougherty County and the City of Albany. This number may seem high but further investigation into the data reveals that all reported spills are investigated from the smallest amount of oil on the ground to the largest hazardous chemical spill. The records of spill only go back to 1999 so at first glance the data appears to show hazardous materials spills as a frequent threat (approximately 33 per year). That may be the case but as mentioned before, all complaints are investigated by EPD and there is no dissemination between large spills and small spills. The data presented cannot easily be broken down by jurisdiction. Any suspected spill location is based on an address and the city is always Albany. Deriving jurisdictions is potentially possible but would take a lot of work for results of potentially low confidence or usability.

C. Assets Exposed to Hazardous Materials. A hazardous materials accident can occur anywhere. Communities located near chemical manufacturing plants are particularly at risk. However, hazardous materials are transported on our

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roadways, railways and waterways daily, so any area is considered vulnerable to an accident. Hazardous materials affect people through inhalation, ingestion, or direct contact with skin. They can cause death, serious injury, long-lasting health problems, and damage to buildings, homes and other property.

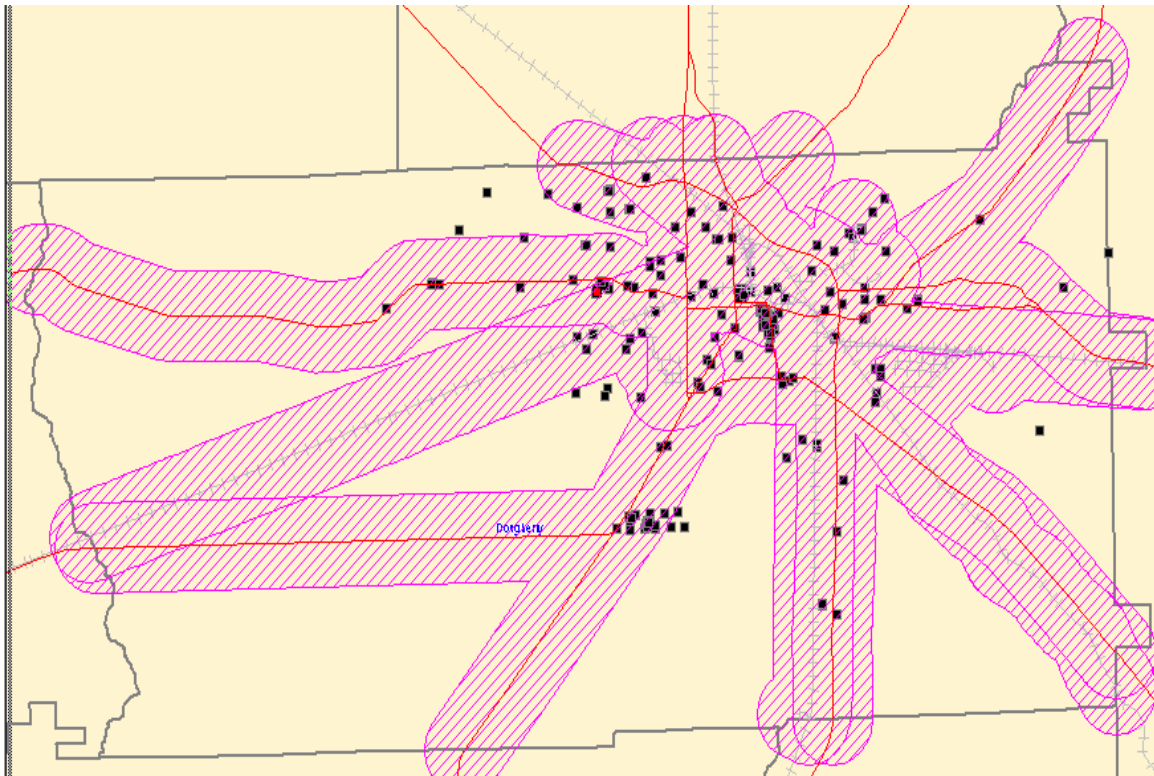


Figure 7 Areas representing a greater likelihood of experiencing a technological or man made hazard in Dougherty County.
Source: Georgia Mitigation Information System NOTE: In this map, major highways, interstates, and rail lines have been buffered by 1 mile.

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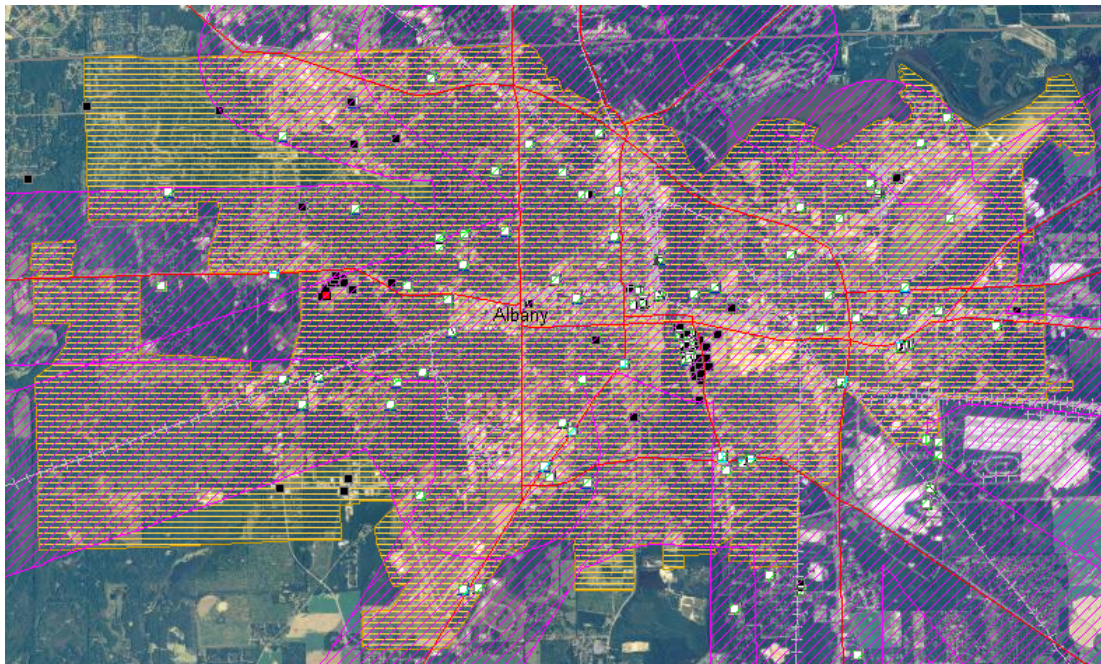


Figure 8 Areas representing a greater likelihood of experiencing a technological or man made hazard in Dougherty County. Source: Georgia Mitigation Information System NOTE: In this map, major highways, interstates, and rail lines have been buffered by 1 mile.

