

DeKalb County, Georgia Multi-Jurisdictional Hazard Mitigation Plan

February 2011



Unincorporated DeKalb County
Avondale Estates
Chamblee
Clarkston
Decatur
Doraville
Dunwoody
Lithonia
Pine Lake
Stone Mountain

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Commonly Used Acronyms and Abbreviations

AIR	Airport facilities
APN	Assessor Parcel Number
BRDG	Bridges
BUS	Bus facilities
Avondale Estates	City of Avondale Estates
Chamblee	City of Chamblee
Clarkston	City of Clarkston
COM	Communication facilities and utilities
Decatur	City of Decatur
Dunwoody	City of Dunwoody
ELEC	Electric Power facility
EMER	Emergency Centers, Fire Stations and Police Stations
EOC	Emergency Operations Center
FMA	FEMA Flood Mitigation Assistance Program
GOVT	Government Office/Civic Center
GIS	Geographic Information Systems
HAZUS-MH	FEMA's Hazards United States – Multi Hazard loss estimation modeling tool
HMGP	Hazard Mitigation Grant Program
HOSP	Hospitals/Care facilities
HWY	Highway
INFR	Kilometers of Infrastructure.
Lithonia	City of Lithonia
LPG	Local Planning Group
MAC	Mitigation Advisory Committee
NOAA	National Oceanic and Atmospheric Administration
PDM-C	Pre-Disaster Mitigation Program – Competitive
Pine Lake	City of Pine Lake
Plan	DeKalb Multi-Jurisdictional Multi-Hazard Mitigation Plan
RAIL	Rail facilities
RTR	Railroad Tracks
SCH	Schools
STAPLE/E	Social, Technical, Administrative, Political, Legal, Economic and Environmental review criteria for projects
Stone Mountain	City of Stone Mountain
Unincorporated County	County of DeKalb

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SECTION 1 INTRODUCTION

Significant Changes to this Section from Previous Plan

DeKalb County now has nine incorporated cities as opposed to eight in the previous plan. A new city, Dunwoody, was incorporated in 2008. The county's population has increased from an estimated 674,334 in 2003 to an estimated 747,247 residents in 2010. Each of the incorporated cities indicated a slight population increase since the 2006 plan. Employment and demographic data has been updated to the most current resources available. No major changes to land use were reported, although the city of Doraville has approximately 3.5 square miles of business and industrial land currently unoccupied. This land was formerly used as the General Motors Plant.

Across the United States, natural disasters continue to lead to increasing levels of death, injury, property damage, and interruption of business and government services. The impact on families and individuals can be immense and damages to businesses can result in regional economic consequences. The time, money and effort to respond to and recover from these disasters divert public resources and attention from other important programs and problems. DeKalb County, Georgia recognizes the consequences of disasters and the need to reduce the impacts of natural hazards. The elected and appointed officials of the County also know that with careful selection, mitigation actions in the form of projects and programs can become long-term, cost effective means for reducing the impact of natural hazards.

This *Multi-Jurisdictional Multi-Hazard Mitigation Plan* for DeKalb County, Georgia (the Plan), was prepared with input from County residents, responsible officials, Dewberry consultants, and with the support of the Georgia Emergency Management Agency (GEMA) and the Federal Emergency Management Agency (FEMA). The Plan will guide the County toward greater disaster resistance in harmony with the character and needs of the County and its communities.

This section of the Plan includes an overview of its content, a discussion of the Plan's purpose and authority, and a description of the nine incorporated cities and the unincorporated County within the DeKalb region.

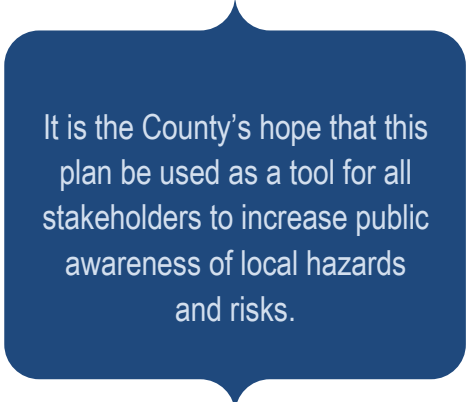
1.1 PLAN DESCRIPTION/PURPOSE OF PLAN

Mitigation is commonly defined as sustained actions taken to reduce or eliminate long-term risk to people and property from hazards and their effects. Hazard mitigation focuses attention and resources on jurisdictional policies and actions that will produce successive benefits over time.

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The impact of expected yet often unpredictable natural hazard events can be reduced through planning. History has demonstrated that it is less expensive to prevent disaster damage than to repeatedly repair damage after a disaster has struck. A mitigation plan states the aspirations and specific courses of action jurisdictions intend to follow to reduce vulnerability and exposure to future hazard events. A good plan also recognizes and presents existing mitigation activities in one cohesive document. This plan was formulated through a systematic process centered on the participation of citizens, businesses, public officials and other stakeholders, to the extent possible.

It is the County's hope that this plan be used as a tool for all stakeholders to increase public awareness of local hazards and risks, while at the same time providing information about options and resources available to reduce those risks. Teaching the public about potential hazards will help the County and Cities protect themselves against the effects of the hazards, and will enable informed decision making on where to live, play, and locate homes and businesses.



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The emphasis of the plan is on the assessment and avoidance of identified risks, implementing loss reduction measures for existing exposures and insuring that critical services and facilities survive a disaster. Hazard mitigation strategies and measures avoid losses by limiting new exposures in identified hazard areas, altering the hazard by eliminating or reducing the frequency of occurrence, averting the hazard by redirecting the impact by means of a structure, or adapting to the hazard by modifying structures or standards.

Federal legislation has historically provided funding for disaster preparedness, relief, recovery, and mitigation. The Disaster Mitigation Act of 2000 (DMA 2000) is the latest legislation to improve the delivery of mitigation programs through sound and viable planning (Public Law 106-390). The new legislation reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur. As such, DMA 2000 establishes a competitive Pre-Disaster Mitigation Program (PDM-C) and new requirements for the national post-disaster Hazard Mitigation Grant Program (HMGP).

Section 322 of DMA 2000 specifically addresses mitigation planning at the state and local levels. It identifies new requirements that allow HMGP funds to be used for planning activities, and increases the amount of HMGP funds available to states that have developed a comprehensive, enhanced mitigation plan prior to a disaster. States, tribes, and communities must have an approved mitigation plan in place prior to receiving post-disaster HMGP funds. County, local, and tribal mitigation plans must demonstrate that their proposed mitigation measures are based on a sound planning process that accounts for the risk to and the capabilities of the individual communities.

State governments have certain responsibilities for implementing Section 322, including:

- Preparing and submitting a standard or enhanced state mitigation plan;

Reviewing and updating the state mitigation plan every three years;

Providing technical assistance and training to local governments to assist them in applying for HMGP grants and in developing local mitigation plans; and

Reviewing and approving local plans if the state is designated a managing state and has an approved enhanced plan.

DMA 2000 is intended to facilitate cooperation between state and local authorities, prompting them to work together. It encourages and rewards local and state pre-disaster planning and promotes sustainability as a strategy for disaster resistance. This enhanced planning network is intended to enable local and state governments to articulate accurate needs for mitigation, resulting in faster allocation of funding and more effective risk reduction projects.

FEMA prepared an Interim Final Rule, published in the Federal Register on February 26, 2002 (44 CFR Parts 201 and 206), which establishes planning and funding criteria for states and local communities.

This Plan has been prepared to meet FEMA and GEMA requirements thus making the County eligible for funding and technical assistance from state and federal hazard mitigation programs, such as HMGP, Pre-Disaster Mitigation-Competitive, and Flood Mitigation Assistance programs.

1.2 PLAN PURPOSE AND AUTHORITY

Authority to create this Plan is derived from Public Law 106-390, Section 322, commonly known as the Disaster Mitigation Act of 2000 (DMA 2000), and the associated Interim Final Rule, 44 CFR Parts 201 and 206, published in the Federal Register on February 26, 2002. This federal law and associated regulation establishes planning and funding criteria for states and local communities. This Plan is intended to serve many purposes, including:

Enhance Public Awareness and Understanding – to help residents of the County better understand the natural hazards that threaten public health, safety, and welfare; economic vitality; and the operational capability of important institutions;

Create a Decision Tool for Management – to provide information that managers and leaders of local government, business and industry, community associations, and other key institutions and organizations need to take action to address vulnerabilities to future disasters;

Promote Compliance with State and Federal Program Requirements – to insure that DeKalb County and its incorporated cities can take full advantage of state and federal grant programs, policies, and regulations that encourage or mandate that local governments develop comprehensive hazard mitigation plans;

Enhance Local Policies for Hazard Mitigation Capability – to provide the policy basis for mitigation actions that should be promulgated by participating jurisdictions to create a more disaster-resistant future;

Provide *Inter-Jurisdictional Coordination of Mitigation-Related Programming* – to ensure that proposals for mitigation initiatives are reviewed and coordinated among the participating jurisdictions within the County; and

Achieve *Regulatory Compliance* – To qualify for certain forms of federal aid for pre- and post-disaster funding, local jurisdictions must comply with the federal DMA 2000 and its implementing regulations (44 CFR Section 201.6). DMA 2000 intends for hazard mitigation plans to remain relevant and current. Therefore, it requires that State hazard mitigation plans are updated every three years and local plans, including DeKalb County's, every five years. This means that the Hazard Mitigation Plan for DeKalb County uses a "five-year planning horizon". It is designed to carry the County through the next five years, after which its assumptions, goals, and objectives will be revisited and the plan resubmitted for approval. In Section 6.0, DeKalb County has outlined a more aggressive approach to ensuring the plan is implemented, evaluated, monitored and updated.

1.3 COMMUNITY DESCRIPTIONS

1.3.1 The County of DeKalb

DeKalb County, one of 159 counties in the State of Georgia, was created in 1822 from Henry, Gwinnett, and Fayette Counties. In 1853 the County became smaller, when a portion of it was divided to become Fulton County. It was the 56th county created in the state and was named after Baron Johann DeKalb who accompanied LaFayette to America and served as a major general in the Continental Army.

Because of its close proximity to Atlanta and Fulton County, DeKalb County has been greatly influenced by the growth of the Atlanta metropolitan area. DeKalb County covers approximately 270 square miles, 1% of which is water. The County is richly endowed with spectacular natural resources that are still undeveloped. More than 77 percent of DeKalb County's land is developed and much of the remainder is a target of development opportunity. Georgia's most popular tourist attraction, Stone Mountain Park, is located in DeKalb. Other attractions include the Fernbank Museum of Natural History, the Fernbank Science Center, the Michael C. Carlos Museum, and the Callanwolde Fine Arts Center.

DeKalb County is comprised of nine incorporated cities, a portion of the City of Atlanta, and several unincorporated communities. The County's total population in 2000 was estimated to be nearly 665,865. In 2003 that number had risen to 674,334. According to the U.S. Census Bureau in 2010 the population had risen to 747,274. Refer to Appendix 1 for detailed demographic information.

1.3.1.1 Economy

Asa Griggs Candler is probably the best-known DeKalb resident to recognize the county's potential. Candler's is the quintessential American success story. In 1888, Dr. John Pemberton had a moderately successful sideline serving a carbonated drink in his Atlanta drugstore. He prepared the sweet syrup that was the basis for the drink in an iron kettle in his backyard. Candler purchased the recipe for the syrup for \$2,300. His fledgling soft drink business developed into a corporate giant that made him wealthy

beyond even his own ambitious imagination. The Coca-Cola Company mushroomed into one of the most well known and lucrative businesses in the world.

DeKalb County contains nearly a fifth of the businesses located in Metro Atlanta's 20 counties. In 1999 nearly 20,000 businesses were licensed in the county, employing more than 315,000 people. DeKalb's diverse industry base includes strong presence in manufacturing, retail, construction, trade, finance, engineering, and management. More than half of the FORTUNE 500 companies with a presence in Atlanta have operations in DeKalb. The county is also home to more than 150 international facilities, or more than 15 percent of the metro Atlanta total.

Businesses have good reasons to come to DeKalb. The State of Georgia and DeKalb County offer a variety of tax exemptions and expansion incentives to new business and industry, such as the Job Tax Credit, The Investment Tax Credit, and other credits, exemptions, and programs. Between 1995 and 2000 more than 150 companies relocated to or expanded major operations in DeKalb.

1.3.1.2 *Employment*

In 2008, the services industry was the largest employment sector in the county, providing 33.9% of the county's jobs. Other predominant employment sectors include retail trade and manufacturing. In spite of having a slightly higher unemployment rate than the state and national average in 2010 (10.7% compared to 10% at the state level and 9.6% nationally), DeKalb County had a higher than average per capita personal income in 2009, at \$47,998 (compared to \$42,859 and \$45,551 statewide and nationally). More DeKalb residents lived below the poverty level during these years compared to the rest of the country. In 2008 15.6% of the county's population lived below the poverty level, compared to Georgia's rate of 14.7% and the national rate of 13.2%.

1.3.1.3 *Physical Environment*

DeKalb County is largely built out and suburban in nature. The majority of DeKalb County is located in the Winder Slope District of Georgia's Piedmont Province. The Winder Slope District is characterized by gently to strong sloping hillsides bisected by headwaters of major streams flowing to the Atlantic Ocean. The soils of DeKalb County fall into 12 U.S. Natural Resource Conservation (NRCS) categories and range from poorly drained or nearly level ground to well drained soils on steep slopes. Tree species commonly found in the County include Loblolly Pine, Northern Red Oak, White Oak, Short Leaf Pine, White Ash and Winged Elm.

Located in the humid subtropical belt, the climate of the area is influenced by the Appalachian Mountains to the north, the Gulf of Mexico to the south and the Atlantic Ocean to the southeast. The area is characterized by long hot summers, mild and short winters, and a fairly well distributed annual average precipitation of 48 inches. Average seasonal snowfall is two inches.

There are three major drainage basins: the Chattahoochee River Basin, South River Basin and the Yellow River Basin. The majority of the land in the Chattahoochee Basin drains westward to the Chattahoochee

River via Nancy Creek, Peachtree Creek, and several smaller tributaries. The South River and its tributaries (Pole Bridge, Snapfinger, Shoal, and Entrenchment Creeks) drain the southern part of the County. The southeastern portion of DeKalb is drained by the Yellow River which flows through the extreme eastern part of the County and flows toward the South. The Yellow River basin includes Stone Mountain, Swift, and Crooked Creeks. Soils along the South River, Yellow River, Peachtree Creek, Nancy Creek, and their tributaries are nearly level. The floodplains are typically narrow, and frequently flooded during the winter and spring.

1.3.2 Local Jurisdictions

The following subsections provide limited descriptions of the City governments participating in the planning process. Additional information for each jurisdiction, relevant to mitigation planning, is included in Section 5.4 through 5.11 of this plan.

1.3.2.1 *Avondale Estates (Population: 2,858)*

Located approximately seven miles east of downtown Atlanta, Avondale Estates occupies land that until the early 1920s consisted of a small community known as Ingleside. Avondale Estates encompasses a land area of 1.15 square miles and is home to 2,858 people (2009 census projections). It sits at an elevation just over 1,000 feet above mean sea level. The median age in the year 2000 was 42.9 and the median household income was \$70,625. The U.S. Census Bureau had not updated the median age or household income information as of September 2010.

Avondale Estates, a historic suburb of Atlanta, is a planned community and is comprised primarily of higher end residential land use with a small planned commercial district. Avondale Estates is the only documented example in the Southeastern United States of an early twentieth century planned community. The Avondale Estates Historic District was listed in the national Register of Historic Places in December of 1986 and is considered to be of national importance. This level of significance is attributed to the planning efforts behind the development of Avondale Estates, as well as to the architectural and landscape components present in the district.

1.3.2.2 *Chamblee (Population: 11,178)*

Chamblee encompasses an area of approximately 3.5 square miles and is one of the most ethnically diverse cities in the region. The City emerged as a residential community built around manufacturing and distribution facilities. As industrial sector employment dried up in the 1980s, major shifts in demographics occurred. The U.S. Census Bureau estimated the 2009 population to be 11,178. No demographic information was available for the 2009 population projection. Demographic will be available when the 2010 census information becomes available. Twelve Asian/Pacific countries and eighteen Latin countries are represented, with 30 languages and dialects spoken as a first language. The median age in the city is 28, and the median household income is \$45,992. The U.S. Census Bureau had not updated the median age or household income information as of September 2010. The City is

primarily built out and unable to annex additional land. The majority of growth in Chamblee currently is mixed use in the city center, through adaptive reuse.

1.3.2.3 Clarkston (Population: 7,899)

The City of Clarkston is located in central DeKalb County approximately 10 miles northeast of Atlanta and five miles north of Decatur. The City encompasses approximately 1.1 square miles of land area and is the fifth most populated city in the County. The City is largely built out with little room for additional development. In the 1830's, the Georgia railroad built a rail line through what is now Clarkston to connect Athens to Augusta and South Carolina. The city was chartered on December 12, 1882. The railroad made Atlanta easily accessible, allowing Clarkston to develop as a commuter city and become one of the south's first "suburban" communities. Commuting citizens accounted for much of Clarkston's early growth.

The 2009 census estimated the population of Clarkston at 7,899. The median age in the city is 28.1 and the median household income is \$37,436. The U.S. Census Bureau had not updated the median age or household income information as of September 2010. The city encompasses an area of roughly 1.1 square miles, and sits at an elevation of approximately 1,000 feet above mean sea level.

1.3.2.4 Decatur (Population: 18,942)

The City of Decatur, chartered as the county seat in 1823, is the second oldest municipality in the Atlanta area. It is also the most densely populated City in Georgia and one of the most urban of the incorporated cities in DeKalb County (excluding Atlanta). It began simply as the crossing of two trails formed by Native Americans. This junction evolved into a gathering place, and the spot now holds the courthouse square, an important gathering place for the community.

The population of Decatur was estimated at 18,942 residents in 2009. The median age of the residents is 36, with an average household size of 2.13 and an average family size of 2.96. The median household income is \$47,395. The U.S. Census Bureau had not updated the median age or household income information as of September 2010. The land area of the city is 4.2 square miles, and the elevation is 1,048 feet. There is little vacant area available for growth in Decatur. In 2005 the Decatur Comprehensive Plan indicated only 28 undeveloped acres available in the City. Fifty two percent of existing land use is low density residential. Decatur is an active participant in the National Flood Insurance Program's Community Rating System.

1.3.2.5 Doraville (Population: 10,267)

The City of Doraville was incorporated on December 15, 1871. It was an agricultural community up until the 1940's, at which point the Plantation Pipeline was constructed in the area. This was used to deliver oil products during World War II, and resulted in the construction of multiple tank farms along its route, and in the Doraville area. In addition, DeKalb County had constructed a major water supply system in

the area. Together these contributed to development. After the war, General Motors selected Doraville as the site for a new plant, and growth exploded.

The land area of the City of Doraville is 3.6 square miles, and its official elevation is 1,069 feet above mean sea level. The 2009 census reports that the city has a population of 10,267 people, with a median age of 29.9. The average household income is \$40,641. The U.S. Census Bureau had not updated the median age or household income information as of September 2010. Residential and commercial land uses comprise more than 60% of Doraville's geography. As indicated in the 2006 Comprehensive Plan, approximately 2.5% of Doraville's area was undeveloped at that time.

1.3.2.6 *Dunwoody (Population 40,857)*

The City of Dunwoody was formed December 1, 2008. It had originally been established in the 1830's. Before 2008, the area was considered by the U.S. Census as a Census-Designated Place (CDP). Dunwoody contains several distinct villages and neighborhoods including the Perimeter Center, which is considered the business district. Dunwoody operates its own police department but relies on DeKalb County for fire and rescue services.

The land area of the City of Dunwoody is 12.1 square miles. The official elevation was listed at 1,132 feet above mean sea level. Dunwoody was not considered a city during the 2000 census therefore, no 2009 projections were available. Population was established by analyzing all the census block groups in the newly established geographic region of Dunwoody. The population data source used was the 2010 Geolytic database. The Geolytics 2010 estimates are based on complex modeling systems designed to forecast the current and future composition of the U.S. population based on multiple inputs. It is widely utilized in academia and is well documented in research literature. A detailed description of the estimation methodology can be viewed on the website.

<http://www.geolytics.com/USCensus,Estimates-Projections,Data,Methodology,Products.asp>

1.3.2.7 *Lithonia (Population: 2,393)*

The name Lithonia comes from two Greek words: litho, meaning rock, and onia, meaning place. The abundance of Gneiss granite in the region provides the basis for the name, and today the City still refers to itself as "The City of Granite". Prior to being called Lithonia, the town was simply referred to as "Cross Roads", as it was located at the intersection of roads running between McDonough and Lawrenceville and between Augusta and Decatur. The Georgia Railroad completed its rail line through town in 1845, which added to growth in the city. Lithonia attracted skilled stone cutters from around the world, and also prospered due to the high demand for crushed stone that it was able to supply. Many of Lithonia's quarries are still in use, some by huge multi-national corporations, and produce large quantities of crushed stone every day.

The 2009 census estimates the population of Lithonia to be 2,393 people, with a median age of 29.6. The median household income is estimated at \$23,397. The U.S. Census Bureau had not updated the

median age or household income information as of September 2010. The city encompasses a land area of 0.8 square mile, and sits at an elevation of 939 feet above mean sea level.

1.3.2.8 *Pine Lake (Population: 658)*

Pine Lake has a population of 850. The 2009 census estimated a population of 658. This estimate might be low because it is based on the 2000 census data and due to a “no delivery” policy for mail addressed to a street address in Pine Lake, City leaders assert that many people did not receive the census packet. The City has approximately 300 homes, 144 housing units and 66 businesses. It encompasses 0.19 square mile of land area. Pine Lake is a planned lake community with closely placed small cottages around the focal point 13 acres. The City has ambitions to annex additional commercial area to expand its tax base.

The median age is 37.6, and the median household income is \$41,029. The U.S. Census Bureau had not updated the median age or household income information as of September 2010. It is located 13 miles east of Atlanta in the shadow of Stone Mountain. Many of Pine Lake’s residents are self-employed and several are freelance workers, artists, or retirees.

1.3.2.9 *Stone Mountain (Population: 7,722)*

Stone Mountain was chartered in 1839, and is the second oldest city in DeKalb County. Located next to Stone Mountain Park, the city encompasses 1.6 square miles of land area, and sits at an elevation of 1,043 feet. According to the 2009 census, the population is 7,722 and the median age is 30. The primary industries that provide employment for the city’s residents are education, health and social services (22.8%) and retail trade (12.2%). The median household income is \$38,603. The U.S. Census Bureau had not updated the median age or household income information as of September 2010. The City has been mostly built out since the 1990s. Residential land use makes up about 75% of the developed area. Park and Recreational uses cover approximately 14% of the land area. The City’s Comprehensive plan indicates that there is no developable land available in Stone Mountain.

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SECTION 2 MULTI-JURISDICTIONAL PARTICIPATION***Significant Changes to this Section from Previous Plan***

A few significant changes occurred in the 2010 plan update. The cities of Lithonia and Dunwoody, both non-participants of the original plan, participated in the 2010 update. The Mitigation Advisory Committee worked diligently to facilitate the scheduling restrictions of all stakeholders and held several individual meetings in order to keep everyone informed and involved in the planning process.

2.1 LIST OF PARTICIPATING AND NON-PARTICIPATING JURISDICTIONS

The following jurisdictions participated in the development of this Plan:

- DeKalb County
- Avondale Estates
- Chamblee
- Clarkston
- Decatur
- Doraville
- Dunwoody
- Lithonia
- Pine Lake
- Stone Mountain

Representatives from all participating jurisdictions as well as local businesses, public and private non-profit agencies, and the general public provided (or were invited to provide) input during plan preparation. Local jurisdictional representatives included but were not limited to fire chiefs/officials, police chiefs/officials, planners, elected officials, and other jurisdictional officials/staff.

2.2 DESCRIPTION OF EACH JURISDICTION'S PARTICIPATION IN THE PLANNING PROCESS

As described in more detail in Section 3 - Planning Process, there were two principal groups involved in the preparation of this plan: the DeKalb County Mitigation Advisory Committee (MAC) and the Local Planning Groups (LPGs) from the City jurisdictions. The County established the MAC to facilitate the development of this Plan and retained Dewberry & Davis, LLC (Dewberry) to assist with facilitation and final plan production. A representative from each participating city was designated by their jurisdiction as a MAC member. Each MAC member identified a Local Planning Group (LPG) for their jurisdiction that included a variety of decision-makers from the various disciplines of police, fire, emergency services, community development/planning, transportation, economic development, public works, emergency response/services personnel, and elected officials. The LPGs assisted in identifying the specific

hazards/risks that are of concern to each jurisdiction and to prioritize hazard mitigation measures. The MAC members brought this information to MAC meetings to provide jurisdiction-specific input to the multi-jurisdictional planning effort and to assure that all aspects of each jurisdiction's concerns were addressed. A list of the lead contacts for each participating jurisdiction is included in Section 3.1 and a brief summary of meetings in Section 3.2.

All MAC members were provided an overview of hazard mitigation planning elements at the MAC meetings, which led the MAC members through the process of defining the jurisdiction's assets, vulnerabilities, capabilities, goals and objectives, and action items. The County, with support from its consultants, was responsible for facilitating the planning process and developing the Hazard Identification and Risk Assessment (HIRA) with input from the MAC and LPGs. The Local Planning Groups were responsible for helping to formulate the County's goals, objectives, and actions as well as identifying goals and objectives unique to their jurisdictions. The LPG's also were responsible for conducting a capabilities assessment and developing jurisdictionally unique mitigation strategies, or "action plans" as outlined by jurisdiction in Section 5.

MAC members also participated in the public workshops held March 10th and July 22nd, 2010 and August 5th, 2010 to present the risk assessment, preliminary goals, objectives and actions. In addition, several MAC members met with Dewberry staff specifically to discuss hazard-related goals, objectives, and actions.

During the planning process, the MAC members were given maps of the profiled hazards as well as detailed jurisdiction-level maps that illustrated the profiled hazards and critical facilities. Data received from MAC members were added to the hazard assessment and used in the modeling process described in the Risk Assessment portion of this Plan (Section 4).

The planning process included the full engagement of the MAC, including representation by the LPGs. All ten participating jurisdictions were participants in the development of the Hazard Identification and Risk Assessment, presented in Section 4.

The County submitted the overall plan to GEMA and Federal Emergency Management Agency (FEMA) for review and approval prior to the completion of capability assessments and mitigation strategies for the municipal jurisdictions. Once the County achieved plan approval, it continued working to fully engage all of the communities and additional stakeholders to complete sections of the plan necessary for adoption by the other jurisdictions and ultimately approval of each, in accordance with the grant agreement that partially funded the completion of this plan. Documentation of participation and attempts to engage stakeholders and non-participants is presented throughout the plan and in the Appendices 2 and 3.

The remaining participating jurisdictions, through their LPGs, completed their Mitigation Strategies (Section 5) during the summer of 2010 and are submitting for review and approval. Participating cities that are submitting for this plan for approval:

- City of Avondale Estates

- City of Chamblee
- City of Clarkston
- City of Decatur
- City of Doraville
- City of Dunwoody
- City of Lithonia
- City of Pine Lake
- City of Stone Mountain

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SECTION 3 PLANNING PROCESS

Significant Changes to this Section from Previous Plan

Many meetings were held during the spring and summer of 2010 in order to develop the plan. Participation included several new members to the Mitigation Advisory Committee, including participants from GEMA, DeKalb County, and local municipalities amongst others. Several participants were also involved in the original development of the 2006 plan. Their experience was extremely valuable during the development of the plan update. Along with direct input from community members and stakeholders, several plans were revisited to address potential changes in administrative or land use practices. These plans included updated comprehensive plans, storm water utility plans, and emergency management plans. Although this list of plans is not all inclusive, the plans listed provided significant insight to the capabilities and future plans of each municipality. An online survey was provided as an additional means to capture public input into the process and results are available within Appendix 3. The County and its municipalities plan to improve future public outreach for mitigation by better aligning this to existing outreach as opposed to mitigation-specific events. The method from the original plan was replicated during the plan up in terms of conducting a kick-off meeting, identifying and notifying potential stakeholders and conducting meetings with those stakeholders.

3.1 DESCRIPTION OF PLANNING COMMITTEE FORMATION

The planning process began with the formation of a Countywide Mitigation Advisory Committee (MAC) to guide the County and city jurisdictions through the planning process. The MAC was formed in March of 2010 and subsequently expanded during the summer of 2010. By April of 2010 the Local Planning Groups were established. The MAC was led by DeKalb County Public Works Department and facilitated by the consultants. Table 3.1-1 includes a list of participants who served on the Committee.