D. Estimated Potential Losses to Hazardous Materials. Most hazardous materials events occur during transport. Transportation of hazardous materials on highways involves tanker trucks or trailers and certain types of specialized bulk cargo vehicles. Because of the distances traveled, it is not surprising that trucks are responsible for the greatest number of hazardous materials events, while to a lesser degree but potentially just as much as an impact, would be rail car.

Using the Georgia Mitigation Information System, a 1 mile buffer was placed over major transportation routes including highways and rail. Everything inside of that buffer, including critical facilities, is considered to be most directly affected by a potential technological hazard. Specific monetary values for these buffer areas cannot be determined. The value put on vulnerable critical facilities according to the GMIS report for the City of Albany is \$774.4 million and \$36.2 million for Dougherty County.

There are no new or planned structures/buildings/infrastructure/developments that would be considered critical or non-critical facilities planned for Albany or Dougherty County.

E. Land Use and Development Trends Related to Hazardous Materials. Dougherty County does not at this time have a plan for land use or development trends germane to Hazardous materials. There are currently no restrictions on existing development with regards to the location of potential hazardous materials spills in any geographic area.

F. Multi-Jurisdictional Hazardous Materials. Dougherty County includes the City of Albany, however Dougherty County has a higher risk of hazardous materials spills simply because there is more industrial development in the County and adjacent to the City of Albany. Both Albany and Dougherty County were working partners in the development of the Pre-Disaster Mitigation Plan. Hazardous Materials concerns of City and County committee members were received, discussed and consolidated into the Plan.

G. General Summary Hazardous Materials. Human error is the probable cause of most transportation incidents and associated consequences involving the release of hazardous materials. Varying quantities of hazardous materials are manufactured, used, or stored in Dougherty County, from major industrial plants to local dry cleaning establishments or gardening supply stores. Most victims of chemical accidents result from carelessness in using flammable or combustible materials. Chapter 5 provides the Albany Dougherty Pre-Disaster Mitigation Committees Hazardous materials Goals, Objectives, and Tasks.

Chapter 4

Local Natural Hazard Mitigation Goals and Objectives

Changes to this chapter were minimal; text changes are in green colored font. Drought has been removed as the highest priority hazard affecting Dougherty County. Goals, objectives and action steps were reevaluated to maintain effectiveness and efficiency. You may notice that none of the goals specifically say “completed” but in reality they were and their new status is “continuing”. Albany and Dougherty County realized that the things that were accomplished were things that worked effectively enough to continue doing.

Using the findings from the risk assessment and the capabilities assessment as a guide the Albany Dougherty Pre-Disaster Mitigation Planning Committee developed the following mitigation goals, objectives, and action steps for implementation. Goals and objectives were developed in the subcommittees working sessions. Once the final goals and objectives were determined the Planning Committee met again to develop the action steps or mitigation strategies that would aid the County in meeting the goals and objectives identified in the plan. Action steps were selected using the information obtained from the capabilities assessment, which identified existing programs and shortfalls related to mitigation activities.

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The following goal and objective, with action steps apply to the natural hazards identified in Chapter 2.

Severe Weather (Thunderstorms)

A. Community Mitigation Goals. Promote awareness of the seriousness of severe weather events and preventative measures to protect the health and safety of Albany/Dougherty County residents.

B. Identification & Analysis of Range of Mitigation Options. The Albany Dougherty Pre-Disaster Mitigation Committee has identified structural and non-structural mitigation measures to ensure that the community adequately addresses all relevant severe weather issues. Reducing the level of vulnerability (mitigation) requires our elected officials, City/County administrators, and the public to be fully integrated into the severe weather management process in order to coordinate efforts during stages of severe weather events. Awareness of severe weather events is perhaps the best strategy to ensure that the effects of severe weather are minimal. Although not an official policy, Albany/Dougherty County has a “Best Management Practice” regarding severe weather events of lowering the levels of stormwater ponds and clearing stormwater drains of debris so as to mitigate as much as possible the effects of severe weather. Both Albany and Dougherty have prepared floodplain ordinances and together they have created a Flood Mitigation Plan.

C. Mitigation Strategy and Recommendation

- **Mitigation Goal #1:** Educate the citizenry about the effects of severe weather.

Objective # 1: Increase enrollment in early warning system.

Task A. Promote the early warning system to Albany/Dougherty County residents.

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Action Step: Heighten public awareness on actions they can take to prepare for severe weather events.

Responsible Department	Fire Department/EMA
Anticipated cost	\$10,000 annually
Existing and Potential funding sources	City of Albany
Jurisdiction	Albany/Dougherty County
Timeframe	2010-2015
Priority	Medium
Status (Deferred or New)	Continuing

Action Step: Utilize the media for the distribution and publication of severe weather information.

Responsible Department	Fire Department/EMA
Anticipated cost	N/A
Existing and Potential funding sources	N/A
Jurisdiction	Albany/Dougherty County
Timeframe	2010-2015
Priority	Medium
Status (Deferred or New)	Continuing

NOTE: Albany/Dougherty County utilize WALB and Fox through an informal agreement to publicize severe weather information.

Action Step: Update the Albany/Dougherty website to provide severe weather related information that is readily accessible.

Responsible Department	Fire Department/EMA
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Anticipated cost	N/A
Existing and Potential funding sources	N/A
Jurisdiction	Albany/Dougherty County
Timeframe	As needed 2010-2015
Priority	Medium
Status (Deferred or New)	Continuing

NOTE: Severe weather preparedness information updated as needed.