**Table 3.1-1
Members of the Mitigation Advisory Committee**

Names	Organization
Denise Finley	DeKalb County, GIS
Dan Hall	DeKalb County Public Works
Terrence Simpkins	DeKalb County Public Works
Charles Lambert	DeKalb County Watershed
India Jackson	DeKalb County Risk Management
Nancy Lawrence	DeKalb County Public Safety – Code Enforcement

Frank Kliesrath	DeKalb County Police Department
Vickie Logan	DeKalb County Police Department
William Miller	DeKalb County Government
Melissa Lewis	DeKalb County Fire and Rescue
Joann Macrina	DeKalb County Watershed Management
Robert de Graff	DeKalb County Emergency Management
Robert Swanson	DeKalb County Emergency Management
Lori Stanley-Chase	DeKalb County Emergency Management
Sheri Russo	GEMA
Kelly Keefe	GEMA
Dee Langley	GEMA
Beth Burgess	DEMA
Craig Medlin	DEMA
Bryan Armstead	City of Avondale Estates (LPG Representative)
Clai Brown	City of Avondale Estates
Oscar Griffin	City of Avondale Estates
Tillman Hannon	City of Chamblee (LPG Representative)
Dan Schultz	City of Chamblee
Mike Shipman	City of Clarkston (LPG Representative)
Emanuel Ranson	City of Clarkston
Tony Parker	City of Decatur (LPG Representative)
Julie Gyuricza	City of Decatur
David Junger	City of Decatur
Meredith Roark	City of Decatur
Amanda Thompson	City of Decatur
Steven Strickland	City of Doraville (LPG Representative)
Ray Jenkins	City of Doraville
Scott Haeberlin	City of Doraville
Billy Grogan	City of Dunwoody (LPG Representative)
Kimberly Greer	City of Dunwoody
Larry Williams	City of Lithonia (LPG Representative)
Tonya Peterson	City of Lithonia
Al Crace	City of Lithonia
Matthew Pulsts	City of Pine Lake (LPG Representative)

Phil Howland	City of Pine Lake
Barry Amos	City of Stone Mountain (LPG Representative)
Scott Choquette	Consultant (Dewberry & Davis, LLC)
Chris Zambito	Consultant (Dewberry & Davis, LLC)
Jason Brown	Consultant (Dewberry & Davis, LLC)
Additional Participants	Organization
Richard Garrison	Emory Police Department
Bernard Hicks	DCBOH
Reginald Stubbs	DCBOH
Melvin Allen	SSEMC – Grant Manager
Victor Hurst	Snapping Shoals EMC
Guy Williams	Snapping Shoals EMC

Listings of the additional members of each city’s LPG are included in Sections 5.4 through 5.11.

3.2 MITIGATION ADVISORY AND WORKING GROUP MEETINGS

During the planning process, the MAC met multiple times. Topics and agendas covered the steps in the planning process, data collection, capabilities assessment, hazard identification, profiling, ranking and vulnerability assessment, goals and objectives, mitigation strategies and prioritization of strategies. The committee coordinated and consulted with other entities and stakeholders throughout the process. See Appendix 2 for sign-in sheets, meeting agendas, and meeting minutes. Other meetings included individual meetings with the LPGs and numerous telephone meetings with Committee Members. Table 3.2-1 identifies dates of and topics covered during the MAC and LPG meetings.

**Table 3.2-1
Mitigation Advisory Committee and Local Planning Group Meetings Summary**

Meeting Dates	Summary of Discussions
2/22/10	<u>Pre-kick-off meeting.</u> County met with consultants to discuss the project approach, planning process, identification of roles, members of the MAC, establish timeline of first few meetings and to assign work. This meeting included preliminary decisions on which hazards to address in the plan and a decision to focus on natural hazards.
3/10/10	<u>MAC Kick-Off Meeting.</u> A formal meeting of the MAC was held to present the planning process, establish participation on the Committee, introduce the need for LPGs or local subcommittees, and collect data. GEMA attended the meeting and presented DMA 2000 requirements and responsibilities of various interest groups. Dewberry representatives presented a planning process and emphasized

	participation requirements and clarified their role.
4/15/10	<u>Stone Mountain LPG 1/2 day working session.</u> A meeting with members of the LPG for the City of Stone Mountain was held with the consultants to accomplish the following tasks: Contribute to overall MAC goals and objectives; Identify goals and objectives unique to the jurisdiction; provide input to the HIRA process, including initial ranking of hazards for the jurisdiction; and, begin developing strategies and projects. Information was also gathered on critical facilities for the jurisdiction.
4/20/10	<u>Decatur LPG Meeting 1/2 day working session.</u> A meeting of the full LPG for the City of Decatur was held with the consultants to accomplish the following tasks: Contribute to overall MAC goals and objectives; Identify goals and objectives unique to the jurisdiction; provide input to the HIRA process, including initial ranking of hazards for the jurisdiction; and, begin developing strategies and projects. Information was also gathered on critical facilities for the jurisdiction.
4/21/10	<u>Clarkston LPG 1/2 day working session.</u> A meeting of the full LPG for the City of Clarkston was held with the consultants to accomplish the following tasks: Contribute to overall MAC goals and objectives; Identify goals and objectives unique to the jurisdiction; provide input to the HIRA process, including initial ranking of hazards for the jurisdiction; and, begin developing strategies and projects. Information was also gathered on critical facilities for the jurisdiction.
4/26/10	<u>Pine Lake LPG 1/2 day working session.</u> A meeting of the full LPG for the City of Pine Lake was held with the consultants to accomplish the following tasks: Contribute to overall MAC goals and objectives; Identify goals and objectives unique to the jurisdiction; provide input to the HIRA process, including initial ranking of hazards for the jurisdiction; and, begin developing strategies and projects. Information was also gathered on critical facilities for the jurisdiction.
4/29/10	<u>Avondale Estates LPG 1/2 day working session.</u> A meeting with members of the LPG for the City of Avondale Estates was held with the consultants to accomplish the following tasks: Contribute to overall MAC goals and objectives; Identify goals and objectives unique to the jurisdiction; provide input to the HIRA process, including initial ranking of hazards for the jurisdiction; and, begin developing strategies and projects. Information was also gathered on critical facilities for the jurisdiction.
5/20/10	<u>Lithonia LPG Meeting 1/2 day working session.</u> A meeting of the full LPG for the City of Lithonia was held with the consultants to accomplish the following tasks: Contribute to overall MAC goals and objectives; Identify goals and objectives unique to the jurisdiction; provide input to the HIRA process, including initial ranking of hazards for the jurisdiction; and, begin developing strategies and projects. Information was also gathered on critical facilities for the jurisdiction.
6/2/10	<u>Doraville LPG Meeting 1/2 day working session.</u> A meeting with a representative of the LPG for the City of Doraville was held with the consultants to accomplish the following tasks: Contribute to overall MAC goals and objectives; Identify goals and objectives unique to the jurisdiction; provide input to the HIRA process, including initial ranking of hazards for the jurisdiction; and, begin developing strategies and

	projects. Information was also gathered on critical facilities for the jurisdiction.
6/8/10	<u>Chamblee LPG Meeting 1/2 day working session.</u> A meeting with a representative of the LPG for the City of Chamblee was held with the consultants to accomplish the following tasks: Contribute to overall MAC goals and objectives; Identify goals and objectives unique to the jurisdiction; provide input to the HIRA process, including initial ranking of hazards for the jurisdiction; and, begin developing strategies and projects. Information was also gathered on critical facilities for the jurisdiction.
7/22/10	<u>MAC Meeting # 2.</u> The focus of the this meeting was to finalize the goals and objectives, summarize the series of local working sessions, review the hazard ranking tool, update the committee on the status of the HIRA and plan and provide mitigation strategy capture sheets and instructions for initial project development. There was discussion about additional stakeholder involvement.
8/5/10	<u>MAC Meeting #3.</u> Due to the limited attendance at the July 22, 2010 meeting a second meeting was scheduled. This meeting also had limited attendance. As a result, individual meetings were scheduled for representatives of cities who were not able to attend the previous two.
9/13/10	<u>Chamblee LPG Meeting ½ day working session.</u> The focus of the this meeting was to finalize the goals and objectives, summarize the series of local working sessions, review the hazard ranking tool, update the committee on the status of the HIRA and plan and provide mitigation strategy capture sheets and instructions for initial project development. There was discussion about additional stakeholder involvement.
9/13/10	<u>Doraville LPG Meeting ½ day working session.</u> The focus of the this meeting was to finalize the goals and objectives, summarize the series of local working sessions, review the hazard ranking tool, update the committee on the status of the HIRA and plan and provide mitigation strategy capture sheets and instructions for initial project development. There was discussion about additional stakeholder involvement.
9/14/10	<u>Lithonia LPG Meeting ½ day working session.</u> The focus of the this meeting was to finalize the goals and objectives, summarize the series of local working sessions, review the hazard ranking tool, update the committee on the status of the HIRA and plan and provide mitigation strategy capture sheets and instructions for initial project development. There was discussion about additional stakeholder involvement.
9/15/10	<u>Pine Lake LPG Meeting ½ day working session.</u> The focus of the this meeting was to finalize the goals and objectives, summarize the series of local working sessions, review the hazard ranking tool, update the committee on the status of the HIRA and plan and provide mitigation strategy capture sheets and instructions for initial project development. There was discussion about additional stakeholder involvement.
9/17/10	<u>Clarkston LPG Meeting ½ day working session.</u> The focus of the this meeting was to finalize the goals and objectives, summarize the series of local working sessions, review the hazard ranking tool, update the committee on the status of the HIRA and plan and provide mitigation strategy capture sheets and instructions for initial project development. There was discussion about additional stakeholder involvement.
7/15/10	Survey posted online. Announcement placed on the DeKalb County Homepage.
11/8/10	Working draft plan submitted to committee, County, stakeholders, and GEMA for

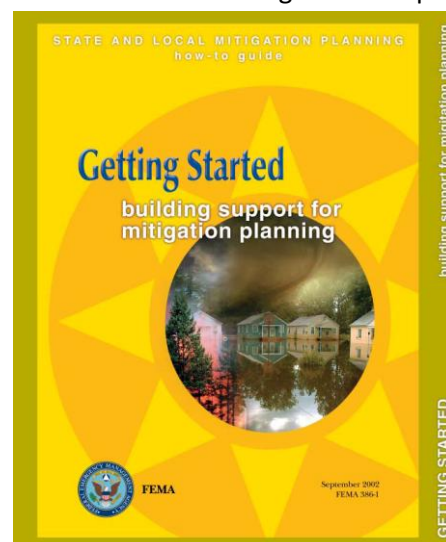
	review.
TBD	Individual city adoption hearing dates will be included here after GEMA review and local adoption

3.3 PLANNING PROCESS

DeKalb County generally followed the planning process recommended by FEMA in the *FEMA State and Local Mitigation Planning How-to-Guide* (How-to-Guide). The process followed the 10 general steps below:

1. Conduct project kick off meeting with newly formed MAC
2. Develop goals
3. Gather initial available data and conduct interviews
4. Gather additional relevant data from external sources
5. Perform Hazard Identification and Risk Assessment
6. Conduct Vulnerability Assessment
7. Conduct Capabilities Assessment
8. Develop objectives and mitigation strategies
9. Draft Plan
10. Adoption

Many of the steps listed above are self explanatory.



The *Hazard Identification and Risk Assessment*, detailed in Section 4, involved working with the MAC and LPGs to identify the hazards the County and jurisdictions perceived as threatening including deciding whether or not to include man-made hazards, and which ones. Section 4 describes the analysis of hazards present throughout the County. It includes historical data from past occurrences and establishes a hazard ranking based upon frequency, probability, potential magnitude, and impact. This hazard identification and ranking system form the foundation for prioritizing mitigation actions.

The *Vulnerability Assessment* was conducted via investigative research and the use of Geographical Information System (GIS) technology. Based on historical research, previous studies, community interviews, and state and national datasets, the hazards identified and ranked for inclusion in this plan were mapped, or profiled. Once draft hazard maps were developed, outreach was conducted with County departments, outside parties, and through public meetings during which many of the preliminary hazard maps were ‘red-lined’ and subsequently modified. Once confident that the maps accurately reflected hazard areas, the focus switched to quantifying what assets, infrastructure, and population are at risk in those areas. Exposure analysis was conducted for all hazards as well as actual loss estimation for earthquake, flooding, and strong wind events.

The *Capability Assessment* included a comprehensive assessment of the County's capacity to implement meaningful mitigation actions based on past performance, current programs and political will. Staff and organizational capability, technical capability, policy and program capability, fiscal capability and legal authority were all considered. The purpose of the assessment was to find existing gaps and weaknesses or conflicting demands or interests of different programs that could hinder mitigation program development and project execution, as well as to build upon local programs, codes, and existing plans to establish a significant and cohesive local loss reduction program. Each city jurisdiction was responsible for providing data and participating in the development of its own capability assessment, via the LPG.

Based on hazard identification, risk and vulnerability assessments, and the capability assessment, a meaningful *Hazard Mitigation Strategy* (action plan) was developed. Again, the city jurisdictions were responsible for completing their own mitigation strategies with help from the County and consultants. The efforts involved in assessing risks and vulnerabilities and programmatic needs, which were centered on the jurisdictions' goals, helped in creating meaningful objectives and mitigation actions that can be realistically implemented.

Many of the Committee members were also Local Planning Group members and thus able to coordinate with stakeholders such as the Atlanta Regional Commission, the American Red Cross, Emory University, and Snapping Shoals electric cooperative to identify and delineate natural and manmade hazards within the County to assess the risks and vulnerable property in identified hazard areas. From the start, every attempt was made to establish an open public process to provide an opportunity for all sectors of the overall community to be involved in the planning process. In some cases direct public input was successful and in others the residents were represented in the process by their jurisdiction's staff.

3.4 PUBLIC INVOLVEMENT

This plan was developed with input from meetings and limited survey input received from residents in DeKalb County and other stakeholders. There were several opportunities during the planning process for the public to provide input and participate in the development of the Plan, including the meetings outline in Table 3.2-1. As noted above, meeting agendas and minutes for the public meetings are provided in Appendix 2. Limited survey response from thirty-three citizens of the County indicated the following information:

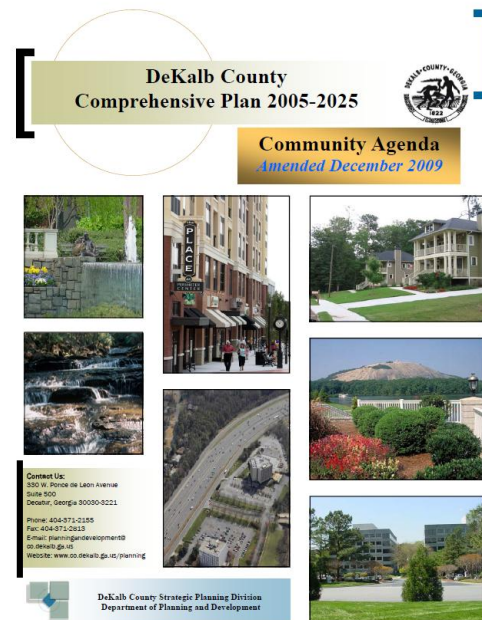
- All hazards were of concern and all hazards rated as 'high threat' by at least one respondent.
- Most respondents are using one or more types of mitigation actions to reduce their risk of damage to hazards.
- All respondents said their employer had a means of getting in touch with them following a disaster, and most said their employers have a plan for disaster recovery in place.

Results of the public survey are provided in Appendix 3 and indicate that about 60% of the respondents would like to be involved in future activities. A night meeting was scheduled for August 5th, 2010 at the DeKalb County Fire Rescue headquarters but no members of the public participated in the event. Future planning efforts will be made to link hazard mitigation outreach activities to other community outreach that have a history of good participation. Four members of the MAC were at the August 5th meeting.

3.5 EXISTING PLANS OR STUDIES REVIEWED

MAC team members and the corresponding Local Planning Groups prior to and during the planning process reviewed several plans, studies, and guides in addition to regulations/ordinances and policies. These plans included FEMA documents, emergency services documents as well as County and local general plans, community plans, local codes and ordinances, and other similar documents. These included but were not limited to:

- DeKalb County/Cities Comprehensive Plans
- Livable Cities Initiative Plans (land-use plans) from most jurisdictions
- DeKalb County Emergency Management Plan
- Various Local Community Plans
- City and County Codes and Ordinances, including floodplain ordinances
- County and City Operating Budgets
- State and Local Mitigation Planning How-to-Guides
- GEMA supplements to FEMA How-to-Guides
- FEMA CRS-DMA2K Mitigation Planning Requirements
- Crosswalk Reference Document for Review and Submission of Local Mitigation Plans to the State Hazard Mitigation Officer and FEMA Regional Office



http://www.co.dekalb.ga.us/planning/pdf/longRange/CommAgenda_Doc.pdf

Descriptions of particular documents, ordinances and programs that were reviewed and found to have direct links to mitigation are discussed in each jurisdiction's Capability Assessment (Sections 5.3.1, 5.4.1, 5.5.1, 5.6.1, 5.7.1, 5.8.1, 5.9.1, 5.10.1 and 5.11.1).

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SECTION 4 RISK AND VULNERABILITY ASSESSMENT***Significant Changes to this Section from Previous Plan***

The Risk and Vulnerability Assessment was changed to reflect new guidelines provided by FEMA. The 2010 plan update used essential facilities provided within HAZUS-MH MR 4 data. Some of the data was supplemented by statewide or countywide databases and/or local input. In the original plan, dam breaks were not considered a hazard. Since the completion of the original plan there have been several storm events including the September 2009 storm event which have stressed the structural components of the existing dams. The MAC decided that this was an issue that needed to be considered for this plan and more thoroughly in the next plan as private homeowners are responsible for maintenance on many of these smaller facilities. Multiple homeowners have foreclosed or abandoned properties leaving the maintenance of these facilities in question. Because of this, the MAC felt the potential for a dam failure has elevated. Although manmade and technological hazards were beyond the scope of the current plan, the MAC would like to look into this for the next plan. Other additions to the Risk and Vulnerability Assessment section include:

- Updating all hazard events occurring in DeKalb County between the years of 2006 and 2010.
- Identification and describing any presidentially declared disasters including a briefing on the 2009 event.
- New assessment of repetitive loss properties including a new map displaying the distribution of structures by census tracts.
- Updated vulnerability assessments for each hazard including new maps displaying new hazard layers and updated critical facility inventory.
- Updated population vulnerability maps based on 2010 population estimates from Geolytics.
- Addition of low income county-wide distribution map.
- Creation of Wildfire Risk Zones and maps depicting exposure of assets within county to wildfire.
- New Analysis using HAZUS-MR4 for high wind scenario and earthquake scenario

In general the methods conducted in the original plan were used as guidance for this update. Those methods included several local data collection meeting, extensive research using the NCDC and SHELDUS databases and defaulting to HAZUS databases where applicable.

4.1 OVERVIEW OF THE RISK ASSESSMENT PROCESS

Risk Assessment requires the collection and analysis of hazard-related data in order to enable local jurisdictions to identify and prioritize appropriate mitigation actions that will reduce losses from potential hazards. The *FEMA State and Local Mitigation Planning How-to-Guide* (How-to-Guide) identifies five Risk Assessment steps as part of the hazard mitigation planning process, including: 1) identifying hazards, which involves determining those hazards posing a threat to a study area, 2)

profiling hazards, which involves mapping identified hazards and their geographic extent, 3) identifying assets, which assigns value to structures and landmarks in the identified hazard areas, 4) assessing vulnerability, which involves predicting the extent of damage to assets, and 5) analyzing development trends, which assesses future development and population growth to determine potential future threat from hazards. These steps are described in detail in the following sections.

4.1.1 Identifying Hazards

Natural hazards identification is the process of recognizing natural events that threaten a particular planning area. A natural event causes a hazard when it harms people or property or interferes with commerce and human activity.

A natural event causes a hazard when it harms people or property or interferes with commerce and human activity.

Such events would include floods, earthquakes, tornadoes, tsunamis, coastal storms, landslides, and wildfires that strike populated areas. Natural hazards that have harmed the County in the past are likely to happen in the future; consequently, the process of identifying hazards includes determining whether or not the hazard has occurred previously. Approaches to collecting historical hazard data include researching newspapers and other records, conducting a planning document and report literature review in all relevant hazards subject areas, gathering hazard-related GIS data, and engaging in conversation with relevant experts from the community. In addition, a variety of sources were used to determine the full range of all potential hazards within DeKalb County, including internet research. Even though a particular hazard may not have occurred in recent history in DeKalb County, it is important during the hazard identification stage to consider all hazards that may potentially affect the planning area.

4.1.2 Profiling Hazards

Hazard profiling involves describing the physical characteristics of past hazards such as magnitude, duration, frequency, and probability. This stage of the hazard mitigation planning process involves creating base maps of the study area and collecting and mapping hazard event profile information obtained from various Federal, State, and local government agencies. The extent to which hazards are profiled is dependent on the availability of data. Some hazard profiles provide significantly more information than others based on the amount of prior research and data production identified. The MAC and consultant team obtained national maps available online from sources such as the United States Geological Survey (USGS), National Oceanographic and Atmospheric Administration (NOAA), FEMA and GEMA. Many useful data were also available from the County's own GIS. The hazard data was mapped to determine the geographic extent of the hazards in each participating jurisdiction. The level of risk associated with each hazard in each jurisdiction was also estimated and assigned a risk level of high, medium, or low (or variations thereof) depending on several factors unique to that particular hazard.

4.1.3 Identifying Assets

The third step of the risk assessment process is to identify the assets in each jurisdiction which will be affected by each hazard type. Assets include any type of structure or critical facility such as hospitals,

schools, and public infrastructure. An inventory of existing and proposed assets within the County was generated. The assets were then mapped to show their locations and to determine their vulnerability to each hazard type. The MAC also considered potential future development, based upon a review of the County's and City's Comprehensive Plans and other documents. As with profiling, identification of assets is limited to the best available and usable data.

4.1.4 Assessing Vulnerability

An asset is vulnerable if it is susceptible to damage from a hazard. Vulnerability depends on an asset's construction, contents, and the economic value of its functions. A vulnerability analysis can also predict the extent of injury and damage that may result from a hazard event of a given intensity in a given area. The vulnerability assessment identifies the effects of hazards by estimating the relative exposure of population, land development, and infrastructure to hazardous conditions. This includes consideration of indirect effects of hazards, which can be much more widespread and damaging than direct effects. For example, the loss of commerce due to road closures for an amount of time could significantly outweigh the cost of repairing the road. The assessment helps set mitigation priorities by allowing the County and local jurisdictions to focus attention on areas most likely to be damaged or most likely to require early emergency response during a hazard event.

4.1.5 Analyzing Development Trends

The final step of the risk assessment merges hazard information with anticipated future development within the County. Due to the difficulty in predicting where future development will take place this section is not intended to provide a thorough analysis of future hazard areas. However, it does provide the groundwork for proposing mitigation strategies in the most likely locations and an opportunity to evaluate codes, regulations and standards within a hazard context to determine appropriate changes to protect from damage to future development.

4.2 HAZARD IDENTIFICATION, SCREENING, AND RANKING

4.2.1 List of Hazards

The MAC reviewed hazards listed in the How-to-Guide and determined the prevalence of each hazard in DeKalb County and whether each hazard should be included in the Plan. All hazards identified by FEMA in the How-To-Guides were reviewed. They include: avalanche, coastal storm, coastal erosion, dam failure, drought/water supply, earthquake, expansive soils, extreme heat, flooding, hailstorm, house/building fire, land subsidence, landslide, liquefaction, severe winter storm, tornado, tsunami, wildfire, windstorm, and volcano.

4.2.2 Hazard Identification Process

The MAC worked with the consultant team to narrow the all-inclusive list of hazards to those most threatening to the DeKalb region. Consideration was also given to which hazards could realistically be

addressed in terms of mitigation during the screening process. The screening effort required input from a variety of MAC members, including representatives from City governments and County departments.

The final list of hazards to be profiled for DeKalb County included Flood, Wind (hurricane, tornado, thunderstorm, and straight line), Winter Storms, Wildfire, Extreme Heat, Drought, Earthquake, and Dam Failure. Table 4.2-1 shows a summary of the hazard identification results for DeKalb County.

**Table 4.2-1
Summary of Hazard Identification Results**

Hazard	Representative Data Collected for Hazard Identification	Justification for Inclusion
Flood	<ul style="list-style-type: none"> • FEMA FIRM Maps • Topography • Base flood elevations (FEMA) • Historical flood records • County and City Comprehensive Plans • DeKalb County Floodplain Management Plan • Interviews 	<ul style="list-style-type: none"> • DeKalb County has a significant number of mapped floodplains effecting many of its jurisdictions • There have been Presidential Disaster Declarations and State of Emergency Declarations as a result of flooding in DeKalb County
Hurricane (addressed in flooding and wind sections)	<ul style="list-style-type: none"> • NOAA • GEMA • FEMA • DeKalb Floodplain Management Plan 	<ul style="list-style-type: none"> • There have been 2 Presidential Disaster Declarations as a result of hurricanes in DeKalb County • A state of emergency was declared four times in 2004 alone due to hurricanes • Many hurricanes have impacted northern Georgia since recorded history began in the area
Tornado (included in wind section)	<ul style="list-style-type: none"> • GEMA • NOAA 	<ul style="list-style-type: none"> • There have been 2 Presidential Disaster Declarations in DeKalb County due in part to tornadoes • A state of emergency was declared three times due in part to tornadoes • Between 1950 and 2000, a total of 1,220 tornados hit Georgia
Thunderstorm / Lightning	<ul style="list-style-type: none"> • GEMA • NOAA • DeKalb Comprehensive Plan 	<ul style="list-style-type: none"> • DeKalb County often experiences the correct combination of warm moist air and colder dense air to form thunderstorms
Winter Storms	<ul style="list-style-type: none"> • GEMA • NOAA • www.weather.com 	<ul style="list-style-type: none"> • DeKalb County has experienced severe winter weather on numerous occasions, including two that prompted Presidential Disaster Declarations
Wildfire	<ul style="list-style-type: none"> • USDA • US Forest Service 	<ul style="list-style-type: none"> • The entire southern United States is susceptible to wildfire • Ample fuel available in DeKalb County

Hazard	Representative Data Collected for Hazard Identification	Justification for Inclusion
Extreme Heat	<ul style="list-style-type: none"> • Georgia Forestry Comm. • GEMA • DeKalb County Comprehensive Plan 	<ul style="list-style-type: none"> • Temperatures can get exceedingly hot in the entire region, especially during the summertime • The elderly population in DeKalb County is particularly at-risk
Drought	<ul style="list-style-type: none"> • NOAA 	<ul style="list-style-type: none"> • Georgia has experienced a drought very recently • The southeast portion of the United States has experienced many droughts in the last 100 years, some of them severe
Earthquake	<ul style="list-style-type: none"> • GEMA • USGS 	<ul style="list-style-type: none"> • The New Madrid earthquakes of 1811-1812 impacted the region • The severe Charleston, South Carolina earthquake of 1886 caused damage in parts of Georgia
Dam Failure	<ul style="list-style-type: none"> • FEMA-HAZUS • FEMA FIRM maps • FEMA Hazards website • DeKalb County Comprehensive Plan 	<ul style="list-style-type: none"> • There are approximately 42 dams in DeKalb County, many of which are very old • Some downstream development • Georgia lost 39 lives when the Toccoa Falls Dam failed in 1977

4.2.3 Hazard Identification Sources

Hazard data was collected from the Internet, direct communication with various agencies, discussions with consultant team in-house experts, and historical records. Specific sources included, but were not limited to:

- United States Geological Survey (USGS)
- Federal Emergency Management Agency (FEMA) HAZUS-MH
- FEMA Flood Insurance Rate Maps (FIRM)
- Georgia Emergency Management Agency (GEMA)
- National Oceanographic and Atmospheric Administration (NOAA)
- National Climatologic Data Center (NCDC)
- University of South Carolina, Hazards Research Lab – Spatial Hazards Events and Losses Database for the United States (USC – SHELDUS)
- National Weather Service
- American Red Cross
- US Forestry Service
- Georgia Forestry Commission

- Georgia Department of Natural Resources
- DeKalb County Planning Department
- DeKalb County Public Works
- DeKalb County GIS
- Dewberry & Davis Flood and Project Feasibility Studies

Non-Profiled Hazards

Some hazards were not included in the profiling step either because they were not prevalent within the County, were found to pose only minor or very minor threats to the County compared to the other hazards, or because they were generally linked to or covered by other selected hazards. The following table gives a brief description of the non-profiled hazards and the reason for their exclusion.

**Table 4.2-2
Summary of Hazards Excluded from Hazard Profiling**

Hazard	Description	Reason for Exclusion
Avalanche	A mass of snow moving down a slope. There are two basic elements to a slide; a steep, snow-covered slope and a trigger	Not enough snow in the county or the proper slopes to produce avalanches.
Coastal Erosion	Coastal bluffs or dunes experience mass-wasting of soil or rock, due to a combination of rain, runoff, wind, and topographical features.	DeKalb County is an inland county.
Expansive soils	Expansive soils shrink when dry and swell when wet. This movement can exert enough pressure to crack sidewalks, driveways, basement floors, pipelines and even foundations	No history of expansive soils in the county was identified.
Hailstorm	Can occur during thunderstorms that bring heavy rains, strong winds, hail, lightning and tornadoes	This hazard can be included under the thunderstorm hazard. Although somewhat common in the county, effective mitigation is difficult. The hazard does not warrant detracting attention from other hazards that cause more significant damage and that can be affectively mitigated.
Land subsidence	Occurs when large amounts of ground water have been withdrawn from certain types of rocks, such as fine-grained sediments. The rock compacts because the water is partly responsible for holding the ground up. When the water is withdrawn, the rocks fall in on themselves.	Although possible in DeKalb County, no history of land subsidence in DeKalb County was identified during research.

Hazard	Description	Reason for Exclusion
Landslide	Landslides are when rock, earth, or debris displaces down an incline and can include rock falls, rock slides, deep slope failures, shallow debris flows, and mud flows. Unstable or weak soil or rock and steep slopes are necessary for landslides to occur.	No history of significant landslides in the County was identified. Topography in the county generally includes mild vegetated slopes. Landslide activity is generally caused by construction and improper erosion controls. These practices are regulated already in DeKalb County codes.
Liquefaction	Liquefaction occurs in saturated soils, (soils in which the space between individual particles is completely filled with water). This water exerts a pressure on the soil particles that influences how tightly the particles themselves are pressed together. Earthquake shaking can cause the water pressure to increase to the point where the soil particles can readily move with respect to each other.	No history of liquefaction. The low probability of a damaging earthquake and overall stable soils in the area contributed to the decision to exclude this hazard.
Tsunami	A tsunami is a series of long waves generated in the ocean by a sudden displacement of a large volume of water. Underwater earthquakes, landslides, volcanic eruptions, meteoric impacts, or onshore slope failures cause this displacement.	DeKalb County is an inland county, and is therefore not threatened by large ocean waves.
Volcano	A volcano is a mountain that is built up by an accumulation of lava, ash flows, and airborne ash and dust. When pressure from gases and the molten rock within the volcano becomes strong enough to cause an explosion, eruptions occur.	No active volcanoes in DeKalb County. No historical record of this hazard in the region.