Action Step: Educate homeowners and business owners how to prepare the property for severe weather events.

Responsible Department	Fire Department/EMA
Anticipated cost	N/A
Existing and Potential funding sources	N/A
Jurisdiction	Albany/Dougherty County
Timeframe	2010-2015
Priority	Medium
Status (Deferred or New)	Continuing

NOTE: Homeowners and business owners checklist is available online. Albany/Dougherty EMA does presentations on request and the Citizens Police Academy incorporates a section of this as well.

Action Step: Continue enforcing the building codes and require contractors to build to a minimum wind speed. This will cover new construction and any new renovations/additions that require a building permit.

Responsible Department	Planning/Code Enforcement
Anticipated cost	N/A

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Existing and Potential funding sources	N/A
Jurisdiction	Albany/Dougherty County
Timeframe	2010-2015
Priority	Medium
Status (Deferred or New)	New

D. Multi-Jurisdictional Mitigation Strategy. Severe weather is a county wide problem. This Plan is a collaborative effort between the City of Albany and Dougherty County. Together each experiences the effects of severe weather conditions, and together each is working to mitigate future natural hazards. The action steps to be implemented for severe weather are implemented in both the City of Albany and Dougherty County.

E. Local Public Information and Awareness strategy. Outreach projects are effective first steps in orienting property owners to property protection issues and helping them seek out more information to protect themselves and their properties. A successful County information and education program involves both the public and private sectors. Public information and education activities advise and educate citizens, property owners, renters, businesses, and local officials about hazards and ways to protect people and property from severe weather hazards. Public information activities are among the least expensive mitigation measures, and at the same time are often the most effective thing a community can do to save lives and property. All hazard mitigation activities (preventive, structural, property protection, emergency services, and natural resource protection) begin with public information and education.

Flooding

A. Community Mitigation Goals. Dougherty County has suffered repetitive flood damage in a number of major flood incidents; 1994, 1998 and 2009 events resulted in tens of millions of dollars in property damage and the County remains prone to future Flooding hazard. This Plan's mitigation goals are avoidance and

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protection. Through an informed public and the enforcement of floodplain management, we will reduce the community's risk to people, property/environment and the economy from future flooding.

B. Identification & Analysis of Range of Mitigation Options. The Albany Dougherty Pre-Disaster Mitigation Committee has identified structural and non-structural mitigation measures to ensure that the community adequately addresses all relevant flood issues. Reducing the level of vulnerability (mitigation) requires our elected officials, City/County administrators, and the public to be fully integrated into the flood management process in order to coordinate efforts during stages of flood preparation. This may require modification or adoption of local ordinances/codes to provide guidance and regulations to manage flood mitigation at the County level. Dougherty County must coordinate with region and state officials and other municipalities who share our common hazard flooding. Albany and Dougherty County officials shall enforce both local regulations/restrictions and state emergency orders. Although not an official policy, Albany/Dougherty County has a "Best Management Practice" regarding severe weather events of lowering the levels of stormwater ponds and clearing stormwater drains of debris so as to mitigate as much as possible the effects of severe weather. This best management practice is utilized for mitigating the effects of flooding because severe weather and flooding go hand in hand. Both Albany and Dougherty have prepared floodplain ordinances and together they have created a Flood Mitigation Plan.

C. Mitigation Strategy and Recommendations

- **Mitigation Goal # 2:** Educate the citizenry about Flood hazards.

Objective # 1: Improve Flood hazard information dissemination.

Task A. Improve information dissemination using Albany Dougherty website, access channel and regular updates during emergencies.

Action Step: Increase the level of citizen education on flood issues in Albany and Dougherty County.

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Responsible Department	Planning & Development Services/Fire Department/EMA
Anticipated cost	N/A
Existing and Potential funding sources	N/A
Jurisdiction	Albany/Dougherty County
Timeframe	Continuous and as needed
Priority	Medium
Status (Deferred or New)	Continuing

Action Step: Update the Albany Dougherty website to provide flood hazard related information that is readily accessible.

Responsible Department	Planning & Development Services
Anticipated cost	N/A
Existing and Potential funding sources	N/A
Jurisdiction	Albany/Dougherty County
Timeframe	As needed
Priority	Medium
Status (Deferred or New)	Continuing

Action Step: Outreach to residents and property owners in Repetitive Loss Areas and Flood Hazard Zones through annual mailing of informational brochures and letters.

Responsible Department	Planning & Development Services
Anticipated cost	N/A
Existing and Potential funding sources	N/A

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Jurisdiction	Albany/Dougherty County
Timeframe	Annually
Priority	Medium
Status (Deferred or New)	Continuing

Action Step: Outreach to lenders, real estate agents and insurance agents through annual mailings of informational brochures and letters.

Responsible Department	Planning & Development Services
Anticipated cost	N/A
Existing and Potential funding sources	N/A
Jurisdiction	Albany/Dougherty County
Timeframe	Annually
Priority	Medium
Status (Deferred or New)	Continuing

Objective # 2: Identify the floodway.

Task A: Identify the floodway by posting signs on all streets at the location where the street intersects the floodway.

Action Step: Update and improve floodplain maps.

Responsible Department	Planning & Development Services
Anticipated cost	\$50,000+
Existing and Potential funding sources	GEMA/FEMA Grants

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Jurisdiction	Albany/Dougherty County
Timeframe	Continuous, as needed
Priority	Medium
Status (Deferred or New)	New

Objective # 3: Enforce floodplain management.

Task A: Continue to enforce floodplain management regulations.

Action Step: Continue diligent enforcement of building codes and floodplain management regulations to maximize property protection and safety of residents and to maintain the good standing of the city and county with the National Flood Insurance Program.

Responsible Department	Planning and Development Services
Anticipated cost	Staff Time
Existing and Potential funding sources	General Fund
Jurisdiction	Albany/Dougherty County
Timeframe	Continuous, as needed
Priority	Medium
Status (Deferred or New)	Continuing

Action Step: Update the Stormwater Management Plan to ensure it is current and consistent with latest Flood Insurance Rating Maps (FIRM).

Responsible Department	Dougherty Co. Public Works/Planning & Dev. Services
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Anticipated cost	Staff Time
Existing and Potential funding sources	General Fund
Jurisdiction	Albany/Dougherty County
Timeframe	2010
Priority	Medium
Status (Deferred or New)	Continuing

- **Mitigation Goal # 3:** Reduce exposure to Flood hazards.

Objective # 1: Develop Flood mitigation plans.

Task A: Continue to work with the Army Corps of Engineers and other agencies to develop Flood mitigation plans to protect property in the County.

Action Step: Continue to protect from additional development properties that are vulnerable to flood damage; Flint River Corridor properties and other wetlands are priorities.

Responsible Department	Planning & Development Services
Anticipated cost	Staff Time
Existing and Potential funding sources	General Fund
Jurisdiction	Albany/Dougherty County
Timeframe	Continuing, as needed
Priority	Medium
Status (Deferred or New)	Continuing

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Action Step: Build a bridge over the Flint River at Clark and Society Ave.

Responsible Department	Engineering/GDOT
Anticipated cost	\$15,000,000
Existing and Potential funding sources	FEMA
Jurisdiction	Albany
Timeframe	When/If funds are available
Priority	Low
Status (Deferred or New)	Deferred

NOTE: The idea of a bridge in this location still comes up in discussion from time-to-time however the cost has hampered any serious discussion.

Action Step: Apply for Flood Mitigation Assistance funds to make the buyout option available to willing owners of properties vulnerable to flood damage in the City of Albany and Dougherty County. Repetitive Loss Properties would be top priority.

Responsible Department	Planning & Development Services
Anticipated cost	unknown
Existing and Potential funding sources	FEMA
Jurisdiction	Albany/Dougherty County
Timeframe	When/If funds are available
Priority	Low
Status (Deferred or New)	Continue

Action Step: Maintain the three-foot freeboard requirement in effect for Dougherty County since 1999. (Freeboard is the elevation of the finished floor above the level of the 100-year flood

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required for new construction). Propose that the City of Albany amend its Floodplain Management Ordinance to adopt this standard.

Responsible Department	Planning & Development Services
Anticipated cost	Staff time
Existing and Potential funding sources	FEMA
Jurisdiction	Albany/Dougherty County
Timeframe	2011
Priority	medium
Status (Deferred or New)	Continue

Objective # 2: Improve the stormwater drainage system.

Task A: Improve the stormwater drainage system in Albany and Dougherty County.

Action Step: In preparation for the next SPLOST referendum and other funding opportunities, identify needed storm water management projects to be included in infrastructure work in city and county. Include an analysis of the need for additional back-up power generation for the Joshua Street Wastewater Treatment System.

Responsible Department	Public Works/Engineering
Anticipated cost	Staff Time
Existing and Potential funding sources	General Fund, SPLOST
Jurisdiction	Albany/Dougherty County
Timeframe	2010-2015

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Priority	Medium
Status (Deferred or New)	Continuing

NOTE: Tentatively funded by next SPLOST.

Action Step: When the final report is received from Phase II of the USGS 2-dimensional model study of the Flint River corridor, carefully assess the resulting recommendations. Take action as indicated. Include the results in the review of this document.

Responsible Department	Public Works/Engineering/Planning & Development Services
Anticipated cost	Staff Time
Existing and Potential funding sources	General Fund, SPLOST
Jurisdiction	Albany/Dougherty County
Timeframe	2011-2015
Priority	Medium
Status (Deferred or New)	New

Action Step: Maintain retention ponds as necessary throughout Dougherty County to assist in Flood control.

Responsible Department	Albany/Dougherty Public Works, Planning & Development Services, Engineering
Anticipated cost	Staff Time
Existing and Potential funding sources	General Funds
Jurisdiction	Albany/Dougherty County
Timeframe	2010-2015
Priority	Low

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Status (Deferred or New)	New
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NOTE: The retention ponds have already been built but require maintenance in order to function effectively.

Action Step: Upgrade existing pump stations capabilities to meet historically flood prone areas.

Responsible Department	Public Works
Anticipated cost	\$35,000 - \$50,000
Existing and Potential funding sources	SPLOST, General Funds
Jurisdiction	Albany/Dougherty County
Timeframe	2010-2015
Priority	Medium
Status (Deferred or New)	Continuing

NOTE: Tentatively funded by next SPLOST.

Action Step: Continue to upgrade pump stations with an emphasis on flood control.

Responsible Department	Albany/Dougherty Public Works
Anticipated cost	\$35,000 - \$50,000
Existing and Potential funding sources	SPLOST, General Fund
Jurisdiction	Albany/Dougherty County
Timeframe	2010-2015
Priority	Medium
Status (Deferred or New)	Continuing

NOTE: Tentatively funded by next SPLOST

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Action Step: Drain ponds and remove debris from drainage systems prior to severe weather to mitigate effects.

Responsible Department	Albany/Dougherty Public Works
Anticipated cost	Staff Time
Existing and Potential funding sources	General Fund
Jurisdiction	Albany/Dougherty County
Timeframe	2010-2015
Priority	Low
Status (Deferred or New)	Continuing

- **Mitigation Goal # 4:** Protect public infrastructure and critical facilities from Flooding.

Objective # 1: Flood proof or relocate outside the of the flood hazard area all critical facilities.

Task A: Identify buildings which would benefit from Flood hazard mitigation.

Action Step: Review all capital improvements plans to ensure that infrastructure improvements are not directed towards Flood hazard areas.

Responsible Department	Planning & Development Services
Anticipated cost	Staff Time
Existing and Potential funding sources	General Fund
Jurisdiction	Albany/Dougherty County

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Timeframe	2010-2015
Priority	Low
Status (Deferred or New)	Continuing

Action Step: Develop mitigation strategies to protect any at-risk historic properties.