4.2.4 Hazard Ranking

Once the MAC identified the hazards to be included in the plan they were ranked. Prioritization of the hazards that threaten the County was based on two factors:

- Probability that the hazard will affect the community; and,
- Potential impacts on the community when it does

Each hazard’s total impact is made up of three factors:

- Likely geographical extent of affected area;
- Primary impacts of the hazard event; and,
- Related secondary impacts

While primary impacts are a direct result of the hazard, secondary impacts can only arise subsequent to a primary impact. For example, a primary impact of a flood event may be road damage due to submerged pavement or eroded surface. A possible secondary impact in these circumstances would be restricted access to emergency vehicles in a portion of the County due to the road closure.

A formula was developed to assign a value for probability and impact for each of the hazards considered. The probability of each hazard was determined by assigning a level, from 1 to 4, based on the likelihood of occurrence (which is based on historical data, personal knowledge, and other factors) and interviews with citizens and department heads. The total impact value includes the affected area as well as primary and secondary impact levels of each hazard. These levels were multiplied by an importance factor to obtain a score for each category. The probability score was multiplied by the sum of the three impact categories to determine the total score for the hazard. Using this total score, the hazards were separated into three categories based on the relative risk level they pose to the County: *significant*, *moderate* and *limited*. In order to focus on the most critical hazards, those assigned a level of *Significant* or *Moderate* were given the most extensive attention in the remainder of this analysis, while those with a *Limited*, planning consideration were addressed more generally.

The hazard ranking was based on the overall probability and impact to the County as a whole. When examining the individual jurisdictions included in this plan, the same ranking does not always apply. For example, in Avondale Estates, where there are no mapped flooding hazards, flooding was not given the highest priority. Similarly, wildfire would not be a major consideration in highly urbanized jurisdictions such as Decatur. In Section 5, where each participating jurisdiction provides a capabilities assessment, goals, objectives, and mitigation actions, the hazards that are most critical to those jurisdictions are presented in the order of their ranking.

**Table 4.2-3
Hazard Ranking and Planning Consideration**

Hazard Type and Ranking	Planning Consideration Based on Hazard Level
1. Flooding (52)	Significant
2. Wind (49)	Significant
3. Hurricane (39)	Moderate
4. Tornado (35)	Moderate
5. Winter Storm (32)	Moderate
6. Drought (29)	Limited
7. Wildfire (26)	Limited
8. Extreme Heat (25)	Limited
9. Thunderstorm/Lightning (22)	Limited (Include w/ Wind and Wildfire)
10. Dam Failure (16)	None (Include with Flood)
11. Earthquake (7)	None

A Hazard Identification and Ranking Worksheet is included as Appendix 4-A, containing all of the calculations and formulas utilized. Appendix 4-B contains a Community Hazard Identification Ranking table, which summarizes each jurisdiction’s vulnerability to each hazard.

4.3 HAZARD PROFILING, RISK, AND VULNERABILITY ASSESSMENT

A hazard profile is a description of the physical characteristics of a hazard and a determination of various hazard descriptors, including magnitude, duration, frequency, probability, and extent. The hazard data that were collected in the hazard identification process were mapped to determine the geographic extent of the hazards in each jurisdiction in the County and the level of risk associated with each hazard. Most hazards were given a risk level of high, medium, or low (or variations thereof) depending on several factors unique to the hazard. The hazards identified and profiled for DeKalb County, as well as the data used to profile each hazard are presented in this section on a hazard-by-hazard basis in the order they were ranked in subsection 4.2.4 for each jurisdiction. As noted in prior sections, some of the ranked hazards are combined in the profiling and assessment phase to optimize use of available data.

The analysis presented here is based upon “best available data”. Data sources and their limitations (if any) are addressed throughout each subsection. Data used in updates to this plan should be reassessed upon each review period to incorporate new or more accurate data if/when possible. Significantly more data were available for some hazards than for others.

4.3.1 Flood (including Dam Breach)

4.3.1.1 Hazard Profile

Nature of Hazard

Overland Flooding

A flood occurs when rainfall water, flowing into rivers and streams, exceeds the bank capacity and is forced onto the river’s floodplains. Floodplains are lowlands adjacent to rivers, lakes, and oceans that are subject to recurring floods. Most injury and death from floods occur when people are swept away by flood currents. Property damage typically occurs as a result of inundation by sediment-filled water. Most areas around the globe are subject to some form of flooding.

Several factors determine the severity of floods, including rainfall intensity and duration, surface permeability, and geographic characteristics of the watershed such as shape and slope. Flash flood conditions may result from a large amount of rainfall in a short time, a dam failure, or other sudden spill. The National Weather Service’s definition of a flash flood is a flood occurring in a watershed where the time of travel of the peak of flow from one end of the watershed to the other is less than six hours. DeKalb County is also subject to urban drainage flooding, which is addressed throughout this section.

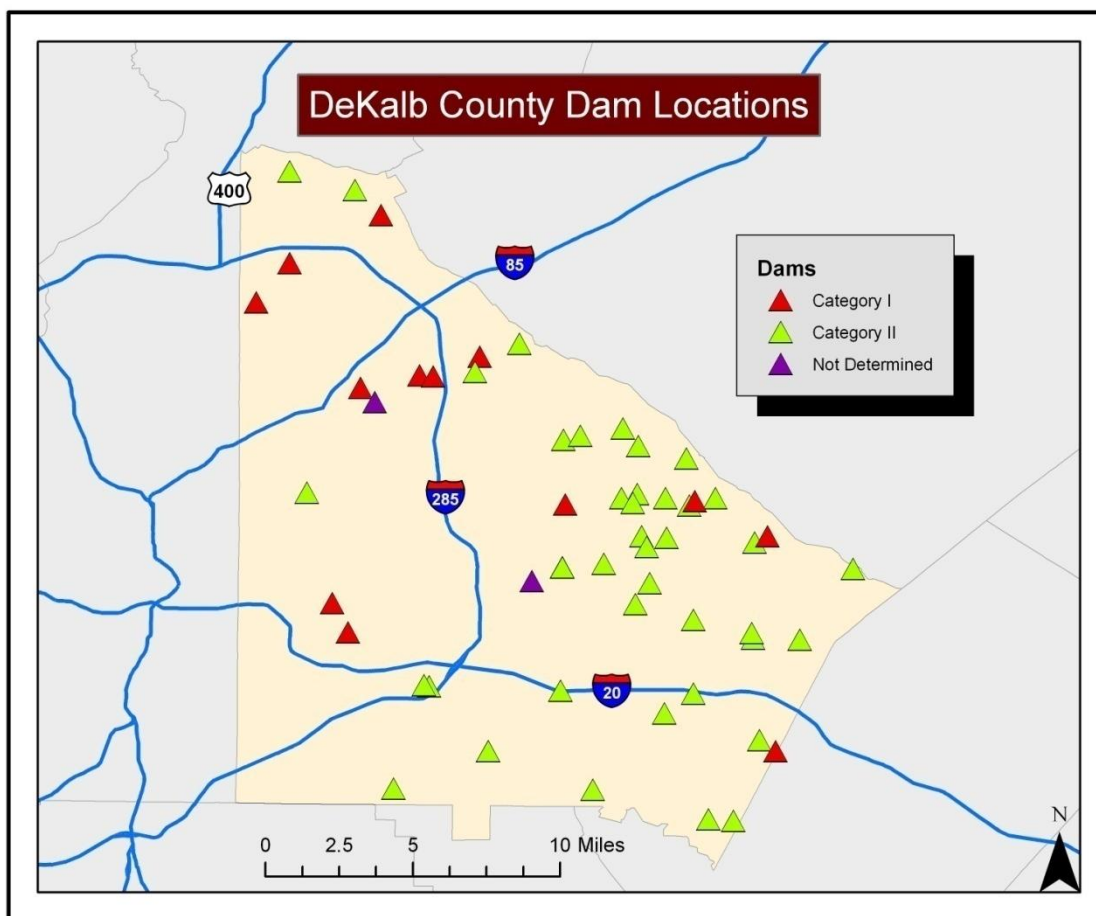
The history of flooding in DeKalb County indicates that flooding may occur during any season of the year, but floods are most likely to occur in winter and spring when runoff conditions are most favorable. Major flood producing storms in these seasons are usually of the frontal type, which last from two to four days and often cover large areas. Summer storms are usually more intense, but they are typically of shorter duration and limited extent.

Dam Breach

According to the State Dam Safety Office of Georgia there are 66 dams located in DeKalb County as of August 2010. Seventeen of the dams are reportedly maintained by the County or local government and the remaining dams by private interests. The dams are periodically inspected by the State of Georgia's Dam Safety Program. Of the 66 dams listed, 13 are classified as Category I dams. The State of Georgia describes a Category I dam as a dam for which improper operation or dam failure would result in probable loss of human life. Seven of the Category I dams are maintained by DeKalb County or local governments. In contrast, category II dams are those for which improper operation or dam failure would not be expected to result in probable loss of human life.¹ Figure 4.3.1-A below shows the location of both the Category I and Category II dams.

¹ <http://www.damsafety.org/media/Documents/PDF/GA.pdf>

Figure 4.3.1-A
DeKalb County Dam Locations



Dams fail due to old age, poor design, or structural damage. Structural damage is often a result of a flood or earthquake. A catastrophic dam failure could inundate the area downstream. The force of the water is large enough to carry boulders, trees, automobiles, and even houses along a destructive path downstream. The potential for casualties, environmental damage, and economic loss is great.

Flooding History

There have been numerous flood events in DeKalb County. Significant flooding related damage has been experienced along South and North Fork Peachtree Creek, Nancy Creek, their tributaries, and other streams. There are 29 flood events on record between the years of 1995 and 2010 at the National Climatic Data Center (NCDC) for DeKalb County. There are 16 floods listed for DeKalb County in the USC-SHELDUS database between the years of 1980 and 2010, many of which overlap with those in the NCDC database. Limited detail is available on damages from the flooding events. Both NCDC and SHELDUS take the available total damage estimate from the event and, if multiple counties are involved (10 or more for some of the identified events), evenly spread the damage across the Counties. For that reason, the damage amounts are not usable for future damage estimation. Summaries of the events for which data were available are listed

below. GEMA and FEMA databases were also searched and interviews were conducted with local and county officials.

March 8, 1980 – Flooding in DeKalb County is noted in the SHELDUS database. The DeKalb County Floodplain Management plan also references the fact that some flood control projects were constructed in Decatur following damaging floods in 1980.

May 19, 1991 through September 2, 1991 – During 1991, there were five major storms that produced 10-year flood depths on portions of Nancy and North Fork Peachtree Creeks. Several sub-basins saw flood levels near the 100-year elevation. The June 18, 1991 rainfall reportedly set a record with 3.47 inches falling in a one hour period. Numerous homes were flooded during 1991 and four were subsequently purchased and demolished through FEMA’s property acquisition program. (DeKalb County Georgia Floodplain Management Plan -3/2003)

January 1994 – Georgia issued a State of Emergency for several counties including DeKalb

October 1995 – Hurricane Opal (State of Emergency Declared for 53 Counties including DeKalb)

October 14, 1995 – Localized flash flooding throughout DeKalb County

July 23, 1997 – Flash Flooding - Nancy Creek was over its banks during the early morning hours. Minor street flooding was reported.

November 21, 1997 – Thunderstorms produced sudden heavy rains over the Atlanta metro area. The area most affected was from Lakewood Freeway through downtown Atlanta to Northside Drive on the north side of Atlanta. I-75 from Lakewood through downtown was flooded. High water blocked all northbound and two southbound lanes of the I-75/I-85 connector stranding 40 cars. Motorists were forced to climb onto car tops and wait to be rescued by police and firefighters. More than 60 streets were closed due to high water. A foot of standing water was reported on Scott Blvd and Memorial Drive in Decatur. Peachtree Creek near Peachtree Battle and Northside Drive in Atlanta overflowed its banks and flooded the basements of many homes. Rainfall amounts during the evening hours ranged from 2 1/2 to 3 inches across much of the two county area.

February 4, 1998 - Minor to moderate flooding occurred as heavy rain moved across the area. Several roads were closed.

March 8, 1998 - After over an inch-and-a-half of rain the preceding two days, showers and thunderstorms dumped another 2 or more inches in a six hour period over the Atlanta metro area. Peachtree Creek as well as Nancy and Sope Creeks rose rapidly and came out of their banks. A foot of water stood over some roads and homes near the flooded creeks. (Presidential declared disaster)

September 21, 2000 - The Atlanta Journal and Constitution reported that 3 to 4 inches of rain in a 2 to 3 hour period resulted in significant flooding. Forty-eight families were evacuated from an apartment complex on Memorial Drive in Decatur when water from Sugar Creek spilled over its banks and into the apartments. Flash flooding was also reported in Decatur. Road closures were required on Commerce

Drive at Clairmont Road and College Avenue at Candler Road. On Electric Avenue, an unoccupied car was found with flood waters clear up to the roof. At Agnes Scott College in Decatur, East College Avenue was flooded as well.

December 24, 2002 - National Weather Service official river gage readings showed a rise of Peachtree Creek at Northside Drive from less than 10 feet to 17 feet in a 1 to 2 hour time frame. Flood stage is 17.0 feet. This was the result of rainfall up to 2.5 inches in 6 hours or less throughout this general area. Only minor nuisance flooding of low lying areas near the creek were observed, with no monetary damage reported. Nuisance flooding in low lying areas was also observed on Nancy Creek, which flows through the same general area.

May 6, 2003 - The Times Herald of Newnan reported that lightning struck a home on Jeb Stuart Road setting the attic and roof on fire, both of which suffered major damage. The master bedroom and bath also suffered minor damage. Flash flooding was also associated with this event.

June 16, 2003 - Fox 5 News of Atlanta reported that extensive flooding was occurring across the eastern portion of Cobb County. Nearly two feet of water was flowing over Paper Mill Road at Sope Creek. Johnson Ferry Road near Connemara Drive and Dartmoor Drive was completely underwater. Residents of the West Chase Apartment Homes and Oakhill Town Home Association were stranded when flood waters caused a 20-foot deep and 6-foot wide sink hole causing the closure of Six Flags Parkway. Shallowford and Lassiter Drive in east Cobb County were also flooded. Several roads were washed out and had to be closed.

July 1, 2003 – Nearby Greene County 911 center reported that a number of roads across the county were flooded and impassable.

July 10, 2003 - Local Atlanta television media reported that a number of roads in and just east of midtown Atlanta were flooded and impassable.

September 16, 2004 - Hurricane Ivan resulted in significant flooding in DeKalb County (Presidential Disaster Declaration).

September 27, 2004 – The remnants of Hurricane Jeanne impacted DeKalb County only 10 days after rainfall from Hurricane Ivan

March 31, 2005 – Peachtree Creek rose to 17.8 feet, which is .8 feet above flood stage. Several homes and apartments adjacent to the creek were impacted.

July 6, 2005 – Approximately 4 – 6 inches of rain was reported across the county. The City of Decatur experienced a significant amount of street flooding. Along with roadways, several golf courses and low lying around both branches of the Peachtree Creek and the main creek itself were flooded.

July 10, 2005 – Heavy rains from the remnants of Hurricane Dennis covered DeKalb County. Flooding was reported throughout the county.

SECTION FOUR

Risk Assessment

July 11, 2005 – The north and south branches of Peachtree Creek rose out of their banks and caused minor flooding to adjacent roads, homes and businesses.

August 12, 2006 – Heavy rain in a very short time period causing localized flooding. Several homes and vehicles were inundated.

July 12, 2009 – Persistent rain associated with strong storms caused flash flooding in several parts of the county and metropolitan Atlanta.

August 28, 2009 – The South Fork Branch of Peachtree Creek rose above flood stage causing minor debris cleanup and no reported property damage.

January 24, 2010 – The South and North Fork Branches of Peachtree Creek showed minor flooding was occurring. No property damage or injuries were reported.



Stone Mountain, GA, October 22, 2009 -- Lorie Cornwell, a volunteer with DeKalb Emergency Management Agency, inspects a flood damaged residence in DeKalb County. The site visit is part of a county-sponsored training class for area officials on how to evaluate damaged houses, using a new FEMA software program that makes it easier for communities to assess residences impacted by disasters. George Armstrong/FEMA

Table 4.3-1

Presidential Disaster Declarations Statewide in Georgia That Have Included Flooding Since 1961**

Year	Date	Title	Disaster Number
Major Disaster Declarations			
2009	9/24	Severe Storms and Flooding	1858
2009	04/23	Severe Storms, Flooding, Tornadoes, and Straight-line Winds	1833
2008	05/23	Severe Storms and Flooding	1761
2004	09/24	Tropical Storm Frances	1560
2004	09/18	Hurricane Ivan	1554
1998	03/20	Georgia Severe Storms, Tornadoes and Flooding	1209
1995	12/20	Severe Storms, Tornadoes	1076
1995	10/10	Hurricane Opal	1071
1994	10/19	Heavy Rains, Tornadoes, Flooding, High Winds	1042
1994	07/07	Tornadoes, Flooding, Heavy Rain, Tropical Storm Alberto	1033
1994	03/31	Severe Storm, Tornadoes, Flooding	1020
1993	03/04	Tornadoes, High Winds, Heavy Rain	980
1992	12/01	Heavy Rain, High Winds, Tornadoes	969
1991	03/15	Flooding, Severe Storm	897
1990	10/19	Flooding, Severe Storm	880
1990	02/23	Flooding, Severe Storm, Tornado	857

1976	06/11	Severe Storms, Flooding	507
1975	03/29	Tornadoes, High Winds, Heavy Rain	460
1973	04/04	Tornadoes, Flooding	370
1966	03/14	Flooding	214
1964	11/04	Flooding	180
1964	09/10	Hurricane Dora	177
1963	03/26	Severe Storms, Flooding	150
1961	03/02	Floods	110

Source: http://www.fema.org/regions/iv/disasters_region4.fema#GA

** Presidential disaster declarations for the entire State of Georgia, since 1961, which have included some associated flooding. For older events, it was not possible to determine from the available data if the DeKalb area was affected.

In the State of Georgia FEMA has been tracking the designated counties which were impacted during each Presidentially Declared Disaster event since 1998. Between the time period of 1998 and 2010 DeKalb County has been a considered a Presidentially Declared Disaster area twice due to flooding. Table 4.3-2 below highlights those events.

**Table 4.3-2
Presidential Disaster Declarations in DeKalb County That Have Included Flooding Since 1998**

Major Disaster Declarations Affecting DeKalb County 1998-2010			
Year	Date	Event	Disaster Number
2009	9/24	Severe Storms and Flooding	1858
1998	3/20	Severe Storms, Tornadoes and Flooding	1209

http://www.fema.org/regions/iv/disasters_region4.fema#GA

March 20, 1998 – Severe storms caused flooding and spawned tornadoes across the region. The storms caused flash flooding and quickly caused water to pool in areas with inadequate drainage. The damages which warranted the presidential declaration were mostly due to the tornado which struck just north of DeKalb County.

September 24, 2009 – A stalled low pressure system brought a long period of heavy rain to the north and central regions of Georgia. Rainfall reports on September 19, 2009 showed 3 – 5 inches across northeast Georgia as well as the Atlanta Metropolitan area. The heavy rain continued into Sunday with rainfall amounts of more than 3 inches from Douglas to Gwinnett County. The rainfall continued into Monday with approximately 9 – 12 inches of rain reported in the Atlanta Metropolitan area. The rainfall caused significant flooding across the Atlanta Metropolitan area. In DeKalb County, the Yellow River and

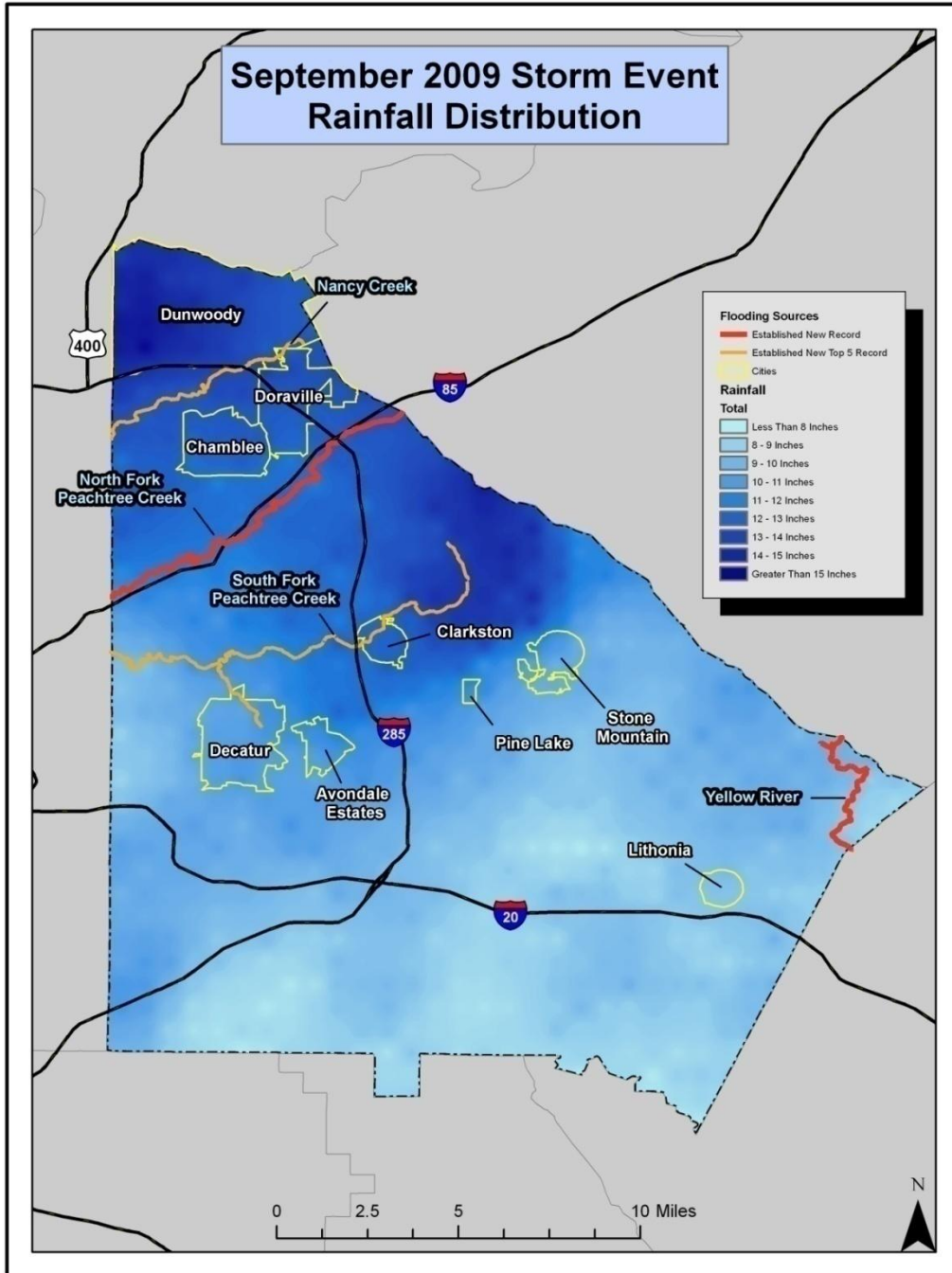
the North Fork Peachtree Creek rose to record flood heights according to the USGS². The Yellow River peaked at 25.50 feet near the City of Lithonia at approximately 5 am on the morning of September 22, 2009. The previous record height for the Yellow River was recorded at 17.5 feet. The North Fork Peachtree Creek peaked at 18 feet at 7 pm on September 12, 2009. Nancy Creek and The South Fork Peachtree Creek also reached significant flood levels but did not establish new records.

Rainfall data for the entire Atlanta region was collected from September 16 – September 23, with the heaviest concentration of rain occurring between the 19th and the 21st. This information was acquired from OneRain Inc. This company collects high quality data which is needed for an accurate storm analysis. The data is collected through a system of rain gages and radar rainfall estimations.

Some areas across DeKalb County reported over 15 inches of rain during the event. Figure 4.3.1-B shows the distribution of rainfall across the county though it does not necessarily correspond to the areas which were significantly impacted by flooding. Flooding does not always take place at the location which receives the highest amount of rainfall but is more dependent on other factors such as terrain. Figure 4.3.1-B below shows the rainfall distribution across DeKalb County during the storm event between the dates of September 19th and September 21st, 2009.

² <http://www.srh.noaa.gov/ffc/?n=rivers090922>

Figure 4.3.1-B
Distribution of Rainfall Across DeKalb County



Dam Breach History

Although no catastrophic dam failures have occurred in DeKalb County, Georgia has experienced a catastrophic and deadly dam failure. On November 6, 1977, the Kelly Barnes Dam near Toccoa, Georgia failed. The dam was an earthen embankment, originally constructed in 1887, and was holding back 176 million gallons of water at the time of its failure. When the dam broke, a wall of water traveled through a nearby college campus at 120 miles per hour, killing 39 people.



<http://www.kgs.ku.edu/General/Personnel/nop/gifs/kelly.jpg>

Several smaller dam breaks have occurred in Georgia over the years, although none are as famous as the Toccoa tragedy. Most recently, in 1994, flooding across Georgia caused over 200 dam breaks and millions of dollars in property damage.

Location and Extent/Probability of Occurrence and Magnitude

There are three major drainage basins: the Chattahoochee River Basin, South River Basin, and the Yellow River Basin. The majority of the land in the Chattahoochee Basin drains westward to the Chattahoochee River via Nancy Creek, Peachtree Creek, and several smaller tributaries. The South River and its tributaries (Pole Bridge, Snapfinger, Shoal, and Entrenchment Creeks) drain the southern part of the County. The southeastern portion of DeKalb County is drained by the Yellow River which flows through the extreme eastern part of the County and flows toward the South. The Yellow River basin includes Stone Mountain, Swift, and Crooked Creeks. The streams generally have a step hydraulic gradient in their headwater reaches, but transition to a moderate gradient as they continue into the major channels. Soils along the South River, Yellow River, Peachtree Creek, Nancy Creek, and their tributaries are nearly level. The floodplains are frequently inundated during the winter and spring seasons. The Majority of the soils on the uplands are well drained. Yet the bottom lands along rivers, creeks, and tributaries are often flooded during winter and spring and drain slowly. In the unincorporated county, most significant flood related damages have been experienced along North Fork Peachtree Creek, South Fork Peachtree Creek, Nancy Creek, their tributaries and other streams. These are the locations of the repetitive loss properties that are addressed throughout the plan.

The cities of Avondale Estates and Lithonia have no mapped flood hazard areas but do experience urban street drainage flooding. In Chamblee the primary flooding problem is in the vicinity of Peachtree Industrial Boulevard near the Peachtree Shopping Plaza and Huntley Hills neighborhood. Floodplains in

Clarkston are found primarily along Peachtree Creek. In Doraville, the floodplains are primarily along Nancy Creek.

Principal flooding sources in Decatur include Peavine Creek, the South Fork of Peachtree Creek, Shoal Creek, and Sugar Creek. All have mapped 100-year floodplains. Snapfinger creek is the only waterway with a mapped 100-year floodplain in Pine Lake. The majority of the floodplain is around the lake itself which traverses a significant portion of the center of the very small city. Finally, in Stone Mountain, floodplains are found primarily along Barbashela Creek in the southwestern corner of the community.

In addition to building and infrastructure damage due to overland flooding there are numerous undersized culverts, low water crossings, and low capacity bridges throughout the County that cause flooding problems.