Responsible Department	Planning & Development Services
Anticipated cost	Staff Time
Existing and Potential funding sources	General Fund, Grant
Jurisdiction	Albany/Dougherty County
Timeframe	2013-2015
Priority	Low
Status (Deferred or New)	Continuing

D. Multi-Jurisdictional Mitigation Strategy. Flooding and the associated damages have impacted both the City of Albany and Dougherty County. This Plan is a collaborative effort between the City of Albany and Dougherty County. Together each experienced the effects of Flood hazard conditions, and together each is working to mitigate future natural hazards. The action steps for flooding will be implemented by both the City of Albany and Dougherty County unless otherwise stated.

E. Local Public Information and Awareness strategy. Outreach projects are effective first steps in orienting property owners to property protection issues and helping them seek out more information to protect themselves and their properties. A successful County information and education program involves both the public and private sectors. Public information and education activities advise and educate citizens, property owners, renters, businesses, and local officials about hazards and ways to protect people and property from Flooding. Public information activities are among the least expensive mitigation measures, and at the same time are often the most effective thing a community can do to save lives and property. All hazard mitigation activities (preventive, structural,

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property protection, emergency services, and natural resource protection) begin with public information and education.

Tornado

A. Community Mitigation Goals. Tornadoes are common to Southwest Georgia and they may strike at anytime. To be effective any hazard mitigation effort must have goals. This Plan's mitigation goals are avoidance and protection. Through an informed public and the enforcement of ordinances and building codes, we will reduce the community's risk to people, property/environment and the economy from future tornadoes.

B. Identification & Analysis of Range of Mitigation Options. The Albany Dougherty Pre-Disaster Mitigation Committee has identified structural and non-structural mitigation measures to ensure that the community adequately addresses all relevant tornado issues. Reducing the level of vulnerability (mitigation) requires our elected officials, City/County administrators, and the public to be fully integrated into the natural hazard management process in order to coordinate efforts during stages of tornado preparation. This may require modification or adoption of local ordinances/codes to provide guidance and regulations to manage tornado mitigation at the County level. Dougherty County must coordinate with region and state officials and other municipalities who share our common hazard tornadoes. Albany and Dougherty County officials shall enforce both local regulations/restrictions and state emergency orders.

Although not required the Albany/Dougherty County government requires developers/builder to design buildings for 90 mph winds or higher because of the location of Dougherty County in Wind Zone 2.

C. Mitigation Strategy and Recommendations

- **Mitigation Goal # 5:** Reduce risks and vulnerability of people in Tornado hazard-prone areas.

Objective # 1: To advise the public about tornado safety precautions.

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Task A: Guard the public against injury and loss of life from Tornado hazards.

Action Step: Education program on personal emergency preparedness, i.e., emergency survival kits.

Responsible Department	Albany Fire Department/EMA
Anticipated cost	N/A
Existing and Potential funding sources	General Fund
Jurisdiction	Albany/Dougherty County
Timeframe	2010-2015
Priority	Medium
Status (Deferred or New)	Continuing

Action Step: Partner with local radio stations to assure that appropriate warning is provided to County residents of impending Tornado.

Responsible Department	Albany Fire Department/EMA
Anticipated cost	Staff Time
Existing and Potential funding sources	General Fund
Jurisdiction	Albany/Dougherty
Timeframe	2010-2015
Priority	Medium
Status (Deferred or New)	Continuing

Action Step: Encourage the American Red Cross to teach the Citizen's Disaster Course on a frequent basis.

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Responsible Department	Albany Fire Department/ EMA
Anticipated cost	N/A
Existing and Potential funding sources	General Fund
Jurisdiction	Albany/Dougherty County
Timeframe	2010-2015
Priority	Low
Status (Deferred or New)	Continuing

- **Objective # 2:** Provide for safety of emergency service personnel during a tornado or hazardous weather event.

Task A: Provide a shelter for emergency service personnel to use during a tornado or other hazardous weather event.

Action Step: Construct a tornado safe room inside of the already planned Public Safety Training Center.

Responsible Department	Dougherty County EMA/911
Anticipated cost	\$400,000.00
Existing and Potential funding sources	GEMA/FEMA/Local
Jurisdiction	Albany/Dougherty County
Timeframe	2010
Priority	Completion July 2010
Status (Deferred or New)	Completed

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- **Mitigation Goal # 6:** Reduce the potential impact of Tornado disaster on new and existing properties and infrastructure and the local economy.

Objective # 1: Make property more resistant to Tornado hazards.

Task A: Implement cost-effective activities that assist in protecting lives by making homes, businesses, infrastructure, critical facilities, and other property more resistant to Tornado hazards.

Responsible Department	Albany Fire Department/EMA
Anticipated cost	Staff Time
Existing and Potential funding sources	General Fund
Jurisdiction	Albany/Dougherty County
Timeframe	2010-2015
Priority	Low
Status (Deferred or New)	Continuing

Action Step: Encourage a self-inspection program at critical facilities to assure that the building infrastructure is Tornado resistant.

Responsible Department	Albany Fire Department/EMA
Anticipated cost	Staff Time
Existing and Potential funding sources	General Fund
Jurisdiction	Albany/Dougherty County
Timeframe	2010-2015
Priority	Low

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Status (Deferred or New)	Continuing
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Action Step: Encourage businesses to develop emergency plans.

Responsible Department	LEPC/EMA
Anticipated cost	Staff Time
Existing and Potential funding sources	General Fund
Jurisdiction	Albany/Dougherty County
Timeframe	2010
Priority	High
Status (Deferred or New)	New

Action Step: Encourage public and private identification of safe rooms.

Responsible Department	Albany Fire Department/EMA
Anticipated cost	Staff Time
Existing and Potential funding sources	General Fund
Jurisdiction	Albany/Dougherty County
Timeframe	2010-2015
Priority	Medium
Status (Deferred or New)	Continuing

- **Mitigation Goal # 7:** Improve warning to the public during Natural and Man-made disasters.

Objective # 1: Improved community warning system.

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Task A: Develop an improved warning system using sirens, public access channel and other media for early warning.

Action Step: Renew subscription for Mass Alert / high-speed telephone community notification warning and communication system.

Responsible Department	Dougherty County EMA/911
Anticipated cost	\$28,300
Existing and Potential funding sources	GEMA/FEMA/Local
Jurisdiction	Albany/Dougherty County
Timeframe	2010-2015
Priority	Medium
Status (Deferred or New)	Continuing

D. Multi-Jurisdictional Mitigation Strategy. Tornadoes and the associated damages have impacted both the City of Albany and Dougherty County. This Plan is a collaborative effort between the City of Albany and Dougherty County. Together each has experienced the effects of Tornadoes hazard conditions and together each is working to mitigate future natural hazards. The action steps for flooding will be implemented by both the City of Albany and Dougherty County unless otherwise stated.

E. Local Public Information and Awareness strategy. Outreach projects are effective first steps in orienting property owners to property protection issues and helping them seek out more information to protect themselves and their properties. A successful County information and education program involves both the public and private sectors. Public information and education activities advise and educate citizens, property owners, renters, businesses, and local officials about hazards and ways to protect people and property from Tornadoes. Public information activities are among the least expensive mitigation measures, and at the same time are often the most effective thing a community can do to

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save lives and property. All hazard mitigation activities (preventive, structural, property protection, emergency services, and natural resource protection) begin with public information and education.

Multi-Hazards

A. Community Mitigation Goals. Because Dougherty County is exposed to additional natural hazards (to a lesser extent than those listed above), the Albany Dougherty Pre-Disaster Mitigation Committee is including multi-hazard goals and objectives. Again this Plan's mitigation goals are avoidance and protection. Through an informed public and the enforcement of ordinances, we will reduce the community's risk to people, property/environment and the economy from future natural hazards.

B. Identification & Analysis of Range of Mitigation Options. The Albany Dougherty Pre-Disaster Mitigation Committee has identified structural and non-structural mitigation measures to ensure that the community adequately addresses all relevant multi-hazard issues. Reducing the level of vulnerability (mitigation) requires our elected officials, City/County administrators, and the public to be fully integrated into the natural hazard management process in order to coordinate efforts during stages of preparation. This may require modification or adoption of local ordinances/codes to provide guidance and regulations to manage mitigation at the County level. Dougherty County must coordinate with region and state officials and other municipalities who share our common hazard. Albany and Dougherty County officials shall enforce both local regulations/restrictions and state emergency orders. No policies/ordinances exist in Albany/Dougherty County that deals with Multi-Hazards directly.

C. Mitigation Strategy and Recommendations

- **Mitigation Goal # 8:** Increase public understanding, support and demand for Multi-hazards mitigation.

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Objective # 1: Educate the public on all hazards.

Task A: Educate the public on actions they can take to prevent or reduce the loss of life or property from all hazards.

Action Step: Develop outreach materials for mitigation, preparedness, response and recovery.

Responsible Department	Albany Fire Department/EMA
Anticipated cost	Staff Time
Existing and Potential funding sources	Grant funds
Jurisdiction	Albany/Dougherty County
Timeframe	2010-2015
Priority	Low
Status (Deferred or New)	Continuing

D. Multi-Jurisdictional Mitigation Strategy. This Plan is a collaborative effort between the City of Albany and Dougherty County. Together each has experienced the effects of natural hazard conditions and together each is working to mitigate future natural hazards. The action steps for flooding will be implemented by both the City of Albany and Dougherty County unless otherwise stated.

E. Local Public Information and Awareness strategy. Outreach projects are effective first steps in orienting property owners to property protection issues and helping them seek out more information to protect themselves and their properties. A successful County information and education program involves both the public and private sectors. Public information and education activities advise and educate citizens, property owners, renters, businesses, and local officials about hazards and ways to protect people and property from natural hazards. Public information activities are among the least expensive mitigation measures, and at the same time are often the most effective thing a community can do to save lives and property. All hazard mitigation activities (preventive,

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structural, property protection, emergency services, and natural resource protection) begin with public information and education.

Chapter 5

Local Technological Hazard Mitigation Goals and Objectives

At the time of this update to the Albany/Dougherty Hazard Mitigation Plan the HMP Steering Committee determined that the threat of technological hazards is and will continue to be a serious threat that that can only be mitigated through outreach and education.

Using the same procedure as in Chapter 4, the HMPC developed the following technological hazard mitigation goals, objectives, and action steps for implementation. Again goals and objectives were developed in the subcommittees working sessions. Once the final goals and objectives were determined the Planning Committee met again to develop the action steps or mitigation strategies that would aid the county in meeting the goals and objectives identified in the plan. Action steps were selected using the information obtained from the capabilities assessment, which identified existing programs and shortfalls related to mitigation activities.

The following goal and objective, with action steps apply to the technological hazards identified in Chapter 3.

Hazardous Materials

- A. Community Mitigation Goals.** Hazardous materials are transported on the roads and railroad networks throughout the County. Some of these hazardous materials are stored and consumed by the community. In particular, gasoline for vehicles, propane for heating, and anhydrous ammonia for fertilizers. In a flood event, the potential is high for release or spill of hazardous material into floodwaters. This Plan's goal is to promote awareness of the importance to the community in the safeguard, handling, use and disposal of Hazardous materials.

- F. Identification & Analysis of Range of Mitigation Options.** The Albany Dougherty Pre-Disaster Mitigation Committee has identified structural and non-structural mitigation measures to ensure that the community adequately addresses all relevant hazardous material issues. Reducing the level of

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vulnerability (mitigation) requires our elected officials, City/County administrators, and the public to be fully integrated into the Hazardous materials management process. This may require modification or adoption of local ordinances/codes to provide guidance and regulations to manage Hazardous materials at the County level. Dougherty County must coordinate with state officials and other municipalities who share our common concern with the transportation, storage and use of Hazardous materials. Albany and Dougherty County officials shall enforce both local regulations/restrictions and state emergency orders. No policies/ordinances exist in Albany/Dougherty County that deals with hazardous materials spills directly.

B. Mitigation Strategy and Recommendation

- **Mitigation Goal # 9:** Reduce possibility of damage and loss to existing community assets including addressable structures, critical facilities and infrastructure due to Hazardous Material releases.

Objective # 1: Extend public awareness to Technological Hazards.

Task A. Heighten public awareness of the full range of Man-made or Technological hazards by developing education and outreach programs.

Action Step: Educate the public about the Hazardous Materials to which they are most frequently exposed.