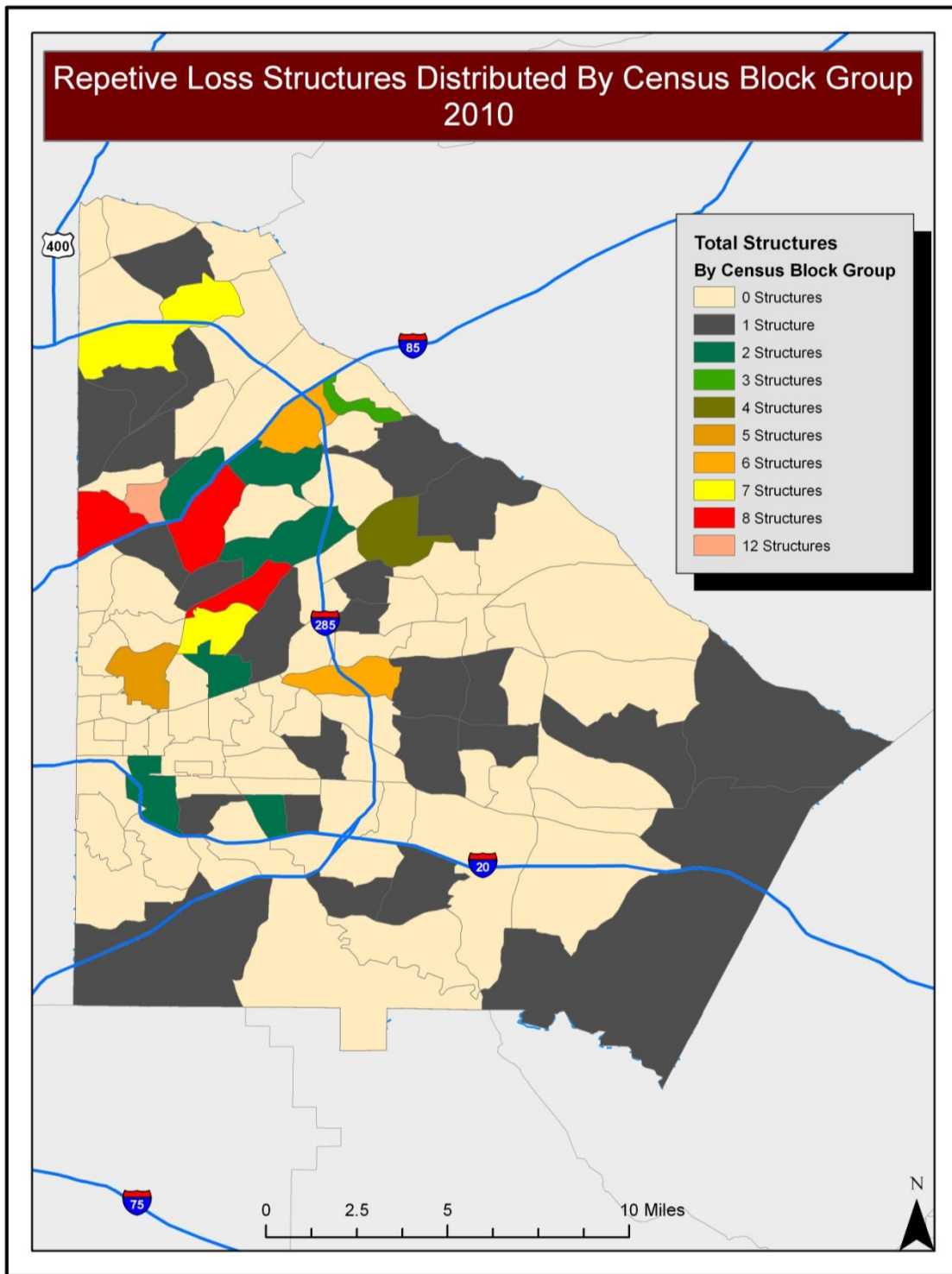
There are approximately 3,400 flood insurance policies in effect in DeKalb county and over 12,000 known structures in the floodplains. As of April 30, 2010, there were 5 FEMA defined severe repetitive loss properties throughout the County. The County reduced the number of severe repetitive loss structures between the years of 2005 and 2010 by approximately 85%. The County had 115 properties in identified repetitive loss areas as of April 30, 2010. This compares with 136 repetitive loss properties in 2005. Structures in the repetitive loss areas receive frequent flooding. Most structures were constructed before the County entered the National Flood Insurance Program and flooding has been exacerbated by upstream watershed development. The repetitive loss areas are located at:

1. Barbashela Creek – Barbashela Drive area
2. Burnt Fork Creek – Pondarosa Circle, Riderwood Drive, and Burnt Creek Road areas
3. Cobb Creek – Brookfield Lane area
4. Cobbs Creek – Brookfield Lane and Grey Point Cove areas
5. Doolittle Creek East Branch B – Pinewood Drive area
6. Henderson Mill Creek – Leslie Drive and Wake Robin Trail areas
7. Indian Creek – Chevoit Drive and Heathmoor Place areas
8. Norris Lake – Lake Drive area
9. Nancy Creek – Vintage Lane, Chelsea Crescent, Royal Court, Gainsborough Drive, and Queens Way areas
10. Nancy Creek Tributary A – Lake Village Drive, Olde Village Lane, and Simsbury Lane areas
11. Nancy Creek Tributary B – Ensign Drive area
12. Nancy Creek Tributary C – Donaldson Drive area
13. Nancy Creek Tributary D – Warrenhall Lane area
14. North Fork Peachtree Creek – Barkside Court, Windsor Forest Drive, Nancy Lane, Sherbrooke Drive, Fisher Trail, Deville Street, Eldorado Drive, Medfield Trail, Clairmont Way, Burford Highway, and Converse Drive areas.
15. North Fork Peachtree Creek Tributary A - Burch Circle, Poplar Springs Drive, Dresden Drive, and Drew Valley areas
16. North Fork Peachtree Creek Tributary C – Regalwoods Drive area
17. Peavine Creek – Oxford Road, Vickers Drive, Durand Falls, and Emory Road areas
18. Perimeter Creek – Nancy Creek Court area
19. South River – Rovena Court area
20. Shoal Creek – Green Forest Drive, Miriam Lane and Valley Ridge Drive area
21. Snapfinger Creek – Indian Lake Circle area

22. Snapfinger Creek Tributary A – Harvest Hill Court
23. South Fork Peachtree Creek – Idlewood Road, Hunting Valley Drive, and Scott Circle area
24. South Fork Peachtree Creek Tributary A – Brockett Road area
25. Stephenson Creek – Cathedral Lane area
26. Stone Mountain Creek – Banneker Court area
27. Sugar Creek – Fayetteville Road and Bencal Drive area
28. Johnson Creek – Union Grove Road area.

The following figure shows the distribution of repetitive loss structures throughout DeKalb County. In order to protect the privacy of the property owners exact locations are not listed. It is clear from Figure 4.3.1-C that there is a concentration of structures located north and south of I-85 and Claremont Road, The two major flooding sources which affect these locations are the North Fork Peachtree Creek and South Fork Peachtree Creek. In DeKalb County, over forty structures on the repetitive loss list are located along these two flooding sources.

Figure 4.3.1-C
Repetitive Loss Structures in DeKalb County



The County has an aggressive property acquisition program in place for addressing repetitive loss properties and would like to expand the program. The program will not be limited to the areas listed above. It will be available to all flood prone properties where it is determined to be cost beneficial to acquire and demolish buildings. The list above includes areas representative of major flood prone areas throughout the County. Methods used to evaluate and prioritize properties for acquisition are included in the property acquisition projects descriptions in Section 5.3.

For dams, the locations are throughout the county and the probability of breaks is unknown, due to a lack of historical data. In the mitigation strategy section of this plan, emphasis is placed on the coordinated gathering of additional data for better assessment of the risks for dam breaks.

FEMA FIRM data was used to determine hazard risk for floods in the County of DeKalb. FEMA defines flood risk primarily by a 100-year flood zone, which is applied to those areas with a 1% chance, on average, of flooding in any given year. Any area that lies within the FEMA-designated 100-year floodplain is designated as high risk. Any area found in the 500-year floodplain is designated at low risk. Base flood elevations (BFE) were also used in the modeling process. A BFE is the elevation of the water surface resulting from a flood that has a 1% chance of occurring in any given year (i.e. the height of the base flood). As can be noted from historical data, there is a very good chance of a damage inducing flood in the county once at least every two years. Historical information for flooding (including the 2009 event) indicates that flooding has a high recurrence interval. Detailed flood studies are currently underway to better define the statistical probabilities for the County and its' incorporated cities. Figures 4.3.1-D through 4.3.1-M, on the following pages display the locations and extent of flood hazard areas for the County of DeKalb on a jurisdictional basis.

**Figure 4.3.1-D
Special Flood Hazard Areas – Avondale Estates**

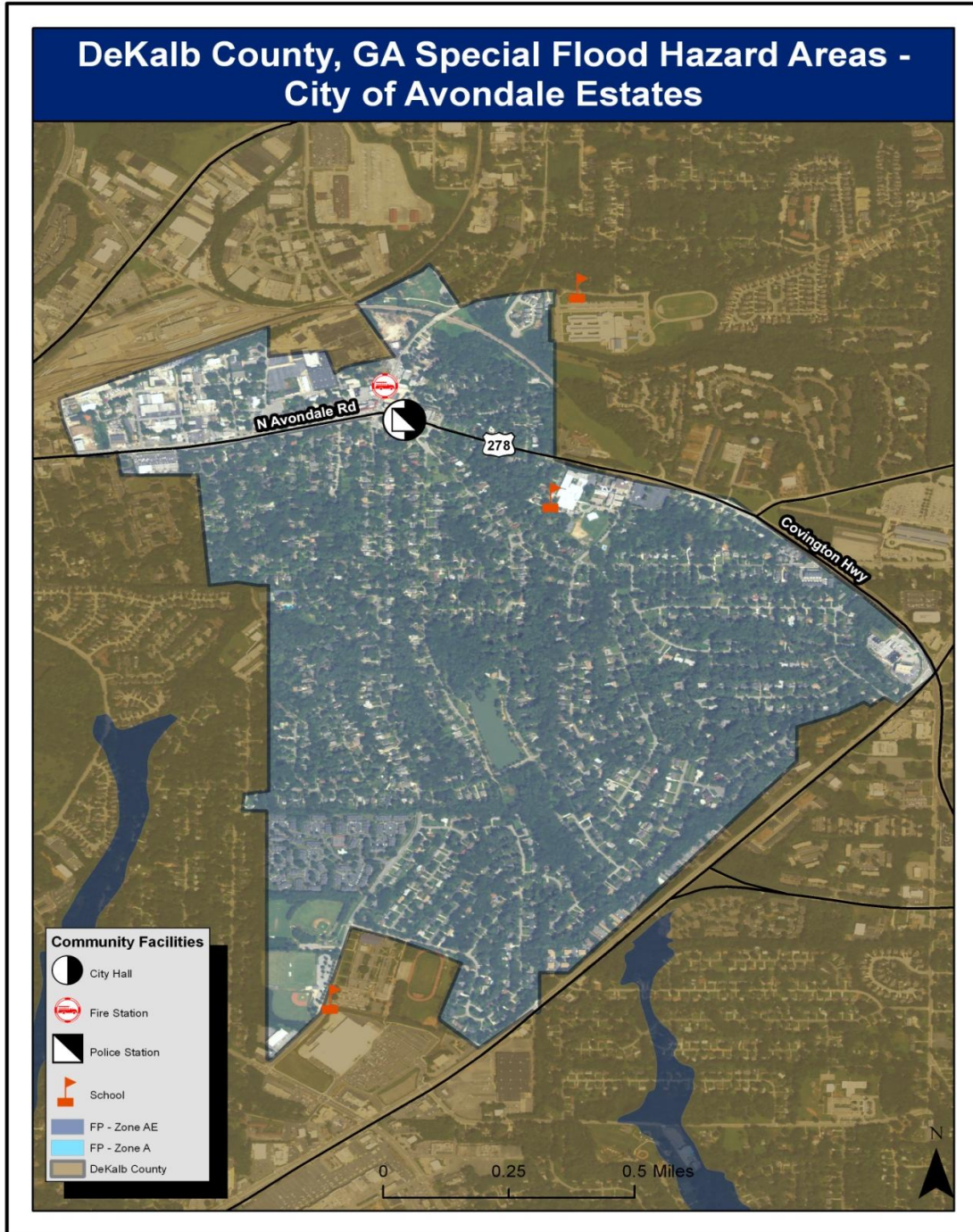


Figure 4.3.1-E
Special Flood Hazard Areas – Chamblee

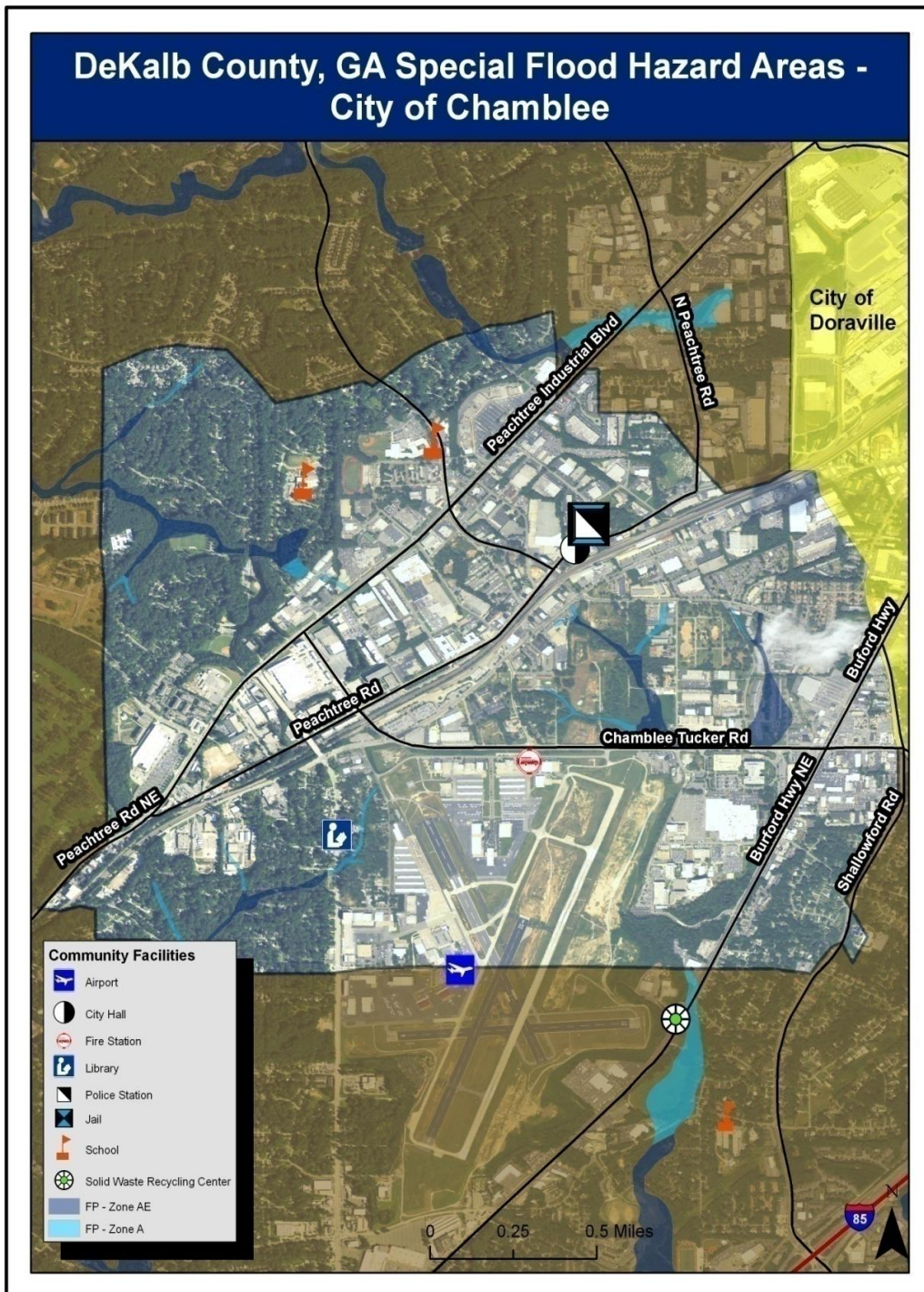


Figure 4.3.1-F
Special Flood Hazard Areas – Clarkston



Figure 4.3.1-G
Special Flood Hazard Areas – Decatur

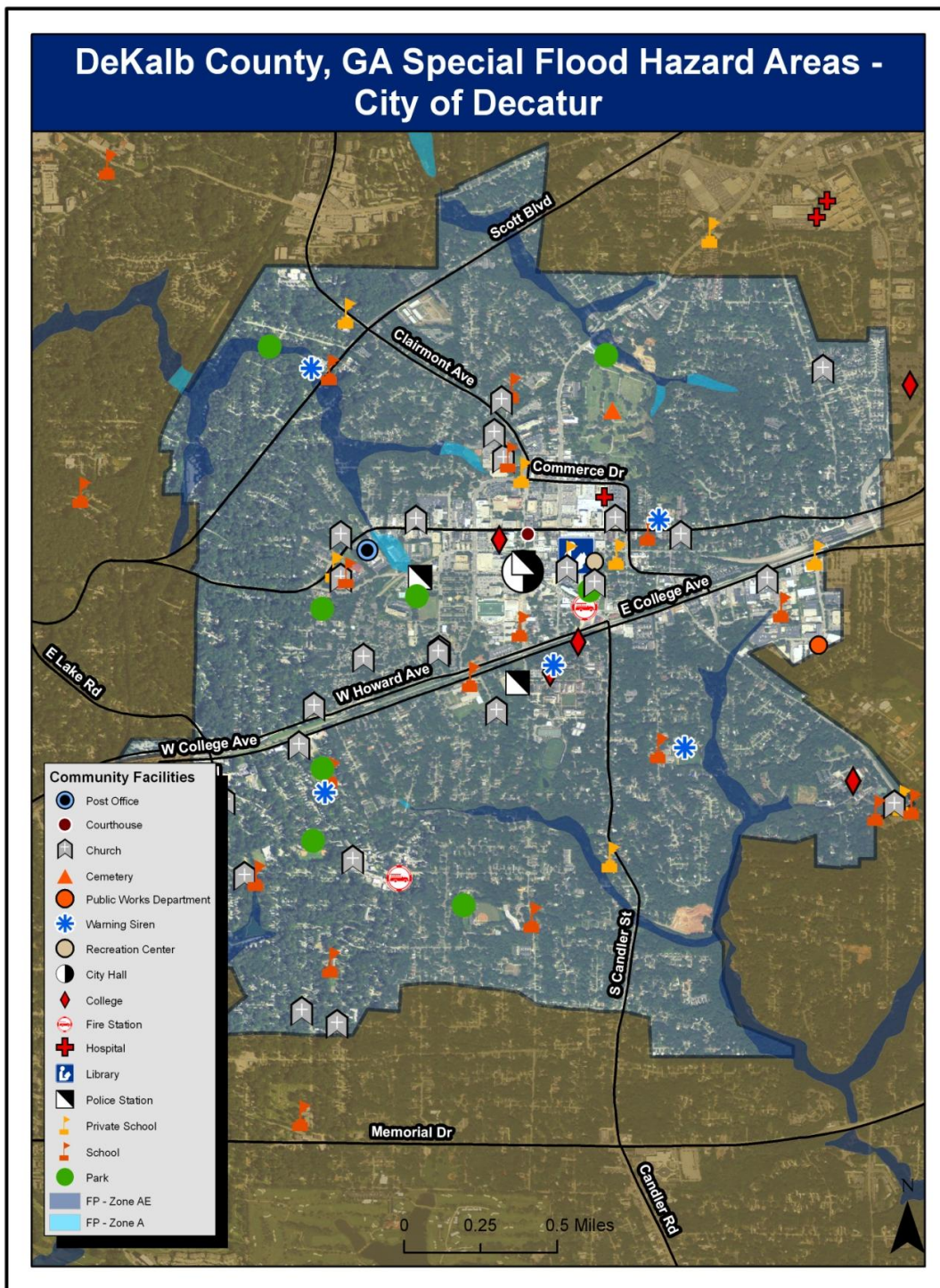


Figure 4.3.1-H
Special Flood Hazard Areas – Doraville

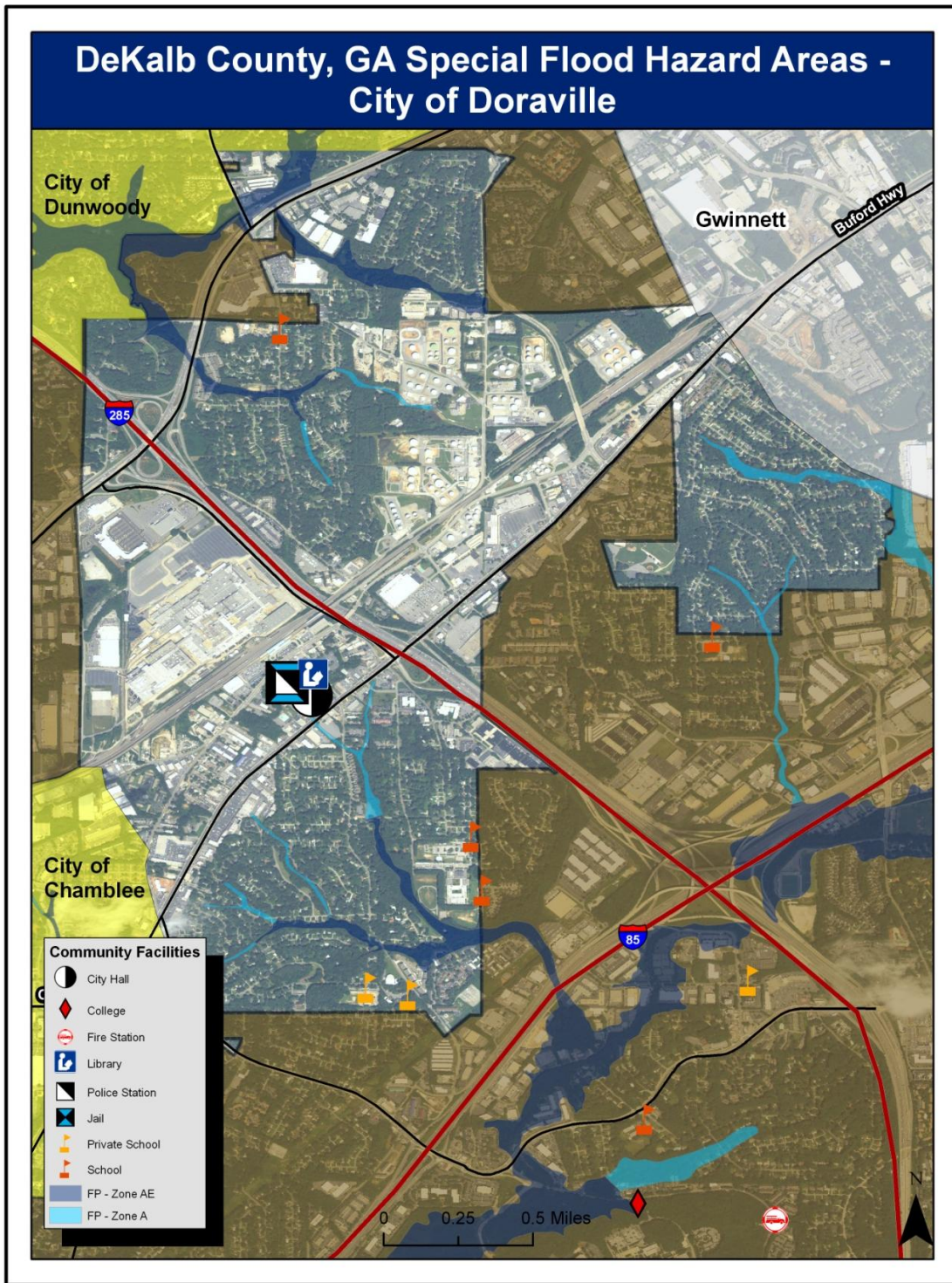


Figure 4.3.1-I
Special Flood Hazard Areas – Dunwoody

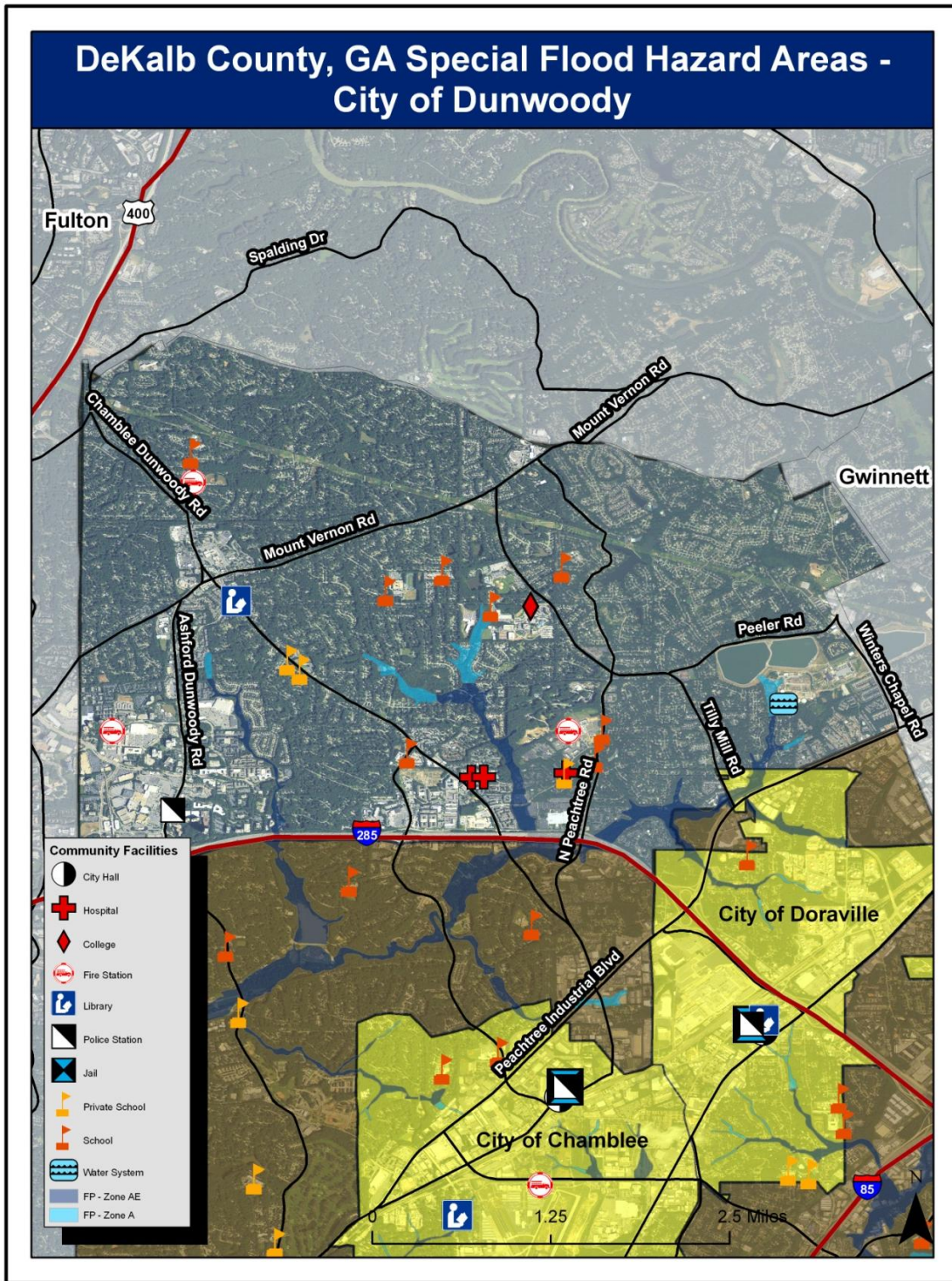
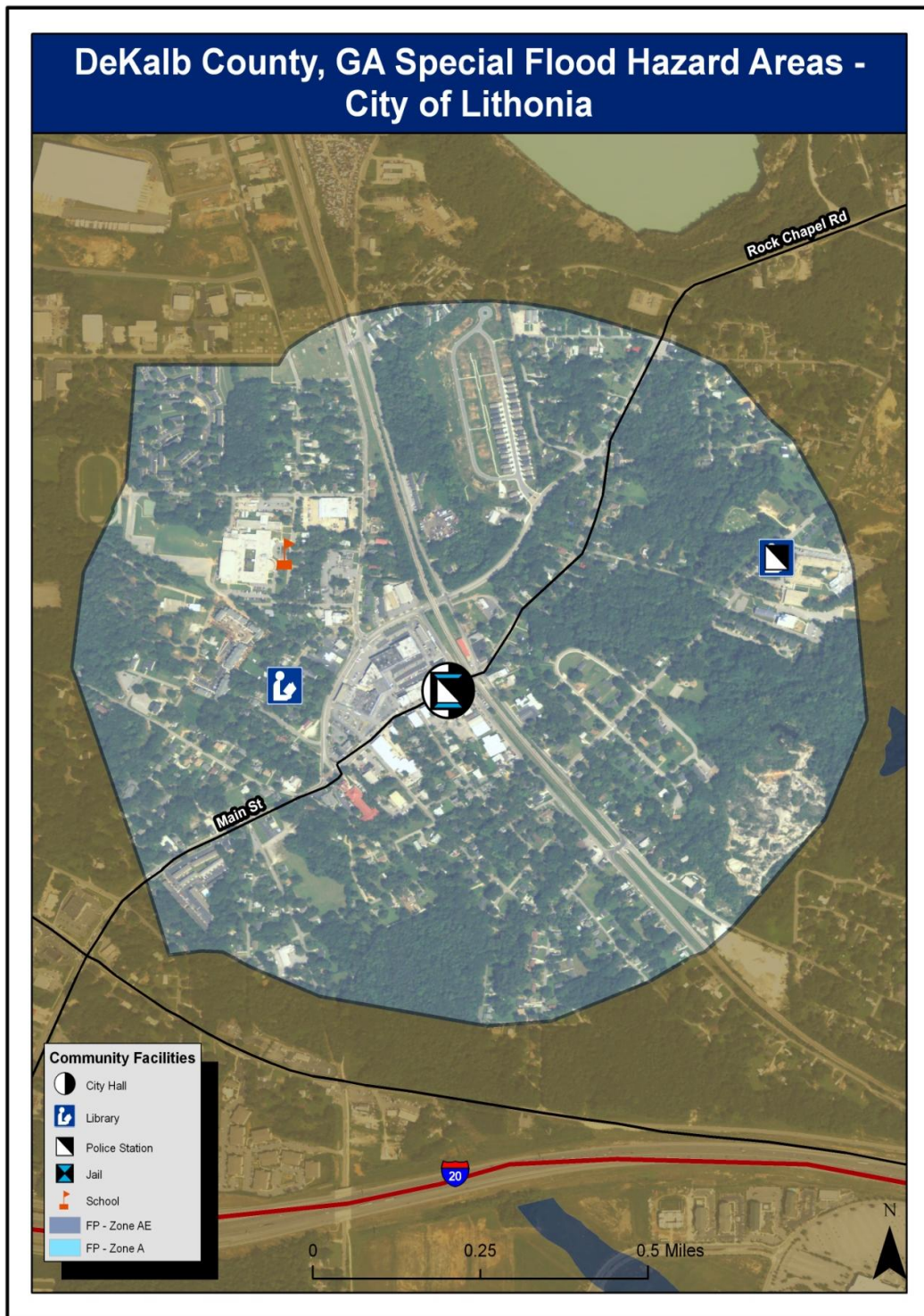