Responsible Department	Albany Fire Department/EMA
Anticipated cost	Staff Time
Existing and Potential funding sources	General Fund
Jurisdiction	Albany/Dougherty County
Timeframe	2010-2015
Priority	Low

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Status (Deferred or New)	Continuing
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NOTE: This is discussed in presentations done by Albany/Dougherty EMA to various citizen groups.

Action Step: Help homeowners identify Hazardous Materials from which they are at risk.

Responsible Department	Albany Fire Department/EMA
Anticipated cost	Staff Time
Existing and Potential funding sources	General Fund
Jurisdiction	Albany/Dougherty County
Timeframe	2010-2015
Priority	Low
Status (Deferred or New)	Continuing

Action Step: Identify and publish Hazardous Materials disposal procedures.

Responsible Department	Dougherty County Public Works
Anticipated cost	Staff Time
Existing and Potential funding sources	General Fund
Jurisdiction	Albany/Dougherty County
Timeframe	2010-2015
Priority	Low
Status (Deferred or New)	Continuing

C. Multi-Jurisdictional Mitigation Strategy. Hazardous materials are formulated, used and transported throughout Dougherty County. This Plan is a collaborative effort between the City of Albany and Dougherty County. Together each has

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experienced the effects of hazardous materials conditions and together each is working to mitigate future hazardous materials hazards. The action steps for hazardous materials will be implemented by both the City of Albany and Dougherty County unless otherwise stated.

D. Local Public Information and Awareness strategy. Outreach projects are effective first steps in orienting property owners to property protection issues and helping them seek out more information to protect themselves and their properties. A successful County information and education program involves both the public and private sectors. Public information and education activities advise and educate citizens, property owners, renters, businesses, and local officials about hazards and ways to protect people and property from Hazardous materials. Public information activities are among the least expensive mitigation measures, and at the same time are often the most effective thing a community can do to save lives and property. All hazard mitigation activities (preventive, structural, property protection, emergency services, and natural resource protection) begin with public information and education.

Chapter 6

Executing the Plan

Implementation Action Plan

The Albany Dougherty Emergency Management Agency (EMA) has the overall responsibility for emergency planning, coordination of state and local resources, and the direction of responding to agencies and organizations in the conduct of disaster operations. Also, the Emergency Management Agency (EMA) will provide assistance for disaster planning activities, is responsible for developing Standard Operating Procedures (SOP), maintaining emergency notification rosters including 24-hour telephone numbers for emergency notification, and resource data to ensure prompt and effective response to emergencies.

Dougherty County currently utilizes several mechanisms to guide development, including comprehensive land use planning as required by the Georgia State Standards for Comprehensive Planning, Flood Hazard Mitigation Plan, Flood Plain Management, Greenspace Program, capital improvement planning and building codes. Each of these mechanisms can also be utilized to meet the goals for the Albany Dougherty Pre-Disaster Mitigation Plan. After adoption of the Pre-Disaster Mitigation Plan, a review will be conducted to identify any changes that need to be incorporated into existing plans.

Since the adoption of the Pre-Disaster Mitigation Plan in 2005, the Albany/Dougherty Planning and Community Development Department has developed and adopted a new Comprehensive Plan and Zoning Ordinance. These documents were reviewed for congruity with this plan.

Administration of the Flood Plain Ordinance reduces the vulnerability of structures to flood damage by requiring elevation and other protective steps in construction as well as controlling what can be located in floodplain and floodway.

In 2009, Albany Dougherty County adopted a Flood Hazard Mitigation Plan. The contents of which have contributed heavily to all sections related to flood hazards in this plan.

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The Albany Dougherty Flood Mitigation Plan 2009 has three major objectives:

1. To provide local governments with a focused planning tool for reducing losses due to flooding.
2. To meet Federal Emergency Management Agency (FEMA) planning requirements to qualify for Flood Mitigation Assistance funding for projects that will reduce losses.
3. To meet Community Rating System (CRS) planning requirements for Category C repetitive loss communities (those with 10 or more repetitive loss properties that have not received mitigation) and thereby maintain the good standing of the National Flood Insurance Program (NFIP) in the City of Albany and Dougherty County.

These objectives are complementary and over-lapping and represent another step forward for these local governments that have taken actions in the past to protect citizens and property from flood damage.

Albany and Dougherty County have a record of at least 30 years of activity in flood mitigation. Floodplain management ordinances are conscientiously enforced to guide construction in hazard areas. The City of Albany passed its first floodplain management ordinance on August 9, 1977; Dougherty County acted on April 3, 1978. Revisions followed in April 1992 and February 1992, respectively, with an additional revision being adopted by the County in 1999. Revision of the ordinance is underway in the spring of 2008. Having an approved floodplain management ordinance is required in order for property owners to purchase insurance from the NFIP.

The plan in its entirety is located in Appendix B.

The Greenspace Program is centered on protecting water quality, but a consequence of this program is the protection from development of much of the Flint River corridor, including floodway and floodplain.

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Capital improvement programs provide an opportunity for City/County Departments to identify projects that are consistent with Plan goals and to integrate them into long-range plans. Special Local Option Sales Tax projects will be proposed, presenting a timely method of financing important mitigation projects.

Albany and Dougherty County have adopted Georgia State Minimum Standard Codes for construction that is administered by inspectors on all construction projects permitted by local government. Residential construction also meets standards set in International Residential Code for One and Two Family Dwellings, 2000. Engineering Principles and Practices for Retrofitting Flood Prone Residential Buildings, January 1995, is referenced for buildings in the flood plain. Inspection protocols ensure that life/safety criteria are met for new construction and rehabilitation.

Within six months of the formal adoption of the Pre-Disaster Mitigation Plan, the policies listed above will be incorporated into the process of existing planning mechanisms.

In order for this plan to be effective, its contents must be known and understood by those who are responsible for its implementation. The Goals and Objective subcommittee was tasked to prioritize the alternative mitigation actions based on their perceived cost benefit, community benefit and/or support for the action, and the potential that the action will receive the necessary funding. See Appendix D Worksheet # 8. The EMA will brief the appropriate officials concerning their roles and responsibilities in emergency management and in this plan.