Figure 4.3.1-J
Special Flood Hazard Areas – Lithonia



**Figure 4.3.1-K
Special Flood Hazard Areas – Pine Lake**

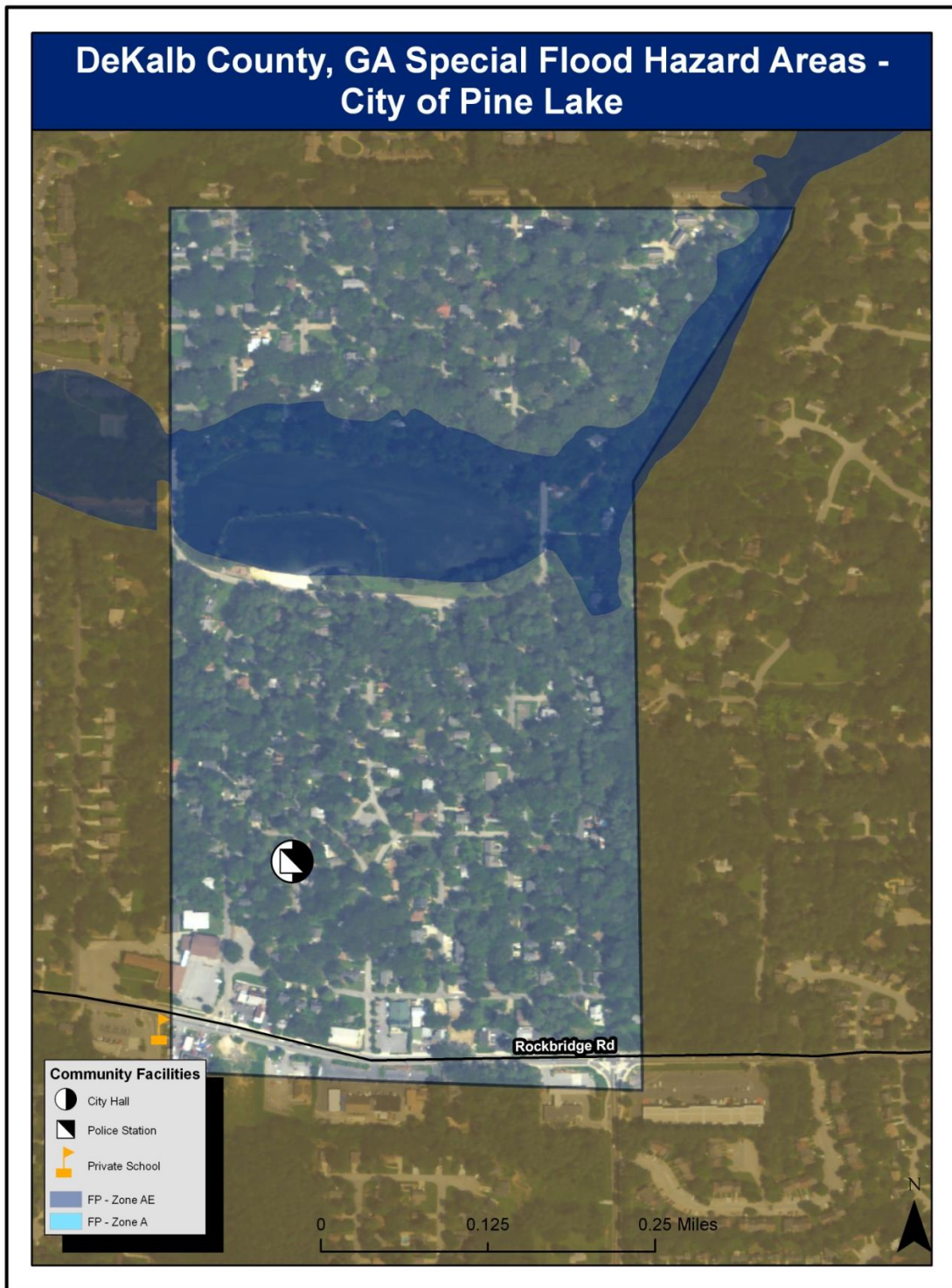


Figure 4.3.1-L
Special Flood Hazard Areas – Stone Mountain

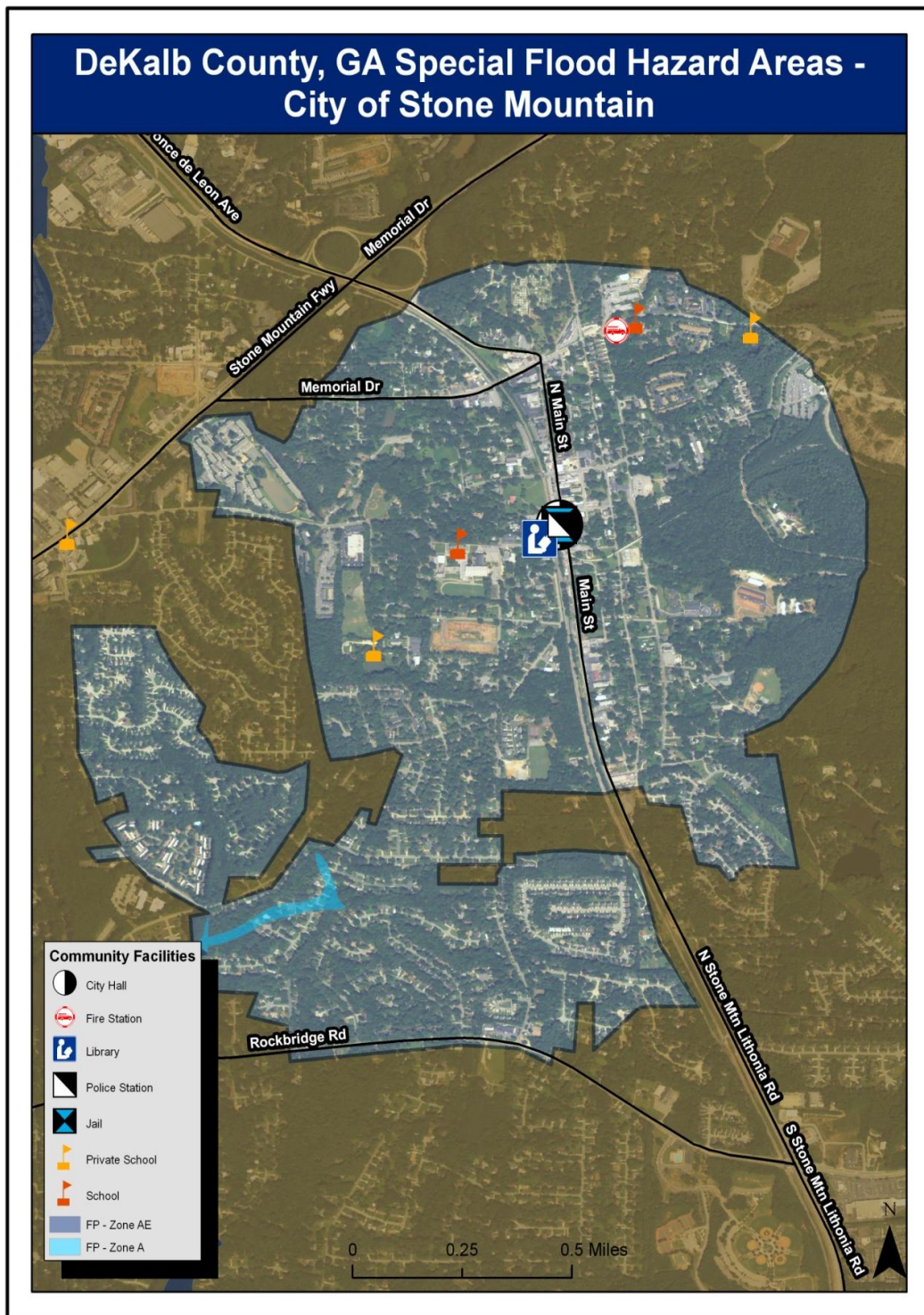
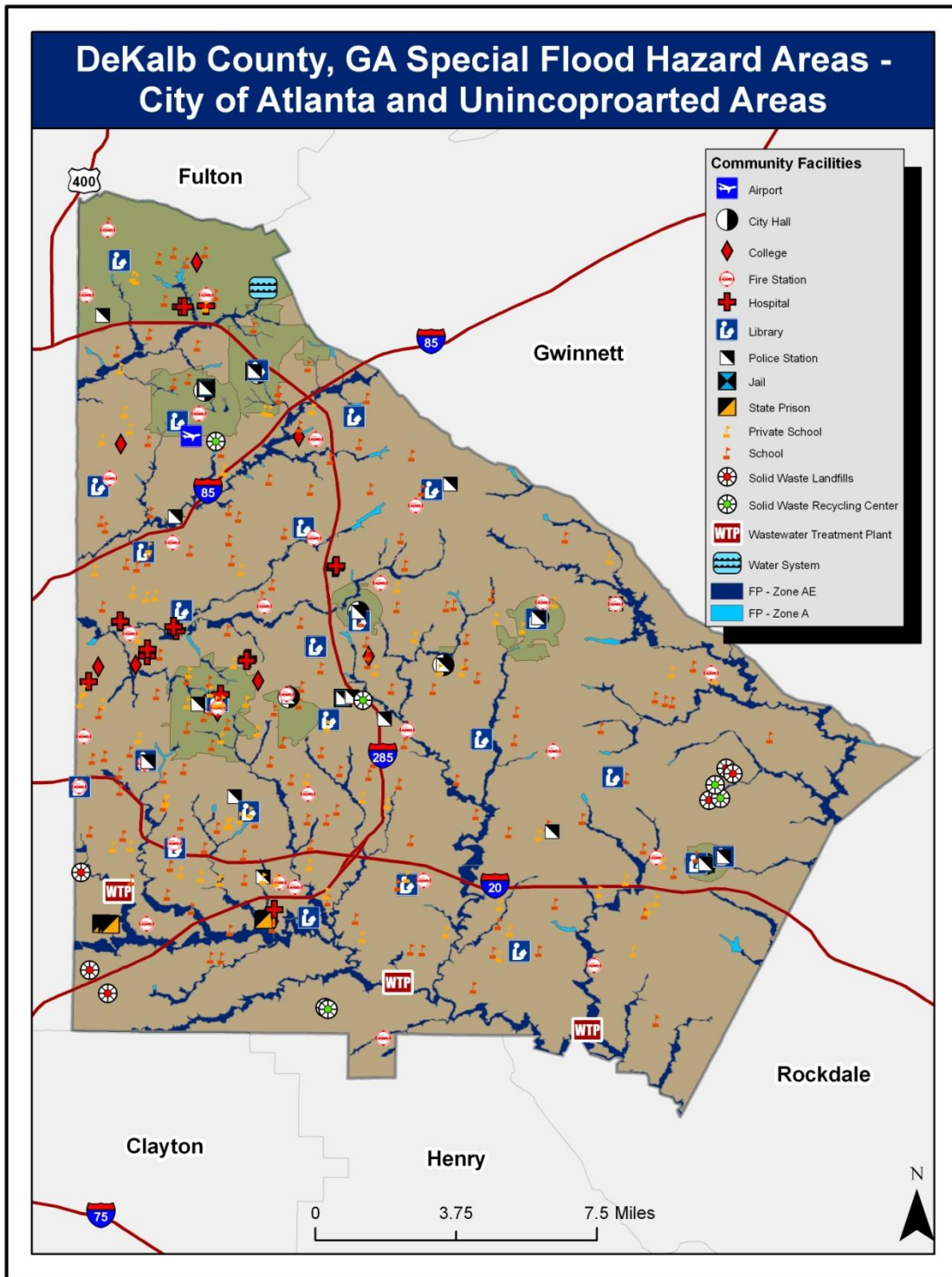


Figure 4.3.1-M
Special Flood Hazard Areas – Atlanta and Unincorporated Areas



4.3.1.2 Flood Vulnerability Assessment

Vulnerability describes how exposed or susceptible to damage an asset is, and depends on an asset's construction, contents, and the economic value of its functions. Depth and velocity of flooding are also directly correlated with the amount of building and content damage for a given structure. The vulnerability analysis predicts the extent of damage to residential, commercial, industrial, religious, educational and governmental properties as well as other critical facilities that may result from a flood event of a given intensity in a given area on the existing built environment. Like indirect damages, the vulnerability of one element of the community is often related to the vulnerability of another. Indirect effects can be much more widespread and damaging than direct effects. For example, damage to a major utility line or arterial roadway could result in significant inconveniences and business disruption that would far exceed the cost of repairing the utility line.

4.3.1.2.1 Asset Inventory

Flooding that occurs in DeKalb County can impact residential, commercial and industrial properties as well as critical facilities located in the unincorporated County and other jurisdictions. A critical facility is defined as a facility in either the public or private sector that provides essential products and services to the general public, is otherwise necessary to preserve the welfare and quality of life in the County, or fulfills important public safety, emergency response, and/or disaster recovery functions. Figures 4.3.1-D, through 4.3.1-M show the location of critical facilities identified for the County, in relation to flood hazard areas. A combination of Census and critical facilities data from HAZUS-MH, the County Assessor's database, a Public Works Department critical facilities database and the GEMA Critical Facility Inventory Website were considered in assessing inventories of critical facilities and other structures in the jurisdictions. The tables on the following pages provide inventories of population and buildings in high risk areas and describe the methodologies used in their identification.

4.3.1.2.2 Estimating Potential Flood Exposure and Losses (Relative)

GIS modeling was used to estimate the potential hazard exposure of population, critical facilities, and properties. The specific methods and results of all analyses are presented below. The results are shown as potential exposure in thousands of dollars, and as the worst-case scenario.

Exposure characterizes the value of structures within the hazard zone, and is shown as estimated exposure based on the overlay of the hazard on the critical facilities, infrastructure, and other structures, which are given an assumed cost of replacement for each type of structure exposed. These replacement costs are estimated using the building square footage inventory from HAZUS-MH along with information from the Bureau of Census, Standard Industrial Classification and the Department of Energy³. These data sources combine to develop the General Building Stock (GBS) inventory. The loss or exposure value is then determined with the assumption that the given structure is totally destroyed (worst case scenario), which is not always the case in hazard events. This assumption was valuable in the planning process, because the maximum potential damage value was identified and used to determine

³ HAZUS-MH MR4 Technical Manual – Flood Model Chapter 3 page 5

capabilities and mitigation measures for each jurisdiction. According to the HAZUS-MH MR 4 data the total value of exposed assets within DeKalb County is estimated at over \$52 billion dollars. The following table displays the distribution of exposed assets within the county.

**Table 4.3-3
Total Exposure of Assets in DeKalb County**

DeKalb County Total Exposure*						
Residential	Commercial	Industrial	Agricultural	Religious	Government	Education
\$39,167,813	\$9,226,975	\$1,640,694	\$141,850	\$1,114,542	\$398,851	\$973,010
Total					\$52,663,735	

*Values displayed in thousands.

Loss Estimation

In addition to exposure, loss was estimated for flood hazards in the County. Loss estimation includes the portion of the exposure that is expected to be lost to a certain hazard scenario, and is estimated by referencing frequency and severity of previous hazards. Information from HAZUS used in the analysis included economic and structural data on infrastructure and critical facilities, including replacement value costs with 2006 square footage and valuation parameters to use in loss estimation assumptions. It provided estimates for the potential impact by using a common, systematic framework for evaluation. Loss estimates used available data, and the methodologies applied resulted in an approximation of risk.

These estimates should be used to understand relative risk from flooding and potential losses. Uncertainties are inherent in any loss estimation methodology, arising in part from incomplete scientific knowledge concerning natural hazards and their effects on the built environment. Uncertainties also result from approximations and simplifications that are necessary for a comprehensive analysis (such as incomplete inventories, broad value estimation, demographics, or economic parameters).

Using data from HAZUS, potential impacts on residential and commercial structures in the event of a 100-year flood (considered high risk area for this plan) were estimated using average potential 100-year flood depth from the FEMA flood maps and utilizing the Federal Insurance Administration’s (FIA) previously determined depth damage functions to anticipate damage to buildings and contents. These functions estimate the damages to a structure as a percentage of the building value, and are differentiated by building type and jurisdiction. An average estimated damage per structure was calculated and then applied to all the structures in the floodplain of the same use for each jurisdiction.

For each jurisdiction, the total exposure value for each General Building Stock (GBS) type (i.e. residential) was obtained. This data was collected at the census block level and analyzed in order to determine GBS exposure values for each participating jurisdiction as well as the unincorporated areas of DeKalb County.

Complete parcel data, linkable to county tax assessments, was not available for this planning exercise. For that reason, the total number of structures in the floodplain for each jurisdiction was developed by

overlaying FEMA effective flood data on census block data extracted from HAZUS. The percentage of each particular census block overlain by floodplain was then calculated for its direct correlation with each type of structure and population in the tract, assuming equal distribution of buildings and population.

Using this method, the relative total exposure values of structures in the floodplain was estimated for each structural type in the HAZUS database.

An average flood depth for the county was determined by evaluating the FEMA determined flood elevations in comparison to local topography data and profiles from the DeKalb County FEMA Flood Insurance Study. An average 100-year flood depth was then used to determine the appropriate level of damage utilizing FEMA’s Federal Insurance Administration depth damage functions for both building and content damage. Utilizing these values the total damage for both buildings and contents was determined for each jurisdiction and for each use type. The complete flood loss estimation table, including all formulas and assumptions is included as Appendix 4-C.

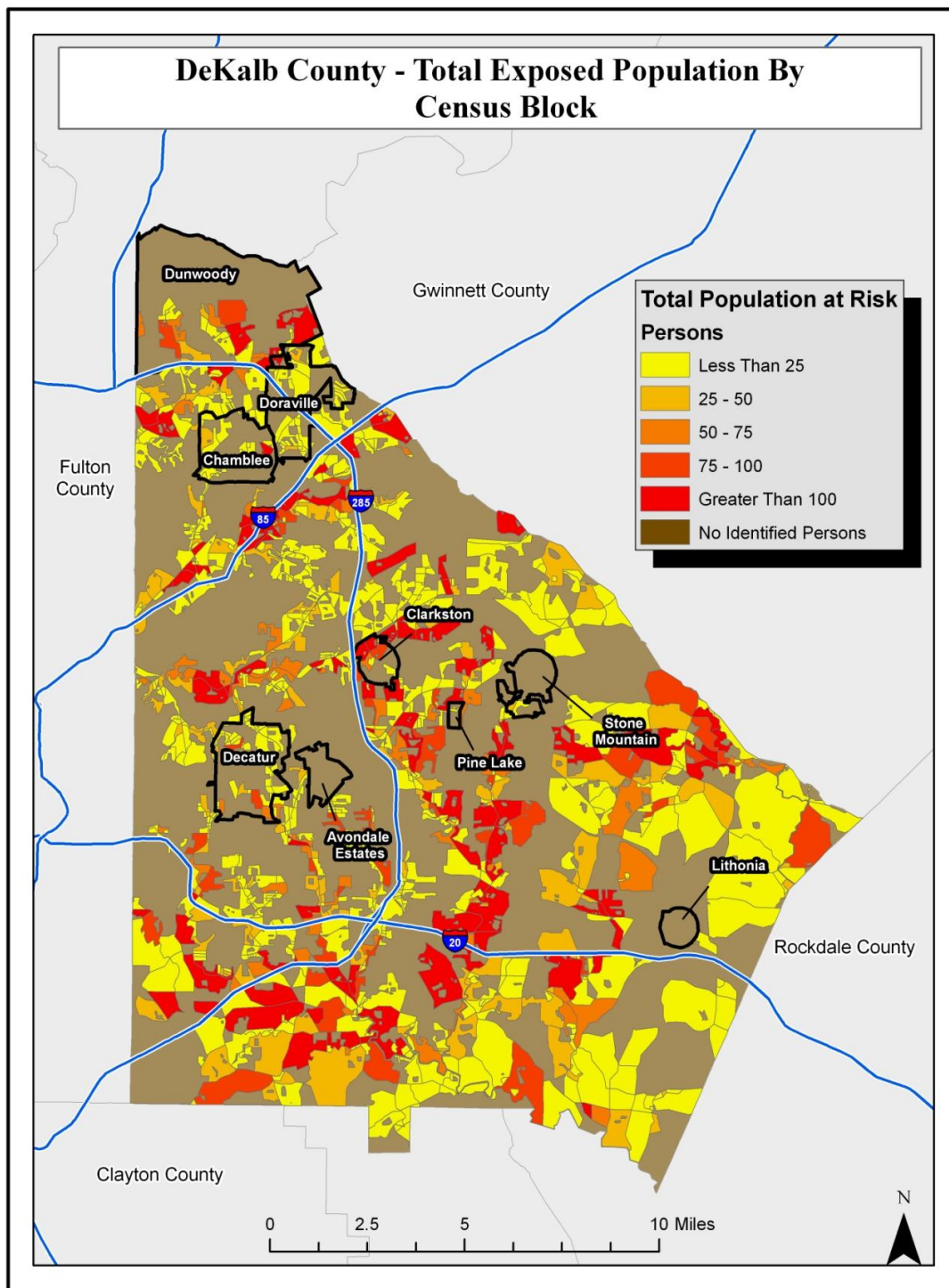
Tables 4.3-4 and 4.3-5 provide a breakdown of potential losses to residential, commercial, religious, educational and government property. Table 4.3-6 summarizes total exposure of major infrastructure throughout the County’s floodplains, in aggregate, based on best available data and cost estimates from the HAZUS database. Approximately 40,000 people may be at risk from the 100-year flood hazard. Approximately one billion dollars in property damage could occur in the 100 year flood event.

**Table 4.3-4
Population Exposure and Potential Loss Estimates from 100-Year Flood by Jurisdiction**

Population Exposure and Potential Loss Estimates from 100-Year Flood by Jurisdiction		
Jurisdiction	Exposed Population	Estimated Building and Contents Loss
DeKalb County, Unincorporated	35,121	\$939,166,818
City of Avondale Estates	0*	\$0
City of Chamblee	588	\$10,442,328
City of Clarkston	819	\$10,448,083
City of Decatur	855	\$24,287,237
City of Doraville	350	\$10,738,230
City of Dunwoody	1,651	\$54,369,173
City of Lithonia	0*	\$0
City of Pine Lake	54	\$902,919
City of Stone Mountain	47	\$707,139
Total	39,485	\$1,051,061,926

* Avondale Estates and Lithonia have no mapped 100 year flood hazard areas. This table is not intended to imply that there is no population exposed to flooding risks

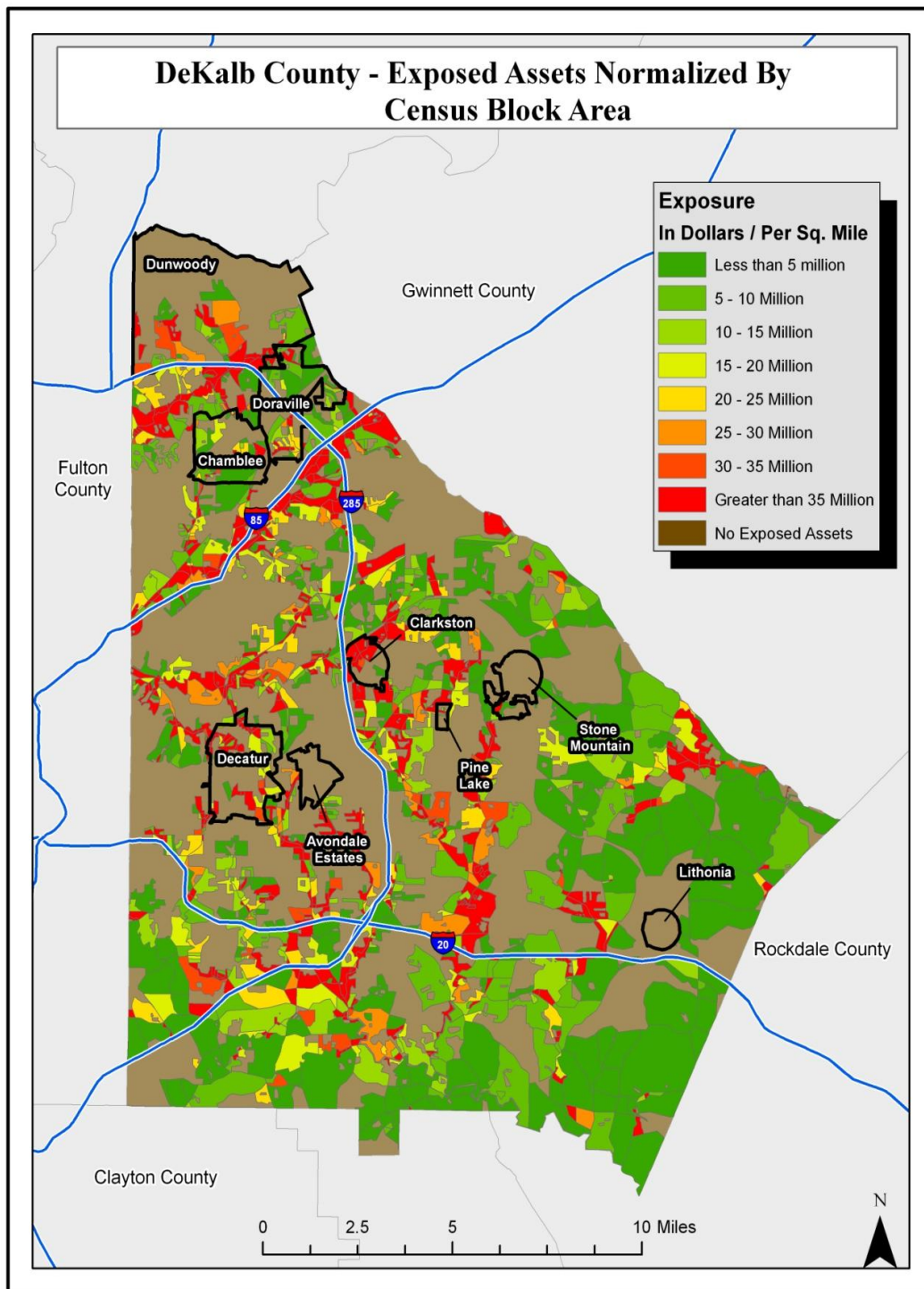
Figure 4.3.1-N
Total Exposed Population in DeKalb County



**Table 4.3-5
Exposure and Potential Loss Estimates from 100-Year Flood by Jurisdiction**

Structure Type Vulnerability By Jurisdiction							
Jurisdiction	Residential	Commercial	Industrial	Agriculture	Religious	Government	Education
DeKalb County, unincorporated	\$413,647,080	\$132,628,755	\$19,855,860	\$1,372,770	\$10,053,120	\$4,219,110	\$10,619,910
City of Avondale Estates	\$0	\$0	\$0	\$0	\$0	\$0	\$0
City of Chamblee	\$3,659,460	\$2,135,800	\$320,960	\$64,680	\$45,570	\$83,790	\$98,700
City of Clarkston	\$6,049,680	\$739,565	\$117,705	\$6,720	\$13,440	\$27,090	\$0
City of Decatur	\$12,074,790	\$1,794,190	\$284,675	\$31,710	\$623,700	\$582,540	\$211,890
City of Doraville	\$3,131,520	\$2,393,335	\$379,665	\$3,990	\$57,750	\$630	\$370,860
City of Dunwoody	\$20,236,650	\$10,172,190	\$1,310,685	\$20,580	\$1,319,640	\$9,660	\$433,230
City of Lithonia	\$0	\$0	\$0	\$0	\$0	\$0	\$0
City of Pine Lake	\$587,790	\$11,210	\$12,390	\$0	\$0	\$0	\$0
City of Stone Mountain	\$432,810	\$30,680	\$5,900	\$6,930	\$0	\$0	\$0
Total	\$459,819,780	\$149,905,725	\$22,287,840	\$1,507,380	\$12,113,220	\$4,922,820	\$11,734,590

Figure 4.3.1-O
Exposed Assets in DeKalb County



As noted above, Table 4.3-5 is based on the number of buildings of each type by census tract multiplied by the percentage of the particular census tract located in the FEMA effective mapped 100-year flood hazard area. The numbers represent relative exposure from jurisdiction to jurisdiction based on the limitations of this data and does not necessarily accurately represent the actual number of each type of building in the floodplain. The complete flood loss estimation table, including all formulas and assumptions is included as Appendix 4-C.

Critical facilities were extracted from the Atlanta Regional Commission’s community facility database. The facilities were then mapped with the FEMA effective 100-Year flood data. The results of that analysis showed a total of two schools, one fire station and one police station in the 100-Year floodplain.

Also, major infrastructure types were analyzed using the infrastructure categories and associated costs in the HAZUS database, GIS modeling was used to overlay the FEMA effective flood data to determine approximate exposure in the 100 year floodplain. The results of the analysis are presented in Table 4.3-6, below.

**Table 4.3-6
Major Infrastructure Exposure in 100-Year Floodplain**

Major Infrastructure Type	Length	Count	Estimated Total Exposure at Risk
Rail Segments	2,169	7	\$3,101,309
Light Rail Segments	227	2	\$326,012
Highway Segments	3,670	38	\$62,260,976
Highway Bridges	N/A	44	\$82,129,957
		Total	\$147,818,254

In a typical year some areas in DeKalb County will experience flooding of various degrees in magnitude. Usually this flooding will be minor with limited interruption to transportation, critical facilities or other lifelines in the county. It can be expected that in a typical year some families will be displaced by the flooding but only for a short duration of time. Due to DeKalb County’s proactive attitude there are substantial less private and public assets at risk to flooding in a typical year than five years ago. That trend is expected to continue.

Unfortunately, not all years are typical years and no county or community should be expected to place unnecessary regulations or restrictions on residents unless there is a clearly identified risk to public safety, health, welfare, or moral. In a worst case scenario, one which DeKalb and no other county or community prepares for, DeKalb can expect to have multiple deaths, complete shutdown of facilities for 30 days or more, and more than 50% property damage to assets in the community. DeKalb should also expect, after a catastrophic event as one described above, a loss of moral and confidence by the public in the government’s ability to provide for the needs of the community.

This could cause disruptions in the government's ability to lead and also maintain order within the community. In the catastrophic scenario the long term effects on the psychology of the county can be just as damaging as the long term damages to the economy of the county.

4.3.2 Severe Winds (Hurricane, Tornado, Thunderstorm)**4.3.2.1 Hazard Profile****Nature of Hazard**

Although ranked separately, hurricane, tornado, thunderstorm, and other severe wind events have been combined for analysis in this section. Wind can be one of the most destructive forces of nature. Strong winds can erode mountains, topple trees and buildings, and destroy a community's critical utilities and infrastructure. Primarily, damaging winds that affect DeKalb County are associated with severe thunderstorms, or the remnants of a tropical storm or hurricane. These storms generally develop along a cold front and can extend for hundreds of miles. Tornadoes are also a significant risk in DeKalb.

Tornado

A tornado is a violent windstorm characterized by a twisting, funnel-shaped cloud. It is spawned by a thunderstorm or as a result of a hurricane, and is produced when cool air overrides a layer of warm air, forcing the warm air to rise rapidly.

The damage from a tornado is a result of the high wind velocity and wind-blown debris. Tornado season in Georgia is generally March through May, although tornadoes can occur at any time of year. They tend to occur in the afternoons and evenings: over 80 percent of all tornadoes strike between noon and midnight.

When tornadoes impact DeKalb County, the level of damages sustained depend mostly on the strength of the tornado, measured by the Fujita Scale, along with the type and number of facilities and resources impacted. Table 4.3-7 includes the corresponding wind speeds for the Fujita Scale, and typical damage descriptions for each level.

**Table 4.3-7
The Fujita Scale**

Scale Value	Wind Speed (mph)	Description of Typical Damage
F0	40-72	Light damage. Tree branches snapped; antennas and signs damaged.
F1	73-112	Moderate damage. Roofs off; trees snapped; trailers moved and/or overturned.
F2	113-157	Considerable damage. Weak structures and trailers demolished; cars moved.
F3	158-206	Severe damage. Roofs and some walls torn off well-constructed buildings; trains overturned; trees uprooted; cars lifted up and thrown.
F4	207-260	Devastating damage. Well-constructed houses leveled; structures blown off weak foundations; cars thrown; large missiles generated.
F5	261-318	Incredible damage. Houses lifted off foundations and carried some distance; large missiles thrown over 100 yards; trees debarked.

Hurricane Winds

Hurricanes start over the oceans as a collection of storms in the tropics. A storm that eventually reaches hurricane intensity first passes through two intermediate stages known as tropical depression and tropical storm. A tropical depression is an organized system of clouds and thunderstorms with a defined circulation and maximum sustained winds between 28 and 38 mph. Once a tropical depression reaches winds of 39 mph, it is reclassified as a tropical storm and given a name. If winds reach 74 mph, the tropical storm is reclassified as a hurricane.

The deepening low-pressure center of the storm takes in moist air and thermal energy from the ocean surface, convection lifts the air, and high pressure higher in the atmosphere pushes it outward. Rotation of the wind currents tends to spin the clouds into a tight curl. As a result of the extremely low central pressure, surface air spirals inward cyclonically, converging on a circle of about 20 miles in diameter that surrounds the hurricane's "eye." The circumference of this circle defines the so-called eye wall, where the inward-spiraling, moisture-laden air is forced aloft, causing condensation and the concomitant release of latent heat; after reaching altitudes of tens of thousands of feet above the surface, this air is finally expelled toward the storm's periphery and eventually creates the spiral bands of clouds easily identifiable in satellite photographs.

Hurricanes usually move westward at about 10 mph during their early stages and then curve poleward as they approach the western boundaries of the oceans at 20° to 30° lat., although more complex tracks are common. In the Northern Hemisphere, incipient hurricanes usually form over the tropical Atlantic Ocean and mature as they drift westward; hurricanes also form off the west coast of Mexico and move northeastward from that area. After prolonged contact with the colder ocean waters of the middle

latitudes, hurricanes weaken and are transformed into extra-tropical cyclones. They will also rapidly decay after moving over land areas.

Between June and November, on average, six tropical storms mature into hurricanes along the east coast of North America, often over the Caribbean Sea or the Gulf of Mexico. Two of these storms will typically become major hurricanes (categories 3 to 5 on the Saffir-Simpson scale). One to three hurricanes typically approach the U.S. coast annually, some changing their direction from west to northeast as they develop; as many as six hurricanes have struck the United States in one year. The Saffir-Simpson scale is the standard scale for rating the severity of a hurricane as measured by the damage it causes. Ratings are as follows:

**Table 4.3-8
Saffir-Simpson Hurricane Damage Scale**

Category	Wind Speed (mph)	Description of Typical Damages
1	74-95	Minimal damage — Storm surge generally 4-5 feet above normal. No real damage to building structures. Damage primarily to unanchored mobile homes, shrubbery, and trees. Some damage to poorly constructed signs. Also, some coastal road flooding and minor pier damage.
2	96-110	Moderate damage — Storm surge generally 6-8 feet above normal. Some damage to buildings. Considerable damage to shrubbery and trees with some trees blown down. Considerable damage to mobile homes, poorly constructed signs, and piers. Coastal and low-lying escape routes flood 2-4 hours before arrival of the hurricane center. Small craft in unprotected anchorages break moorings.
3	111-130	Extensive damage — Storm surge generally 9-12 feet above normal. Some structural damage to small residences and utility buildings. Damage to shrubbery and trees with foliage blown off trees and large trees blown down. Mobile homes and poorly constructed signs are destroyed. Low-lying escape routes are cut off by rising water 3-5 hours before arrival of the center of the hurricane. Flooding near the coast destroys smaller structures with larger structures damaged by battering from floating debris. Terrain continuously lower than 5 feet above mean sea level may be flooded inland 8 miles (13 km) or more. Evacuation of low-lying residences may be required.
4	131-155	Extreme damage — Storm surge generally 13-18 feet above normal. More extensive structural failures on small residences. Shrubs, trees, and all signs are blown down. Complete destruction of mobile homes. Extensive damage to doors and windows. Low-lying escape routes may be cut off by rising water 3-5 hours before arrival of the center of the hurricane. Major damage to lower floors of structures near the shoreline. Terrain lower than 10 feet above sea level may be flooded requiring massive evacuation of residential areas as far inland as 6 miles (10 km).
5	>155	Catastrophic damage — Storm surge generally greater than 18 feet above normal. Complete roof failure on many residences and industrial buildings. Some complete building failures with small utility buildings blown over or away. All shrubs, trees, and signs blown down. Complete destruction of mobile homes. Severe and extensive window and door damage. Low-lying escape routes are cut off by rising water 3-5 hours before arrival of the center of the hurricane. Major damage to lower floors of all structures located less than 15 feet above sea level and within 500 yards of the shoreline. Massive evacuation of residential areas on low ground within 5-10 miles of the shoreline may be required.

High winds are a primary cause of hurricane-inflicted loss of life and property damage. Another cause is the flooding resulting from the coastal storm surge of the ocean and the torrential rains, both of which accompany the storm. Hurricanes also create conditions for tornadoes, which can have wind speeds even higher than the gale forces produced directly from the hurricane. Tropical storms, in spite of being less powerful, can be just as deadly and costly as hurricanes, with just slightly lower wind speeds and sometimes more rain than hurricanes.

Thunderstorm Winds

Three criteria must be met to make a thunderstorm. First, there must be moisture in the lowest levels of the atmosphere; the water vapor acts as fuel. Second, the air above the lowest levels has to cool off rapidly with height, so that 2-3 miles above the ground, it is very cold. Finally, something has to push the moist air from near the ground up to where the air around it is cold. This "something" could be a cold front or the boundary between where the cold air from one thunderstorm meets the air outside of the storm. The result of the upward pushing is that the moist air cools off and some of the water vapor turns into liquid drops. That process warms up the rest of the air in the pocket so that it doesn't cool off as fast as it would if the air was dry. When that pocket of warm, moist air gets to the part of the atmosphere where it is very cold, it will be less dense than the air around it, and it will start to rise faster without being pushed. As it rises more water vapor turns into liquid, the air pocket warms up more and rises even faster, until all of the water vapor is gone and it reaches a part of the atmosphere where it isn't warmer than the environment (typically 5-10 miles).

The warm air that first begins to form liquid drops can be seen as cumulus clouds. As more moisture accumulates the clouds darken and are referred to as cumulus nimbus clouds, or simply as thunderstorm clouds. The flattened top or anvil shape often associated with thunderstorm clouds is a result of the warm air pocket rising to an elevation where it is no longer warmer than the environment.

There are four basic types of thunderstorms; single cell, multicell, and supercell are the major storm types, with multicell storms being further subdivided into multicell line storms and multicell cluster storms. One "cell" denotes one updraft/downdraft couplet. Thus, there are several updrafts and downdrafts in close proximity with a multicell storm. The definitions of the types of thunderstorms are as follows:

- **Single Cell Storms:** also known as pulse storms, they typically last 20-30 minutes and can produce severe weather elements such as downbursts, hail, some heavy rainfall, and occasionally weak tornadoes.
- **Multicell Cluster Storms:** a group of cells moving as a single unit, with each cell in a different stage of the thunderstorm life cycle, they can produce moderate size hail, flash floods, and weak tornadoes.
- **Multicell Line Storms:** also known as squall lines, these consist of a line of cells with a continuous, well developed gust front at the leading edge of the line; they can produce small to moderate size hail, occasional flash floods, and weak tornadoes.

- Supercells: a thunderstorm with a rotating updraft, these storms can produce strong downbursts, large hail, occasional flash floods, and weak to violent tornadoes.

Although useful, the above definitions are neither perfect nor a final solution to categorizing thunderstorms. Real thunderstorms do not always fit neatly into those categories, and a given storm may change its type one or more times during its existence.

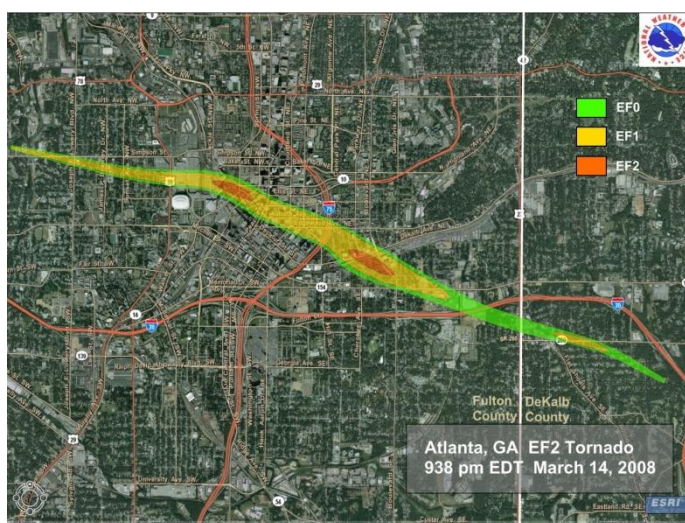
Many hazardous weather events are associated with thunderstorms. Lightning is responsible for many fires around the world each year, as well as causing deaths when people are struck. Rainfall from thunderstorms causes flooding. Hail up to the size of softballs damages property, and kills wildlife caught out in the open. Strong (up to more than 120 mph) straight-line winds associated with thunderstorms knock down trees and power lines. Tornadoes (with winds up to about 300 mph) can destroy all but the best-built man-made structures.

Tornado Disaster History

In an average year, about 1,000 tornadoes are reported across the United States, resulting in 80 deaths and over 1,500 injuries. Between 1950 and 2010, a total of 1,536 tornadoes hit Georgia. Of the 21 Presidential Disaster Declarations issued for Georgia since 1990, 13 have come in the wake of tornadoes. DeKalb County was included in the declared disaster areas as a result of tornadoes in June of 1994, in October of 1995 (tornadoes in this case spawned from hurricane Opal), in both March and April of 1998 and in March of 2008. Table 4.3-9 below includes a combination of recorded events from the NCDL and USC – SHELUDS databases. Property damage from the events may include damage outside of DeKalb County. The sources of the data used to populate the databases are unknown.

The severe storms of March 20, 1998 caused flooding and also spawned several tornadoes. The most severe tornado was recorded as an F3 and struck a mobile park community killing 12 people and injuring 80 others. The deadly tornado stayed to the northeast of DeKalb County.

In March of 2008, an F2 Tornado tracked through downtown Atlanta and continued approximately one mile into the western part of DeKalb County. The tornado caused extensive damage to areas within Atlanta, injuring dozens and causing millions of dollars worth of damage. The damage within DeKalb County was limited.



<http://www.srh.noaa.gov/images/ffc/ATLtor31408.jpg>

**Table 4.3-9
DeKalb County Tornado History**

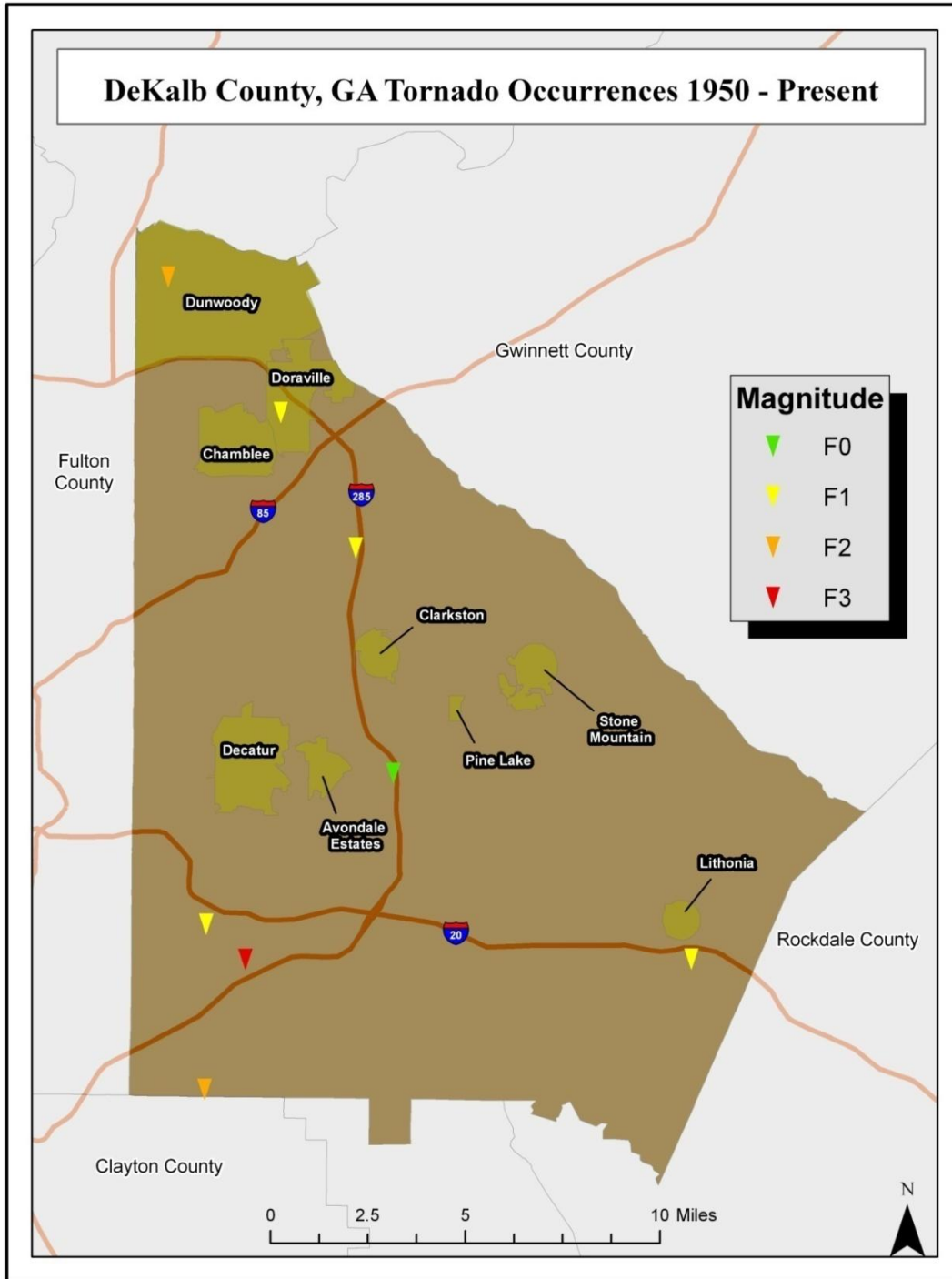
Date	Magnitude	Deaths	Injuries	Property Damage	Begin LAT	Begin LON	End LAT	End LON
6/4/1950	F1	0	1	\$25K	33°51'N	84°15'W	33°51'N	84°12'W
6/30/1966	F1	0	1	\$250K	33°34'N	84°21'W	Unknown	Unknown
8/12/1969	F1	0	0	\$250K	Unknown	Unknown	33°42'N	84°06'W
1/10/1972	F3	1	9	\$250K	33°41'N	84°21'W	33°42'N	84°18'W
5/14/1976	F1	0	0	\$25K	33°39'N	84°34'W	Unknown	Unknown
5/8/1978	F2	0	8	\$2.5M	33°39'N	84°19'W	33°41'N	84°18'W
7/23/1978	F1	0	0	\$250K	33°54'N	84°17'W	Unknown	Unknown
7/31/1984	F0	0	0	\$25K	33°46'N	84°14'W	Unknown	Unknown
4/8/1998	F2	1	0	\$25.0M	33°57'N	84°20'W	33°57'N	84°16'W
03/14/2008	F1	0	0	\$50K	33°44'N	84°21'W	33°43'N	84°19'W

Tornado Location and Extent/Probability of Occurrence and Magnitude

Some common myths about tornadoes are that they do not strike cities, and they cannot travel over water. Both of these statements are false. Tornadoes can and do travel over water, and although strikes on downtown areas are rare, that is a function of the small target that these areas represent, not of what the tornado is or is not capable of doing. Therefore, there is no particular part of a tornado-prone county like DeKalb that could be considered at less of a risk for damage due to tornadoes.

Recent history shows that tornadoes of F0 – F3 magnitude (as defined in Table 4.3-7) are most common. However tornadoes of higher magnitude can occur in DeKalb County. The very limited disaster history presented above indicates that between one and four damaging tornadoes (F0-F3 magnitude) can be expected in any given decade. Given that no portion of DeKalb County is more or less safe from tornadoes, the entire county should be considered equally “at risk”, as illustrated by Figure 4.3.2-A, which shows the locations of 7 of the 9 tornadoes noted above within DeKalb County. Locations of these touch downs were obtained from the NCEM database.

Figure 4.3.2-A
Tornado Occurrences in DeKalb County Since 1950



In a typical year DeKalb County will not experience a tornado of any degree. This is very fortunate as tornadoes are known to cause massive destruction even in areas that are relatively prepared for such forces of nature. In a catastrophic situation such as 1974 tornado outbreak that spawned approximately 150 tornadoes across 13 U.S. states, DeKalb County would experience utter devastation. Many homes within the county do not contain basements, which would be one of the only sources of safety for the unprepared population. Within DeKalb County several facilities including hospitals and office buildings are almost completely paneled in glass. To fully repair these buildings would take years, especially if the damage was widespread across the county. It can be expected that many people would be injured or killed and that property damages would vary between areas with some areas being 100% destroyed and others remaining untouched. Critical facilities would be expected to be operational very quickly as long as personal and equipment were unharmed and any debris interference on roadways was able to be quickly removed.

Hurricane Disaster History

Only three category-5 hurricane storms have hit the United States since record-keeping began—the 1935 Labor Day hurricane, which devastated the Florida Keys, killing 600; Hurricane Camille in 1969, which ravaged the Mississippi coast, killing 256; and Andrew in 1992, which leveled much of Homestead, Fla. Four category-5 hurricanes are recorded as occurring offshore. Most recently, Hurricane Katrina in 2005 was one of the most devastating hurricanes in the history of the United States. It is the deadliest and costliest U. S. hurricane on record, estimated at \$75 billion in the New Orleans area and along the Mississippi coast. It was followed by Hurricane Rita, a destructive and deadly hurricane that devastated portions of southeastern Texas and southwestern Louisiana and significantly impacted the Florida Keys. Other category 5 offshore storms include Hurricane Mitch (1998) and Hurricane Gilbert (1988). In the United States, Hurricanes Ike (2008), Dennis and Wilma (2005), Florida’s four 2004 storms, and the infamous Opal (1995) and Hugo (1989) have caused billions of dollars worth of damage. Hurricanes can cause major flooding and damage, even when downgraded to a tropical storm, as did Hurricane Agnes (1972).

According to a variety of historical records compiled by NOAA and posted on their website, (<http://www.aoml.noaa.gov/hrd/Landsea/history/index.html>), the state of Georgia was hit by 18 hurricanes and 29 tropical storms between 1750 and 1900. Six of those storms were major hurricanes (Category 3 or greater): 1898, 1893, 1854, 1824, 1813, and 1804. These infamous hurricanes ravaged the coast causing widespread damages and thousands of fatalities.

The most recent threat to the Georgia Coast was Hurricane Floyd (1999). In September 1999, Georgia, Florida, and South Carolina experienced the largest evacuation effort in American history in the face of Hurricane Floyd. An estimated 3 million people took to the highways to flee Floyd’s wrath, jamming interstates in search of safety and shelter. The last hurricane to make landfall on the Georgia Coast was Hurricane David (1979). Hurricane David made landfall on the Georgia Coast south of Savannah as a Category 1 hurricane. In the U.S., Hurricane David caused \$320 million in damages and 15 fatalities. In

total, four hurricanes made landfall on the Georgia Coast during the 20th Century: 1911, 1940, 1947, and 1979.

Other notable tropical cyclones have impacted Georgia from the Gulf Coast. The SHELDUS database indicates that Hurricane Agnes, in June of 1972 impacted DeKalb County. Some recent tropical storms and hurricanes that created a “State of Emergency” in the County include Hurricane Opal (October 1995), tropical storms in September and July of 2002 and 2003, respectively, the dual impact from Tropical Storm Bonnie and Hurricane Charley (August 2004), Hurricane Frances (September 2004), Hurricane Ivan (September 2004), and Hurricane Jeanne (September 2004). Hurricanes Opal and Ivan warranted a presidential disaster declaration for the County. Tropical Storm Alberto was the most costly natural disaster to affect Georgia, with 40,000 people evacuated, 34 dead, \$1 billion in damages, and 55 counties (not including DeKalb County) declared disaster areas. Both the NCDRC and SHELDUS databases, as well as other sources of historical disaster data generally break down natural hazard events by damage type (e.g. wind, flooding, etc.). For that reason, there were a limited number of disasters categorized as “hurricane” in the databases.

The most recent storms affecting DeKalb County according the NCDRC database include Tropical Storm Cindy (2005), Hurricane Katrina (2005) and Tropical Storm Fay (2008). The thunderstorms associated with the spiral bands of Cindy produced tornadoes, damaging winds, flash flooding, and hail. Torrential rainfall in excess of five inches fell across portions DeKalb County. Estimated damages to North and Central Georgia in association with Tropical Storm Cindy were approximately 76 million.

Although Hurricane Katrina (2005) will be most remembered for the extensive devastation in New Orleans, and eastward along the Mississippi Gulf Coast, the horrific category 4 hurricane was a very large and powerful storm with far reaching effects to the east. In Georgia, strong spiral bands of showers and thunderstorms spurred a total of 16 confirmed tornadoes in north and central portions of the State, resulting in one fatality and six injuries. Overall damage associated with Katrina in Georgia was approximately 14 million. One of the longer lived tropical systems to affect the U.S., Tropical Storm Fay (2008) brought strong wind, thunderstorm wind, hail, tornados, and flash flood events to Georgia. Six confirmed tornado touchdowns were observed in north central and northeast Georgia as a result of Fay.

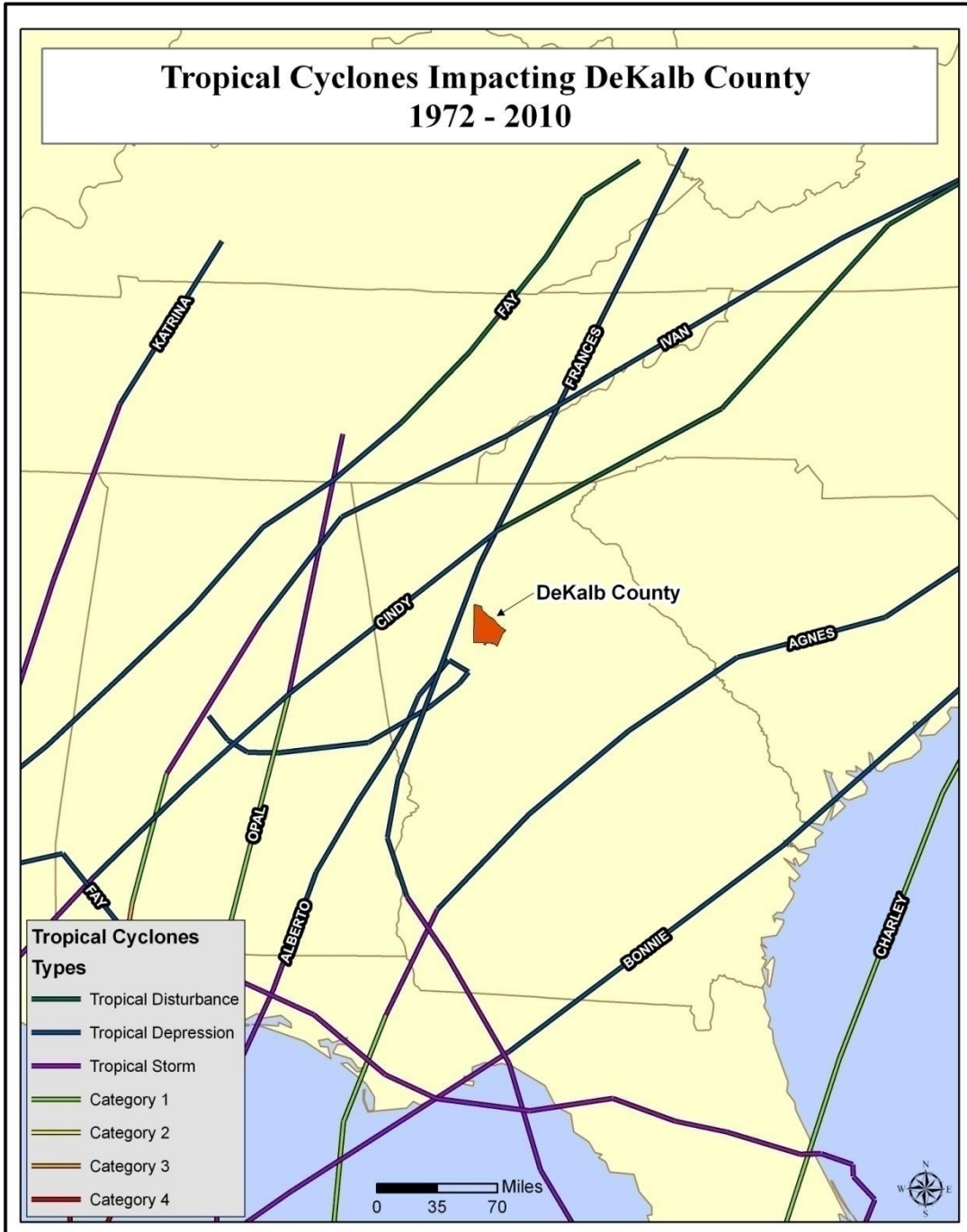
Hurricane Location and Extent/Probability of Occurrence and Magnitude

The large geographical extent of hurricanes makes distinguishing sub-areas within a planning area the size of DeKalb County irrelevant. If a portion of DeKalb County is experiencing a hurricane, it is likely that the entire county will experience the hurricane. However, not all areas of the county will be equally impacted. The gale-force winds associated with hurricanes may be equally strong across the county, depending on the movement of the hurricane. However, flooding from a hurricane is more likely to occur near streams and in areas of limited capacity drainage systems. Another by-product of hurricanes is tornadoes, the paths of which are impossible to predict. It is primarily the winds from a hurricane that are being analyzed in this section. Due to the large scale of hurricanes the location and extent were not mapped for this profile. As noted by the history provided above, anywhere from one to four tropical

storms or hurricanes can be expected to impact DeKalb in any given decade with forces generally ranging from tropical storm to category-3.

Several different sources were investigated in order to isolate events which had significant impacts on DeKalb County. In many incidents the tropical cyclones spawned tornadoes and caused flooding. Figure 4.3.2-B below displays the paths of these events as documents by the National Hurricane Center.