To assure that the Plan continues to provide an appropriate path for risk reduction in Dougherty County, it is necessary to regularly evaluate and update it. To that end, the EMA will convene a yearly meeting of the Albany Dougherty Pre-Disaster Mitigation Committee. It is crucial that representatives from each of the county's jurisdictions are involved in the plan update and monitoring process.

Monitoring and Evaluation

The Pre-Disaster Mitigation Committee will be responsible for evaluating the plan (see I. above). One of the first tasks of the committee will be to determine the criteria to be used for evaluation of the plan. Included among these criteria should be:

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- Do the goals and objectives continue to address expected conditions in Dougherty County?
- Is the risk assessment still appropriate, or has the nature or magnitude of the hazard and/or vulnerability changed over time?
- Are current resources appropriate for implementing this plan?
- Have lead agencies participated as originally proposed?
- Have outcomes been adequate?
- What problems have occurred in the implementation process?
- Have member of the public been adequately involved in the process? Are their comments being heard?

Multi-Jurisdictional Strategy and Consideration

The Emergency Management Agency (EMA) is the authorized agent of the City of Albany and Dougherty County for Pre-Disaster Mitigation planning. Both Albany and Dougherty County were working partners in the development of this Pre-Disaster Mitigation Plan. Upon FEMA approval of the Albany Dougherty Pre-Disaster Plan, both City/County Commissions will publish their resolutions to adopt and plans to implement the actions prescribed in the Albany Dougherty Pre-Disaster Plan. This precludes the need for each jurisdiction to produce different/separate action plans in order to manage hazard risks.

Plan Update and Maintenance

Revisions to the Albany Dougherty Pre-Disaster Mitigation Plan will be considered on a five year cycle. The EMA will maintain, update and distribute changes to this plan as required based on deficiencies identified through drills and exercises, completion of proposed mitigation actions, identification of new mitigation projects, changes in local government structure, and to qualify for specific funding reviews after disasters.

Responsible officials of involved organizations and agencies should recommend revisions at any time and provide information periodically as to change of personnel and

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available resources which would bear on the provisions of this plan and its implementation.

To facilitate the goal of continued public involvement in the planning process, the EMA will assure that the following steps are taken:

- The public will be directly involved in the update and review of the plan as members of the Pre-Disaster Mitigation Planning Committee.
- Copies of the plan will be kept on hand at appropriate agencies throughout Dougherty County. Contained in the plan is the address and phone number of the EMA employee responsible for keeping track of public comments on the plan.
- The plan will be available on the City/County's website, and will contain an e-mail address and phone number the public can use for submitting comments and concerns about the plan.
- A public meeting will be held annually to provide the public with a forum for expressing concerns, opinions, and ideas. The EMA will set meeting schedules and dates and use County resources to publicize and host this meeting.

The EMA will be responsible for ensuring that an annual review of this plan is conducted by the Albany Dougherty Pre-Disaster Mitigation Committee. Additionally, any portion of this plan implemented during an actual emergency occurrence will be reviewed and updated at the termination of the emergency response activities. The EMA will coordinate all review and revision efforts.

Any updates to the Pre-Hazard Mitigation Plan will require a public forum for discussion and input at the City and County level. Albany/Dougherty County will utilize the city TV channel and the Albany/Dougherty County website to place scrolling announcements and contact information for further information.

Chapter 7

Conclusion

Conclusion Summary

The drastic rise in the cost of responding to and recovering from disasters in recent decades has prompted a movement towards planning for disasters before they occur. Mitigation planning has become increasingly important to Dougherty County, thanks to the passage of the Disaster Mitigation Act of 2000, which requires a jurisdiction to have an adopted mitigation plan in order to be eligible for certain hazard mitigation grant programs. The basic goal of hazards mitigation is to reduce the risks of individual citizens and the society from hazards. Thus, the development of effective hazards mitigation measures will be its central task. Through the implementation of these measures, it should be possible to reduce significantly the fatalities of people, loss of properties and destruction of the environment caused by natural hazards.

In order to mitigate the damages, both in terms of loss of property, injuries and loss of life, Albany Dougherty Pre-Disaster Mitigation Committee thoroughly reviewed its existing policies, programs and ordinances to determine the effectiveness of each policy, program and ordinance in mitigating damages from natural hazards. Upon evaluating these policies, programs and ordinances, the committee discovered that we have done an adequate job of trying to minimize the effects of damages from these hazards, however, we did discover that there are several key areas that we could improve in which would reduce the damage to property, the severity of injuries and the loss of life when one of these natural hazards does occur. As a result of these discoveries, new policies, programs and ordinances are being established. It is the goal of this committee to continually review our policies, programs and ordinances to make sure that we are doing all that we can to mitigate the damages that occur when we experience these natural, technological or man-made hazards and the associated damages.

References

Numerous reference materials were used in the preparation of the Pre-Disaster Mitigation Plan.

- **Publications:**

ALBANY-DOUGHERTY PRE-DISASTER MITIGATION PLAN

The Albany Herald newspaper

Albany Dougherty Emergency Operation Plan

FEMA State and Local Mitigation Planning how-to guides

GEMA Supplements to FEMA how-to guides

Albany Dougherty Comprehensive Plan

U.S. Census Bureau

Albany Dougherty Community Greenspace Plan

Albany Dougherty Comprehensive Economic Development Strategy

Southwest Georgia Regional Plan

- **Web Sites:**

U.S. Department of Transportation (www.hazmat.dot.gov)

Georgia Department of Transportation (www.dot.state.ga.us)

National Oceanic and Atmospheric Administration (NOAA) (www.noaa.gov)

FEMA (www.fema.gov)

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

Albany Dougherty County (www.albany.ga.us)

American Red Cross (www.redcross.org)

EPA (www.epd.gov)

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Appendices

- Appendix A – Hazard Identification, Risk Assessment and Vulnerability
- Appendix B – Growth and Development Trends
- Appendix C – Mitigation and Disaster Plans and Other Planning Documents
- Appendix D – Worksheets Used in Planning Process
- Appendix E – Copies of Miscellaneous Planning Documentation
- Appendix F – Glossary