Figure 4.3.2-B
Tropical Cyclones Impacting DeKalb County Since 1972



**Table 4.3-10
Tropical Cyclones Impacting DeKalb County Since 1972**

Month	Year	Name	Wind Speeds (In the vicinity of DeKalb County)	Category (In the vicinity of DeKalb County)
June	1972	Agnes	30	Tropical Depression
July	1994	Alberto	15	Tropical Depression
October	1995	Opal	80	Hurricane Category 1
August	2004	Bonnie	30	Tropical Depression
August	2004	Charley	75	Hurricane Category 1
September	2004	Frances	25	Tropical Depression
September	2004	Ivan	30	Tropical Depression
July	2005	Cindy	20	Tropical Depression
August	2005	Katrina	40	Tropical Storm
August	2008	Fay	20	Tropical Depression

In a typical year DeKalb County will not experience a hurricane of any degree. This is due to the location of DeKalb County in relationship to the coast. Although the strong winds of a hurricane do not cause significant damage within the county in a typical year, the side effects can cause cascading devastation, including massive floods and strong tornadoes. A worst case scenario of a hurricane impacting DeKalb County would be if the winds from the hurricane remained strong many buildings within the county would not be able to withstand the continuous force from the winds on the structure. The strong wind event coupled with massive floods and tornadoes would disable emergency personnel and isolate residents. Even though the winds would remain strong it is almost impossible to forecast an event stronger than a category 2 hurricane. With this in mind the flooding and tornado hazards are of more concern. Anticipating that the maximum hurricane event that could reach DeKalb County as being a category 2 hurricane it can be assumed that the damage and injuries from the wind portion of the hurricane event would be limited. Some injuries would occur, critical facilities would be shut down for about a week or so, and about 10 percent of the property in the county would be damaged.

Thunderstorm Wind Disaster History

Between May 1963 and February 2010 there are 129 thunderstorm related wind events listed in the NCDC database for DeKalb County. The database indicates that those events caused approximately \$76 million in property damages and resulted in eight fatalities and nine reported injuries. It should be noted that in addition to downed trees and power lines, a significant portion of property damage, injuries and deaths attributed thunderstorm winds may have been caused by lightning strikes and their associated fires and/or hail.

According to the NCDC database, 60% of thunderstorm wind events in DeKalb county since 2005 have reached 50 knots or greater. Typical property damage associated with thunderstorm winds ranges from two to ten thousand dollars. However, a particularly strong thunderstorm downburst in Stone Mountain (2006) caused extensive damage to trees, campers, and vehicles in Stone Mountain Park resulting in over 225 thousand dollars in damage. An overview of the latest thunderstorm wind events is located in Table 4.3-11.

**Table 4.3-11
Overview of Recent Thunderstorm Events in DeKalb County**

Date	Location	Magnitude (kts)	Property Damage
05/20/2005	Decatur	50	2K
06/05/2005	Lithonia	30	25K
07/01/2005	Druid Hills	35	1K
08/04/2005	Clarkston	52	10K
01/02/2006	Chamblee	50	5K
05/26/2006	Lithonia	39	5K
08/04/2006	Stone Mountain	52	225K
05/12/2007	Lithonia	39	1K
05/12/2007	Panthersville	50	5K
06/05/2007	Stone Mountain	50	1K
06/11/2007	Constitution	36	10K
06/19/2007	Constitution	36	1K
08/17/2007	Lithonia	50	3K
08/23/2007	Tucker	39	1K
02/26/2008	Druid Hills	50	7K
08/02/2008	Decatur	56	10K
05/03/2009	Druid Hills	50	50K
07/12/2009	Emory University	35	25K

Thunderstorm Wind Location and Extent/Probability of Occurrence and Magnitude

Thunderstorm related wind damage is common in all areas of DeKalb County. As indicated in the history, several damaging thunderstorm events can happen in any given year with dramatically varying degrees of damage, losses of life, and injuries.

4.3.2.2 Wind Vulnerability Assessment

As noted in previous sections, vulnerability describes how exposed or susceptible to damage an asset is. Vulnerability depends on an asset’s construction, contents, and economic value of its functions. Indirect damages, associated with wind can sometimes outweigh direct damages in terms of impact on the community. Power outages for example can have significant impacts on commerce, with lost revenue very often outweighing actual damage to power lines or buildings. This and similar economic factors are difficult to quantify in terms of dollar losses, but are a very real part of wind hazard vulnerability. Depending on the type of wind event, the damage sustained can range from extremely localized to wide spread, and from moderate to devastating. The potential impacts of a severe wind event to the study

area depend on the specific characteristics of the event but can include broken tree branches and uprooted trees; snapped power, cable, and telephone lines; damaged radio, television, and communication towers; damaged and torn off roofs; blown out walls and garage doors; overturned vehicles; totally destroyed homes and businesses; and serious injury and loss of life. Downed trees and power lines can fall across roadways and block key access routes, as well as cause extended power outages to portions of the study area.

The extent and degree of damages from a high wind event are primarily related to the intensity of the event, measured in terms of wind speed. Sustained high winds can be the most damaging, although a concentrated gust can also cause significant damage. As wind speeds increase, the extent of damage varies depending on a number of site-specific characteristics that will be discussed later in this section. Although no specific areas of the study area can be designated as having a higher risk of being affected by a severe wind event, there are a number of factors that contribute to a particular area's vulnerability to damages if a high wind event should occur. Certain characteristics of an area or of a structure may increase its resistance to damages than others. Many of these factors are extremely specific to the particular location, or the particular structure in question. However, each factor's effects on vulnerability can be discussed in general. The following is a list of these factors and a description of how they relate to vulnerability, particularly in the study area.

Design Wind Pressures

Buildings must be designed to withstand both external and internal wind pressures on the structural framing and exterior elements. The level to which these structures are designed, as expected, directly correlates with their ability to resist damages due to high winds.

The State's building code dictates to what design wind speed a structure must be designed to. For some building types, structures constructed subsequent to the adoption of the building code are most likely to be the most resistant to damages from wind. However, the resistance to wind damage based on these code requirements is only effective to the level the requirements are enforced. No comprehensive data on the date built for structures within the planning area exists.

Building Types

The type of building construction has a significant impact on potential damages from high wind events. A summary of basic building types – listed in order of decreasing vulnerability (from most to least vulnerable) – is provided below.

- **Manufactured:** This building type includes manufactured buildings that are produced in large numbers of identical or smaller units. These structures typically include light metal structures or mobile homes.
- **Non-Engineered Wood:** Wood buildings that have not been specifically engineered during design. These structures may include single and multi-family residences, some one or two story apartment units, and small commercial buildings.
- **Non-Engineered Masonry:** Masonry buildings that have not been specifically engineered during design. These structures may include single and multi-family residences, some one or two story apartment units, and some small commercial buildings.

- **Lightly Engineered:** Structures of this type may combine masonry, light steel framing, open-web steel joists, wood framing, and wood rafters. Some portions of these buildings have been engineered while others have not. Examples of these structures include motels, commercial, and light industrial buildings.
- **Fully Engineered:** These buildings typically have been designed for a specific location, and have been fully engineered during design. Examples include high-rise office buildings, hotels, hospitals, and most public buildings.

The DeKalb County area includes a variety of building types. The primary construction type is wood framed residential. As mentioned in the list above, non-engineered wood framed structures are among the most susceptible to potential damage. With this type of construction being the most prevalent for properties in the DeKalb County, a majority of structures in the area could be classified to have a high level of vulnerability to damages should a high wind event occur.

Other building related factors that impact the potential for damage include height, shape, and the integrity of the building envelope. Taller buildings and those with complex shapes and complicated roofs are subject to higher wind pressures than those with simple configurations. The building envelope is composed of exterior building components and cladding elements including doors and windows, exterior siding, roof coverings, and roof sheathing. Any failure or breach of the building envelope can lead to increased pressures on the interior of the structure, further damage to contents and framing, and possible collapse.

Potential Impacts

In the DeKalb County area, wind events typically cause damage to trees, which then cause damage to power lines causing outages. The debris created by the trees also blocks roads. Clean-up of the debris is often complicated because the responsibility is shared between the State, County, the nine city jurisdictions, and the private utility companies. The vulnerability of power infrastructure is generally consistent from jurisdiction to jurisdiction.

HAZUS-MH was used to develop wind speeds for a probabilistic hazard scenario. The average wind speeds for the 50 year event (65 MPH wind speeds) were selected as the probabilistic scenario to use for the analysis.

4.3.2.2.1 Estimating Potential Exposure and Losses

HAZUS-MH was used to develop a loss estimate for the DeKalb County area. The model primarily addresses wind events from the perspective of hurricanes. Therefore, the results should be interpreted accordingly.

Uncertainties are inherent in any loss estimation methodology. They arise in part from incomplete scientific knowledge concerning hurricanes and their effects upon buildings and facilities. They also result from the approximations and simplifications that are necessary for comprehensive analyses. Incomplete or inaccurate inventories of the built environment, demographics and economic parameters add to the uncertainty. The data used in the DeKalb County analysis are based on the nationwide

database provided by HAZUS-MH. The loss estimate provided should be viewed as a broad approximation of the actual losses.

Total exposure to buildings was derived by HAZUS and is presented in Table 4.3-12. On a CENSUS tract-by-CENSUS tract basis, the losses are fairly consistent throughout the study area.

Table 4.3-12
Exposed Countywide Losses from Wind

Property Damage (Capital Stocks) Loss			Business Interruption (Income) Loss				Total (\$)
Building (\$)	Content (\$)	Inventory (\$)	Relocation Cost (\$)	Income (\$)	Rental (\$)	Wage (\$)	
<i>DeKalb County</i>							
\$52B	N/A	N/A	N/A	N/A	N/A	N/A	\$52B

The loss estimate provided by HAZUS was broken down by building type and occupancy, in aggregate for the County in Tables 4.3-13 and 4.3-14 on the following page. Not surprisingly, the majority of losses come from wood structures with residential properties expected to receive 80% of the overall damage.

Table 4.3-13
Countywide Total Buildings Damaged Type

Jurisdiction	Wood	% of total	Masonry	% of total	Concrete	% of total	Steel	% of total	Manufactured Homes	% of total
<i>DeKalb County</i>	181	44%	160	39%	17	4%	51	13%	0	0%

**Table 4.3-14
Countywide Total Buildings Damaged by Occupancy**

Jurisdiction	Residential	% of total	Commercial	% of total	Industrial	% of total	Agriculture	% of total	Religion/ Non-Profit	% of total	Government	% of total	Education	% of total
<i>DeKalb County</i>	377	80.6	63	13.5	15	3.2	3	0.6	5	1.1	2	0.4	3	0.6

In a typical year DeKalb County will experience several thunderstorm events of various degrees. This is due to the atmospheric instabilities during the summer time within the region. Typical events include very negligible damages such as down tress, loss of power, and isolated vehicle crashes due to hydroplaning or poor visibility. Nor more than 10% of the property in DeKalb County should be expected to be damaged from a typical thunderstorm event.

In a worst case scenario a thunderstorm event would cause devastating straight-line winds or even a microburst causing many issues for those not only on the ground but also those in the air. In this event trees will scatter the roadways and impact structures, airplanes trying to land at the county airport will have to be diverted, and emergency personnel will have difficulty responding due to roadway congestion. It can be expected that the overall impact will be limited, although there will be some injuries and possibility of over 10 percent of property and assets within the county being damaged.

4.3.3 Winter Storms

4.3.3.1 Hazard Profile

Nature of Hazard

Severe winter storms and blizzards are extra-tropical cyclones that originate as mid-latitude depressions. Snowstorms, blizzards, and ice storms are the most common examples. These storms can bring heavy snowfall, high winds, ice, and extreme cold with them. Although infrequent, historically, winter storms in Georgia have produced significant snowfall, sleet, and freezing rain. Ice storms are the most common winter storm disaster in DeKalb County.

During the winter, cold arctic and polar air masses intrude farther and farther south into the United States. An air mass is a large (1,000-5,000 km in diameter) region above the Earth that has a fairly uniform temperature and moisture level. Given just the right dynamics, disturbances forming along the boundary between the cold polar air and the relatively warm, tropical air sometimes turn into winter storms. There are several requirements for a winter storm to occur. First, the jet stream must be positioned properly. This should cause a sufficient amount of cold polar air to flow down from the north. The air must be cold enough in the clouds and near the ground to drop temperatures so that frozen or freezing precipitation will fall. Also, the proximity of a relatively warm air mass accompanied by plenty of moisture flowing up from the south is important. The moisture is needed to form clouds and precipitation. Air blowing across a body of water, such as a large lake or the ocean, is an excellent source of moisture. The last requirement is lift: something to raise the moist air to form the clouds and cause precipitation. Lift occurs when warm air collides with cold air and is forced to rise over the cold dome, or when air flows up the side of a mountain.

The boundary between the warm and cold air masses is called a front. If cold air is advancing and pushing away the warm air, the front is called a cold front. If the warm air is advancing, it rides up over the cold air mass (since warm air is less dense than cold air), and the front is called a warm front. If neither air mass is advancing, the front is called a stationary front. It is along a stationary front that a winter storm will typically begin. An area of lower pressure will develop along the front as the atmosphere tries to even out the pressure difference. This creates wind, which always blows from high pressure towards low pressure, in an attempt to move enough air to even out the pressure difference. As the air moves toward the center of the low-pressure area, it has nowhere to go but up into the colder regions of the upper atmosphere. This causes the water vapor in the air to condense. To the north of the storm, where the temperatures are colder, this condensed water falls as snow. To the south, if the temperatures are warm enough, it can fall as heavy rain in thunderstorms.

Over North America, strong winds blowing from west to east usually move a winter storm quickly across the continent. That's why a winter storm rarely lasts more than a day in one area. In Georgia, winter storms can range from moderate snow over a few hours to dangerously low temperatures, strong winds, freezing rain and sleet that can impact an area for several days.

Heavy snow can immobilize a region, stranding commuters, stopping the flow of supplies, and disrupting emergency and medical services. Accumulations of snow or ice can collapse buildings and knock down trees and power lines.

Extreme cold from a winter storm is most harmful to infants and elderly people. Prolonged exposure to the cold can cause frostbite or hypothermia and become life-threatening. Freezing temperatures can cause severe damage to citrus fruit crops and other vegetation. Pipes may freeze and burst in homes that are poorly insulated or without heat.

Heavy accumulations of ice can bring down trees, electrical wires, telephone poles and lines, and communication towers. Communications and power can be disrupted for days while utility companies work to repair the extensive damage. Even small accumulations of ice may cause extreme hazards to motorists and pedestrians.

There are also indirect hazards associated with winter storms. In fact, winter storms can be deceptive in their seriousness, as most deaths that they cause are only indirectly related to the storm. The leading cause of death during winter storms is from automobile and other transportation accidents. Exhaustion and heart attacks, especially among the elderly, are common during winter storms, and the elderly are also the most likely to be victims of hypothermia. House fires occur more frequently during winter storms due to lack of property safety precautions while using alternate heating sources (such as wood fires or space heaters). Improper use of some alternate heating sources can and has caused asphyxiation, such as using charcoal briquettes indoors, which produces carbon monoxide.

Disaster History

Only twice since 1990 has Georgia received Presidential Disaster Declarations for extreme winter storms. In March of 1993, 93 Georgia counties including DeKalb County were declared disaster areas by the President due to the severe snowfall that occurred in the area. Again in January of 2000, the President declared disaster areas in 48 counties including DeKalb County, this time due to severe ice storms, freezing rain, damaging wind, and severely cold temperatures. In addition, a state of emergency was declared in the state for winter storms in January of 1996, in February of 1996, and in February of 2000. None of those declarations included DeKalb County. There are other documented winter storms in the area that go back as far as the 1800's, such as the severe winter storm in 1888 that resulted in the formation of The Home for the Friendless, intended to address the tragic situation of homeless women and needy children.

Although winter storms in Georgia can wreak havoc on people and the economy, they are not especially common occurrences. The area may go several years without experiencing a single winter storm. However, that infrequency could help exacerbate the hazard, as motorists caught in winter storms are unaccustomed to handling their vehicles in slippery conditions or in lowered visibility. Homes and other structures are not necessarily equipped to deal with extreme cold, and may be un-insulated or without heat. Municipalities that rarely receive snow and ice may not have budgeted for clean-up efforts required during and after a major winter storm, as they happen too infrequently for this kind of budget to be economically justifiable.

Between the years of 1965 and 2010 the SHELDUS database reported 25 winter storm events resulting in approximately \$3 million dollars in damages. Table 4.3–15 includes historical winter weather events that have affected DeKalb County.

**Table 4.3-15
Winter Weather Events in DeKalb County from SHELDUS Database**

Start Date	End Date	Remarks	Property Damage* (Adjusted for Inflation)
3/1/1960	3/2/1960	Glaze, Sleet and Snow	\$515,855
3/9/1960	3/9/1960	Snow	\$88,432
3/11/1960	3/11/1960	Snow	\$8,843
1/25/1961	1/26/1961	Glaze and Sleet	\$2,336
12/31/1963	12/31/1963	Snow and Storm	\$218,031
1/13/1964	1/13/1964	Snow and sleet	\$22
1/15/1965	1/16/1965	Snow	\$608
1/25/1966	1/25/1966	Snow and Ice	\$570
1/29/1966	1/31/1966	Snow	\$2,044
1/8/1968	1/9/1968	Glaze and sleet	\$827
1/12/1968	1/13/1968	Snow, sleet and glaze	\$1,020
2/9/1968	2/9/1968	Snow	\$537
2/9/1973	2/10/1973	Snowstorm	\$198,098
2/6/1979	2/7/1979	Ice storm	\$550,262
2/17/1979	2/18/1979	Snow and Sleet	\$15,476
2/5/1980	2/6/1980	Snow	\$1,429
1/20/1983	1/20/1983	Winter Storm	\$11,285
1/15/1994	1/15/1994	Freeze	\$745
1/16/1994	1/17/1994	Freeze	\$1,444
1/22/2000	1/23/2000	Ice Storm	\$1,253,007
1/28/2000	1/30/2000	Ice Storm	\$41,767
12/4/2002	12/5/2002	Ice Storm	\$3,321
1/25/2004	1/27/2004	Ice Storm	\$32,035
1/28/2005	1/30/2005	Winter Storm	\$108,333
12/15/2005	12/15/2005	Ice Storm	\$52,691
		Total	\$3,109,018

Source: USC/SHELDUS Database. *Property damages are total damages for the event divided by the number of affected counties and may not reflect actual damages in DeKalb County.

There are 19 winter storm events listed for DeKalb County in the NCDC database between the years of 1996 and 2010, many of which overlap with those in the SHELDUS database. Limited detail is available on damages from the winter storm events. Summaries of several NCDC events for which data were available are listed below.

January 2002 - A strong upper-level system rotated through the southeastern United States to bring a burst of heavy snow to north and central Georgia. Snowfall amounts of three to five inches occurred in a period of approximately six to eight hours. Total snowfall amounts for the two-day storm ranged from four to six inches. Automobile and airplane travel was severely disrupted during the event. At least two fatalities were reported in the Atlanta area because of traffic accidents on ice covered roadways.

March 2009 - A rare late season heavy snow storm occurred in parts of north and central Georgia. The water content of the snow was high, which resulted in extensive downed trees, power lines, and telephone cables. Widespread power outages to thousands of people were observed in areas of northeast Georgia. Many residents were left without power for two to three days. Accumulation of 1.5 - 2.5 inches were reported in DeKalb County.

February 2010 – In mid-February, very cold air aloft and cold Arctic surface air mass combined with the overrunning Gulf moisture and upper dynamics to produce the most widespread snow observed across north and central Georgia in several years. All 96 counties within the NWS Peachtree City forecast area observed measurable snow. Average snowfall for DeKalb County was four inches.

Location and Extent/Probability of Occurrence and Magnitude

All of DeKalb County is vulnerable to winter storms. During the period of historical record obtained from SHELDUS and the NCDC; there were 28 events in a 50 year period, indicating a 56% probability of an occurrence in any given year. Magnitude varies significantly by event.

4.3.3.2 Winter Storm Vulnerability Assessment

It is very difficult to quantify the vulnerability of any given area to winter weather events, or to asset inventories of at risk property to estimate exposure or losses. With the data available for construction type at the county level, and limited detail on historic damage amounts, estimates would be unreliable and potentially misleading. For that reason, the remainder of this section examines predictability, as well as primary and secondary potential impacts generally.

4.3.3.2.1 Predictability

The National Weather Service tracks winter storms by radar. Based on this radar information as well as models, the National Weather Service provides up-to-date weather information and issues winter storm watches to indicate when conditions are favorable for a winter storm, and winter storm warnings if a storm is actually occurring or detected by radar. On average, the Atlanta region may experience one severe winter storm in any given two year period. Snowfall amounts for these storms are generally a

few inches but can be much more in rare events. Icing and sleet is more common. Generally warning time is sufficient to minimize safety risks should people choose to follow warnings.

4.3.3.2.2 Primary Impacts

Winter storms can disrupt lives for periods of a few hours or up to several days, depending upon the severity of the storm. Transportation systems are usually among the first and hardest hit sectors of a community. Snow and ice can block primary and secondary roads, and treacherous conditions make driving difficult; some motorists may be stranded during a storm, and emergency vehicles may not be able to access all areas. Many of the roads in the planning area are maintained by the State of Georgia, which is responsible for snow and debris removal.

Utility infrastructure also can be adversely affected by winter storms. Heavy snow and ice can cause power lines to snap, leaving citizens without power and, in some cases, heat for hours or even days. Likewise, telephone lines also can snap, disabling communication within portions of a community. Frozen water pipes can rupture in people's homes, and water and sewer mains can freeze and leak or rupture if not properly maintained. These ruptures can lead to flooding and property damage.

People's health can be adversely affected by severe winter weather. People who lose heat in their homes and do not seek alternate shelter, people who get stuck in snow while driving, or people working and playing outdoors can suffer from hypothermia and frostbite. Since winter weather hazards generally affect the entire study area and vary in intensity and form, it is not possible to quantify primary effects or specific damages.

In DeKalb County, winter storms typically cause damage to trees, which then cause damage to power lines causing outages. The debris created by the trees also blocks roads. Clean-up of the debris is often complicated because the responsibility is shared by the Georgia Department of Transportation, DeKalb County, the city jurisdictions, and private utility companies. The impact on power lines was described previously in the Wind section.

4.3.3.2.3 Secondary Effects

Secondary effects of winter storms are broad. Treacherous driving conditions can result in automobile accidents in which passengers may be injured and property damages may occur. Deliveries of heating fuel can be delayed by impassible roads. Impassible roads also can result in schools being closed because buses are not able to access their routes and bring children to school. The costs of salting and sanding roads as well as snow removal can be staggering to communities both large and small. The costs to repair roads after spring thaws may also be significant.

The local economy may suffer if businesses close due to inclement winter weather. This impact could be significant in a large event. In addition, disabled transportation systems may mean that shipments of goods and services are delayed, which may result in decreased inventory for retailers and increased inventory for industrial and commercial suppliers.

Children and the elderly are particularly susceptible to both the primary impacts and secondary effects of winter weather. Temperature extremes can be harmful to the elderly as can snow and ice removal. Health consequences ranging from slips and falls to heart attacks may result from extreme winter

weather. Schools may be forced to close resulting in daycare issues for children. Children playing in extremely cold temperatures can be subject to frostbite and other harmful effects.

Figures 4.3.3-A, 4.3.3-B, and 4.3.3-C on the following pages show the population concentration of elderly, children, and low income populations respectively.

Figure 4.3.3-A
At Risk Population Over Age 65

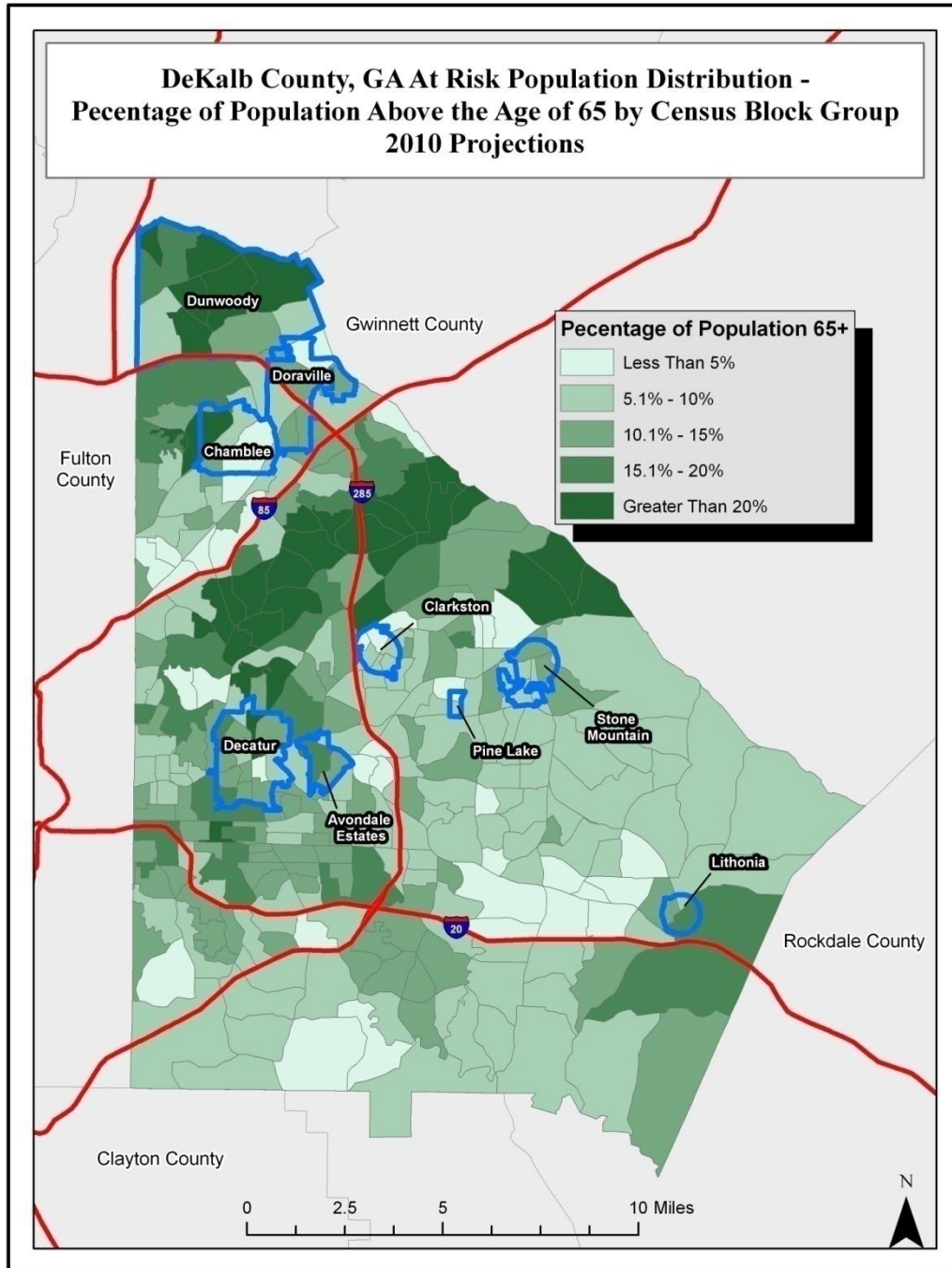


Figure 4.3.3-B
At Risk Population Under Age 5

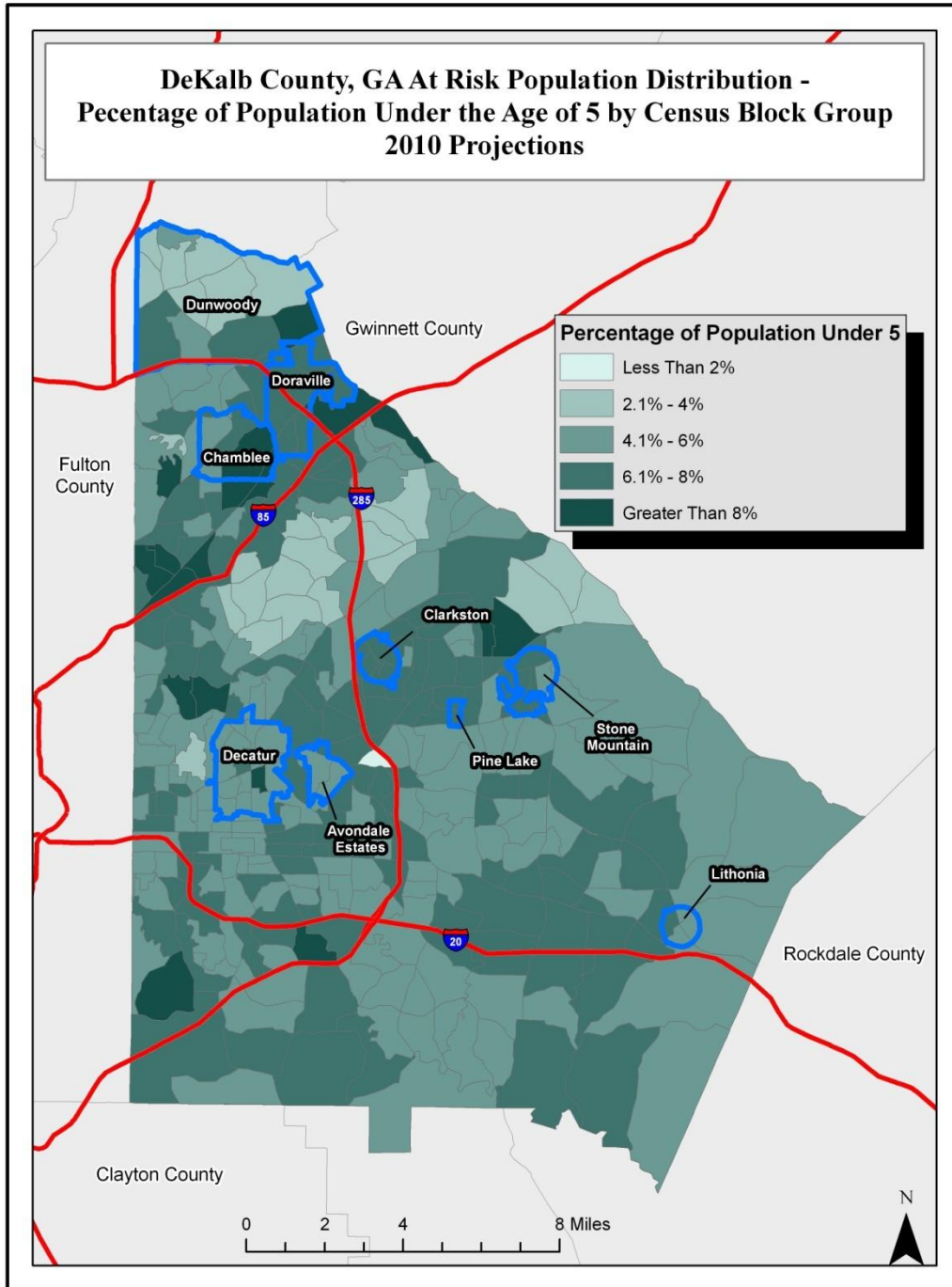
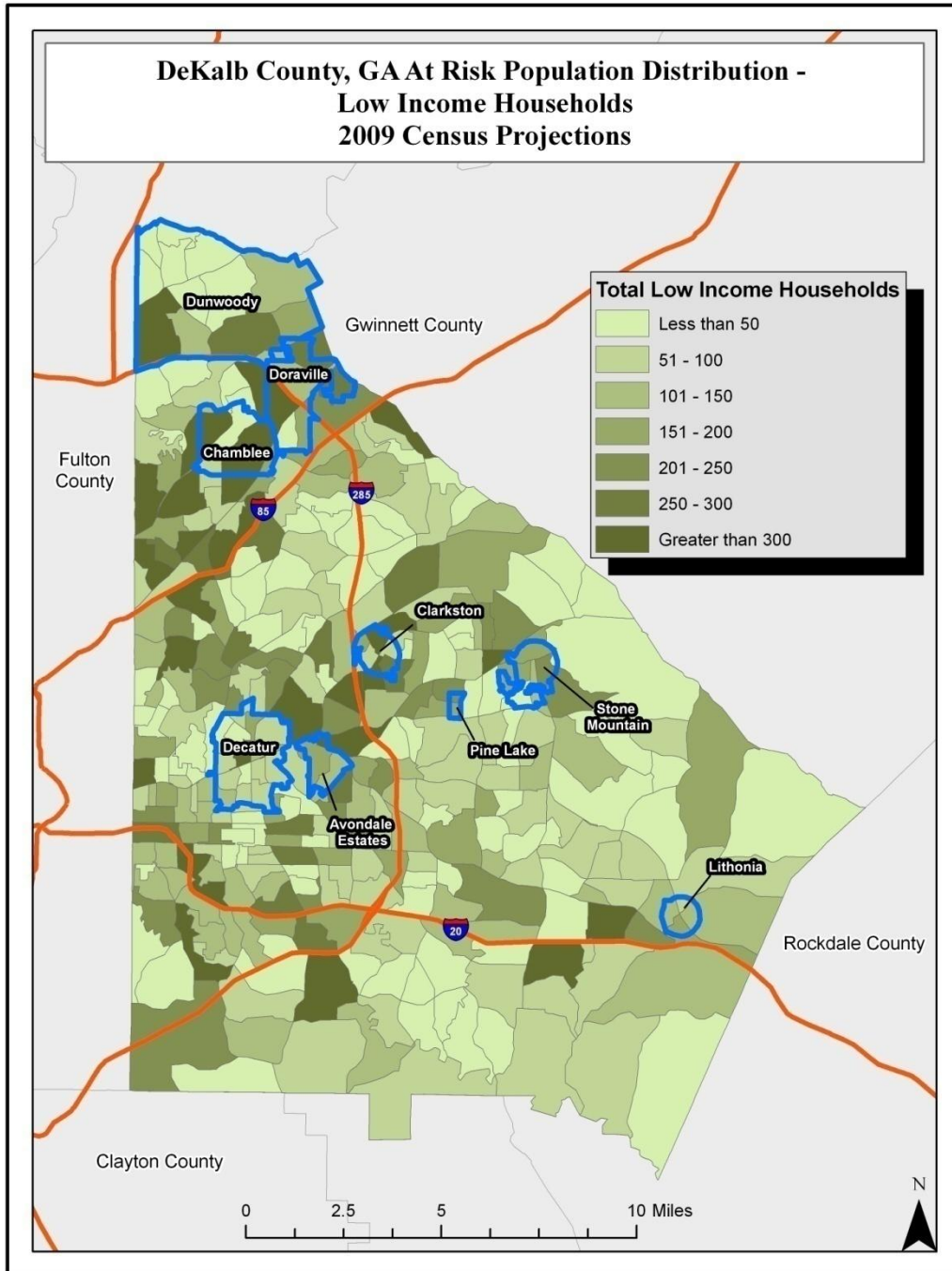


Figure 4.3.3-C
At Risk Population Low Income



In a typical year DeKalb County will experience at least one winter storm event. The event typically will produce approximately 1 – 3 inches of snow. This accumulation will generally stay on the ground as ice or snow for approximately 1 – 3 days. During this typical event the effects will be negligible with most of the residents staying at home if roadway conditions are impassible.

In a worst case scenario, the effects can escalate to critical levels. If supplies are insufficient to treat the roads, snow and ice can cover the roadways for days if not several weeks as ice thaws and refreezes on a daily basis. Highways and local roads alike are susceptible to this hazard which can paralyze the transportation system. On top of roadways being impassible, the population could experience widespread power outages. In the scenario of widespread power outages, and residents isolated in their homes, tragedies could occur in which vulnerable populations such the elderly and young are exposed to extremely cold temperatures at night. This could cause severe injuries including death if such exposure goes untreated. Also, with limited transportation, grocery stores and gas stations would quickly run out of supplies causing shortages and adding to the anxiety of the population. It is possible that it would take over two weeks for all critical facilities to be fully operational and possibly over 25% of the assets within the county could be damaged.

4.3.4 Drought

4.3.4.1 Hazard Profile

Nature of Hazard

“Drought is a condition of moisture deficit sufficient to have an adverse effect on vegetation, animals, and man over a sizeable area” (USGS, 2000). Three significant types of drought can affect DeKalb County, which are meteorological, agricultural, or hydrologic drought. Meteorological drought is simply a departure from a normal precipitation amount, and is reliant on no other factors. Agricultural drought describes a soil moisture deficiency to the extent it effects the needs of plant life, primarily crops. Hydrologic drought is defined in terms of shortfall of water levels of lakes and reservoirs, and stream flow in rivers, streams, and soils. Drought is a natural part of most climatic areas, but the severity of droughts differs based on duration, geographic extent, and intensity. In Georgia, droughts affect municipal and industrial water supply, surface water quality, recreation, power generation, agriculture, and forest resources.

A number of different indices have been developed to quantify drought. Two of the most commonly used are the Palmer Drought Severity Index (PDSI) and the Standard Precipitation Index (SPI). The PDSI has been the most commonly used drought index in the United States and was developed to measure the intensity, duration, and spatial extent of a drought. It treats all precipitation as rain, so the index does not perform as well at higher elevations in the western U.S. during winter, where much of the precipitation falls as snow. PDSI values are derived from measurements of precipitation, air temperature, and local soil moisture, along with prior values of these measures. Values range from -6.0 (extreme drought) to +6.0 (extreme wet conditions), and have been standardized to facilitate comparisons from region to region. This index has been used to evaluate drought impact on agriculture. Because of the time scale built into this index, it is not suitable for the determination of longer-term hydrologic drought such as those that impact stream flow, reservoirs, and aquifers.

The SPI is a simpler measure of drought than the PDSI and is based solely on the probability of precipitation for a given time period. The SPI was designed to enhance the detection and monitoring of drought. A key feature of the SPI is the flexibility to measure drought at different time scales. Short-term droughts are measured by meteorological instruments and are defined according to specific regional climatology. Values of SPI are derived by comparing the total cumulative precipitation for a particular station or region over a specific time interval with the average cumulative precipitation for that same time interval over the entire length of the record. For example, total precipitation in May of any given year for the north Georgia climate region would be compared to average total precipitation for that region for all Mays in the record. The severity of a drought can be compared to the average condition for a particular station or region. A drought event is defined when the SPI is continuously negative and reaches a value of -1.0 or less, and continues until the SPI becomes positive. Drought duration is defined by the interval between the beginning and end of that period and the magnitude of the drought event is measured by the sum of the SPI values for the months of the drought. The classification values for SPI values are:

- 2.00 and up: extremely wet
- 1.50 to 1.99: very wet
- 1.00 to 1.49: moderately wet
- -0.99 to 0.99: near normal
- -1.00 to -1.49: moderately dry
- -1.50 to -1.99: severely dry
- -2.00 and less: extremely dry

Droughts can increase the threat or likelihood of other disasters. Droughts can be accompanied by unusually hot weather, leading to heat-related illnesses and other hazards associated with extreme heat. Also droughts can make the risk of wildfire greater, both by drying vegetation making it more susceptible to fire, and by depleting water supplies needed to fight the fire.

Disaster History

In the 1930s, lack of rainfall devastated the Great Plains of the United States. Called the Dust Bowl drought due to the great clouds of dust and sand that it created, the drought covered 70% of the United States during its worst year. The drought came in three waves, 1934, 1936, and 1939-40, but some regions of the High Plains experienced drought conditions for as many as eight years. During the 1950s the Great Plains and the southwestern states withstood a five-year drought, and in three of these years, drought conditions stretched coast to coast. It was characterized by both low rainfall amounts and excessively high temperatures. During 1962 much of the eastern part of the U.S. experienced the worst drought in more than 50 years. Two decades later, the three-year drought of the late 1980s (1987-1989) covered 36% of the United States at its peak. Compared to the Dust Bowl drought this does not seem significant, however the 1980s drought was the costliest in U.S. history. Combining the losses in energy, water, ecosystems, and agriculture, the total cost of the three-year drought was estimated at \$39 billion. Georgia has again experienced drought conditions recently. Water use restrictions were only lifted in January, 2003 after more than two years of conservation.

Shorter duration droughts can also have severe impacts. According to the National Climatic Data Center, a rainless period of just over four weeks during August and September of 1997 in Georgia (including DeKalb County) resulted in what the University of Georgia agricultural experts estimated as \$66.5 million in State-wide crop losses.

The NCDC database lists 18 “events” of drought condition since 1997. Many of these are close in date and likely singular events over longer durations.

Location and Extent/Probability of Occurrence and Magnitude

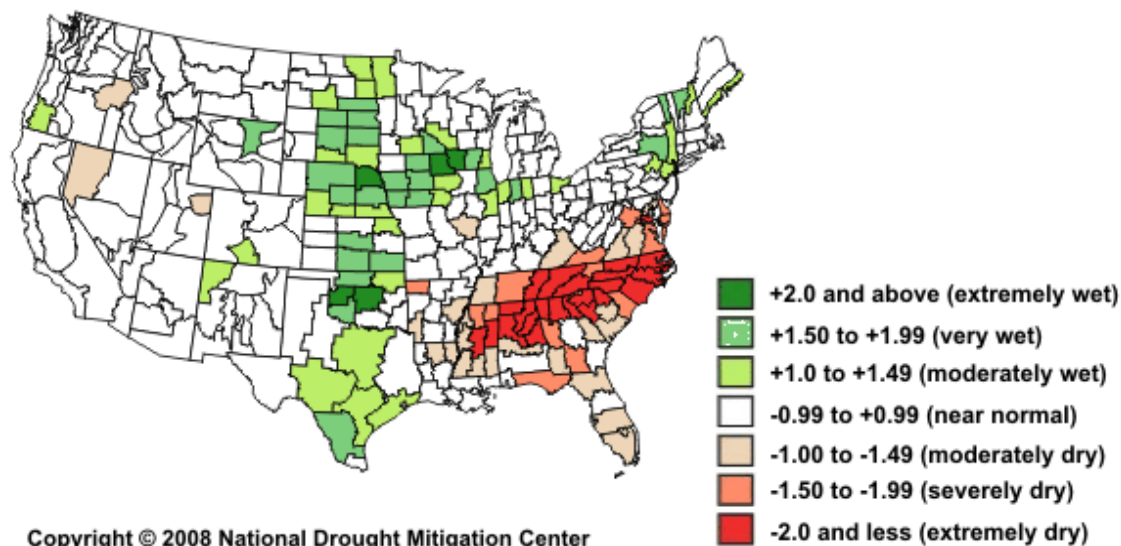
All areas of DeKalb County are equally likely to experience conditions of drought. In 1995, According to the County’s Comprehensive Plan, only 0.1% (approximately 145 Acres) of the County’s overall land use

was agricultural. The probability of future drought conditions is considered to be high. Limited historical data make precise estimating of the probability unrealistic, within the context of this planning process.

Between January 2007 and January 2008 DeKalb County was experiencing a severe drought according to the SPI Index. During this time period the NCDC database listed 5 different drought events. These five events can be better understood as one extremely large event. Lake levels fell to record or near record low levels. Lake Lanier in northeast Georgia, the main water supply for the Atlanta metropolitan area, dropped to its lowest level in history on December 28, 2007 with a reading of 1050.75 feet. Significant water conservation measures were being implemented in many cities. Figure 4.3.4-A below shows the extent of the drought according to the SPI Index.

Figure 4.3.4-A
Extent of Drought Nationally According to the SPI Index

12-month SPI through the end of January 2008



<http://drought.unl.edu/monitor/interp12.htm>

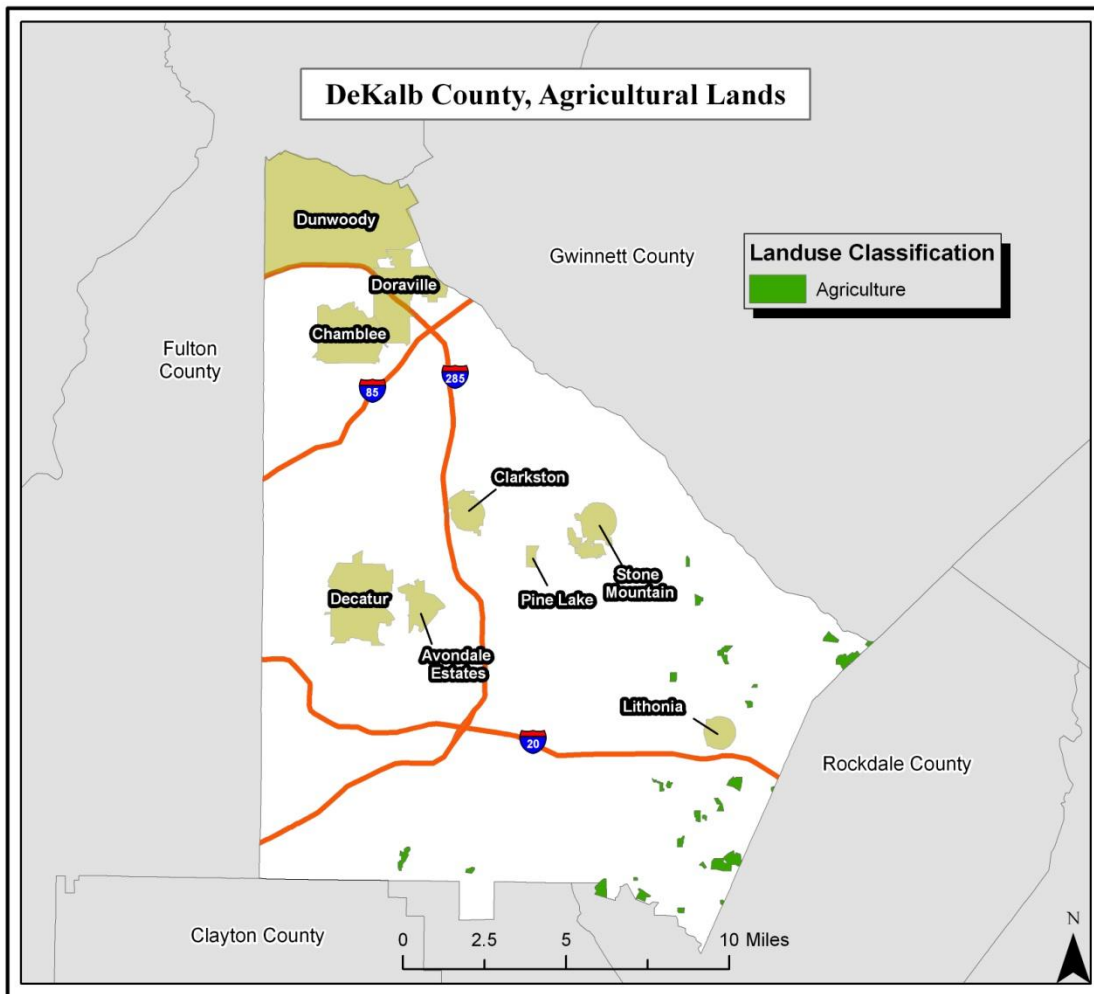
The SPI at these time scales reflects long-term precipitation patterns. A 12-month SPI is a comparison of the precipitation for 12 consecutive months with the same 12 consecutive months during all the previous years of available data.

4.3.4.2 Drought Vulnerability Assessment

It is very difficult to quantify the vulnerability of any given area to droughts, or to assess inventories of at risk property for estimating exposure or losses. All assets are generally equally vulnerable to drought, although businesses and industries that require large amounts of water for different processes would be more vulnerable to long term drought.

DeKalb County landuse information was obtained from the Atlanta Regional Commission. DeKalb County has very little land which is designated as agricultural land. Agricultural land comprises approximately 2 square miles of land within DeKalb County. This accounts for less than 1% of all land within DeKalb County. Most of the agricultural land is located in the southeast of the county. During a drought event DeKalb can expect to experience crop losses in the agricultural areas shown in Figure 4.3.4-B.

Figure 4.3.4-B
Agricultural Landuse in DeKalb County



Primary impacts from sustained periods of drought would be unlikely to damage assets or have severe effects on public safety. Most impacts would be secondary in nature and are presented as such below.

4.3.4.2.1 Secondary Effects

If a significant drought event were to occur, it could bring economic, social, and environmental impacts to the study area. Commonly, one of the most significant economic effects to a community is the

agricultural impacts. However, as noted, there is very little agricultural activity in DeKalb County or the incorporated cities. Other economic effects could be felt by businesses that rely on adequate water levels for their day to day business such as carwashes, laundromats, and industrial processes requiring significant amounts of water.

Drought can also create conditions that promote the occurrence of other natural hazards such as wildfires and wind erosion. While dry conditions increase the likelihood of wildfires, low-flow conditions decrease the quantity and pressure of water available to firefighters to fight fires. The likelihood of flash flooding is increased if a period of severe drought is followed by a period of extreme precipitation.

Environmental drought impacts include those on both human and animal habitats and hydrologic units. During periods of drought, the amount of available water decreases in lakes, streams, aquifers, soil, wetlands, springs, and other surface and subsurface water sources. This decrease in water availability can affect water quality through altering the salinity, bacteria, turbidity, temperature, and pH levels. Changes in any of these levels can have a significant effect on the aquatic habitat of numerous plants and animals found throughout the study area.

Low water flow may result in decreased sewage flows and subsequent increases in contaminants in the water supply. Decreased availability of water decreases the drinking water supply and the food supply. This disruption can work its way up the food chain within a habitat. Loss of biodiversity and increases in mortality can lead to increases in disease and endangered species.

Water Conservation is an important element in not only meeting future water supply needs, but in responding to drought conditions too. The Atlanta Regional Commission has in place a Regional Water Supply Plan which shows that over 20% of the region's water supply must come from water conservation efforts. The DeKalb County Comprehensive Plan recognizes the importance of specific water conservation activities, including:

- Ultra Low Flow Plumbing Fixtures
- Low Water Using Landscaping Techniques
- Public Education, and
- Water Recycling

DeKalb County can typically expect to experience a drought once every few years. The duration and severity of such a drought would be negligible and probably only cause water restriction issues. A worst case scenario would be an event similar to that which was experienced in 2007. Potentially, disputes over water ownership could erupt and claims on water resources will follow. The affect of a worst case scenario drought will be negligible to those in DeKalb County as only a small fraction of the county is used for agricultural use. Rather, the affect will set up other secondary hazards such as an increased risk of wildfires.

4.3.5 Wildfire

4.3.5.1 Hazard Profile

Nature of Hazard

“A wildfire is an uncontrolled fire spreading through vegetative fuels, exposing and possibly consuming structures” (FEMA 386-2, 2001) and may originate from a variety of ignition sources. Three different types of wildfires exist. A “surface fire” is the most common type and burns along the floor of a forest, moving slowly and killing or damaging trees. A “ground fire” is usually started by lightning and burns on or below the forest floor in the organic layer down to the mineral soil. “Crown fires” spread rapidly by wind and move quickly by jumping along the tops of trees.

Wildfires can be classified as either a wildland fire or an urban-wildland interface (UWI) fire. The former involves situations where wildfire occurs in an area that is relatively undeveloped except for the possible existence of basic infrastructure such as roads and power lines. An urban-wildland interface (UWI) fire includes situations in which a wildfire enters an area that is developed with structures and other human developments. In UWI fires, the fire is fueled by both naturally occurring vegetation and the urban structural elements themselves. According to the National Fire Plan issued by the U.S. Departments of Agriculture and Interior, the urban-wildland interface is defined as “...the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.”

A UWI fire can be subdivided into three categories (NWUIFPP, 1998): The classic wildland-urban interface exists where well-defined urban and suburban development presses up against open expanses of wildland areas. The mixed wildland-urban interface is characterized by isolated homes, subdivisions, and small communities situated predominantly in wildland settings. The occluded wildland-urban interface exists where islands of wildland vegetation occur inside a largely urbanized area. Generally, the areas at risk within DeKalb County would fall into the occluded wildland-urban interface category.

Certain conditions must be present for a wildfire hazard to occur. A large source of fuel must be present; the weather must be conducive (generally hot, dry, and windy); and fire suppression sources must not be able to easily suppress and control the fire. People or lightning start most wildfires, but once burning, wildfire behavior is based on three primary factors: fuel, topography, and weather. Fuel will affect the potential size and behavior of a wildfire depending on the amount present, its burning qualities (e.g. level of moisture), and its horizontal and vertical continuity. Topography affects the movement of air, and thus the fire, over the ground surface. The terrain can also change the speed at which the fire travels, and the ability of firefighters to reach and extinguish the fire. Weather as manifested in temperature, humidity, and wind (both short and long term) affect the probability, severity, and duration of wildfires.

Large fires have several indirect effects beyond those of a smaller, local fire. These may include air quality and health issues, road closures, business closures, and other forms of losses. Furthermore, large wildfires increase the threat of other disasters such as landslide and flooding.

DeKalb County is a highly urbanized county, but does have areas where developments, particularly residential, are located in primarily forested lands.

Disaster History

According to the U.S. Department of Agriculture’s Forest Service, Georgia averages nearly 9,000 wildfires per year. Debris burns are the single highest cause of wildfires with 47% of all wildfires started from debris burns. Incendiary and machine are the second and third leading causes, at 22% and 10%, respectively. Lightning ranks 6th on the list, at only 4%.

**Table 4.3-16
Ten Year Fire Summary for Georgia**

Fiscal Year	No. of Fires	Acres Burned	Average Size
1991	7,707	34,567	4.49 acres
1992	10,878	41,306	3.80 acres
1993	5,481	20,448	3.73 acres
1994	10,269	36,726	3.57 acres
1995	5,913	18,977	3.21 acres
1996	10,668	40,053	3.75 acres
1997	7,224	22,997	3.18 acres
1998	6,579	36,660	5.57 acres
1999	11,004	47,370	4.30 acres
2000	11,712	71,737	6.12 acres
2001	N/A	Less than 200,000	N/A
2002	7,185	160,041	22.27 acres
2003	3,430	9,908	2.88 acres
2004	6,257	27,500	4.40 acres
2005	5,573	19,263	3.46 acres
2006	8,352	40,202	4.81 acres
2007	8,726	837,895	96.02 acres
2008	5,454	23,081	4.21 acres
2009	3,732	13,714	3.67 acres
Jan 1, 2010 – May 31, 2010	2,184	8,513	3.90 acres

No history of wildfires specific to DeKalb County was identified. Due to the lack of recent wildfire history, there is a false sense of security invasive throughout the County and the incorporated cities.

Location and Extent/Probability of Occurrence and Magnitude

A Wildland Urban Interface layer was obtained from the Spatial Analysis for Conservation and Sustainability SILVIS Lab. The original map was created on a nationwide scale by using remote sensing techniques to identify the Federal Register’s definition of Wildland Urban Interface areas (Federal Register 66:751, 2001). This data was intended for use at the national, state, and local level. It was agreed that although the data is more accurate at larger scales it was the “best available data” on wildfire risk.

The original mapping layer contained several different land use categories such as deciduous forests, evergreen forests, mixed forests, quarries, open water and developed areas amongst others for each census block. The information pertaining to each census block was used to calculate the percentage of vegetation coverage for that particular census block. The conclusion was made that areas with higher amounts of vegetation coverage had more potential fuels to create uncontained fires and therefore were higher risk areas. Five risk zones were created off of this analysis, they are:

- Very Low Risk – 0-20% of census block area is covered by vegetation.
- Low Risk – 20-40% of census block area is covered by vegetation.
- Moderate Risk – 40-60% of census block area is covered by vegetation.
- High Risk – 60-80% of census block area is covered by vegetation.
- Very High Risk – 80-100% of census block area is covered by vegetation.

It should be noted that this analysis provides insight to areas that have the potential to store large amounts of fuels but do not necessarily correlate to where a wildfire will occur. As discuss before DeKalb County has not recorded any significant wildfire events and therefore officials should diligently address the hazard before an event due to the lack of knowledge and experience if such an event should occur.

Figures 4.3.5-A through 4.3.5-J on the following pages show fire risk zones for each of the participating jurisdictions.

Figure 4.3.5-A
Fire Risk Zones – Avondale Estates

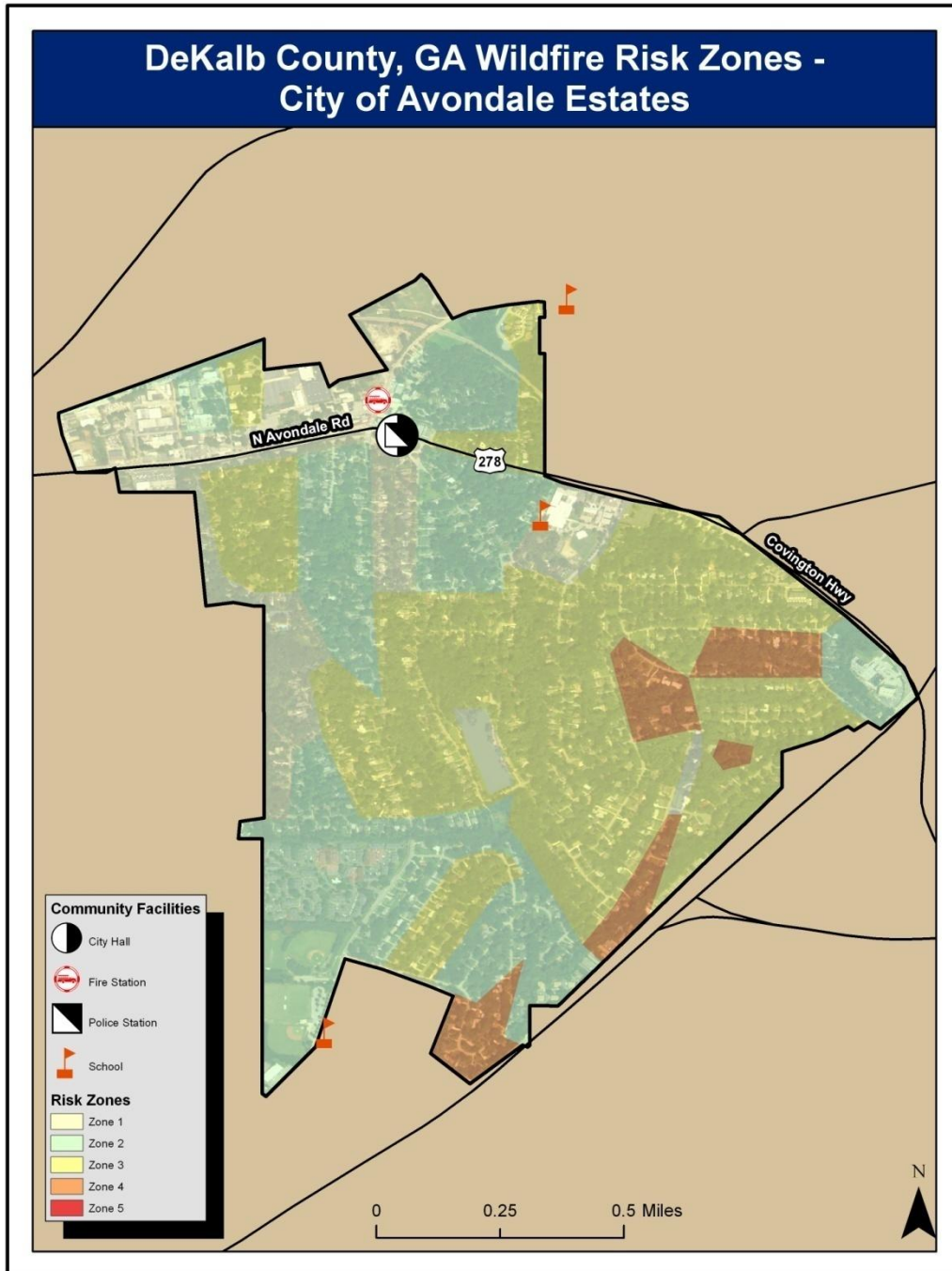


Figure 4.3.5-B
Fire Risk Zones – Chamblee

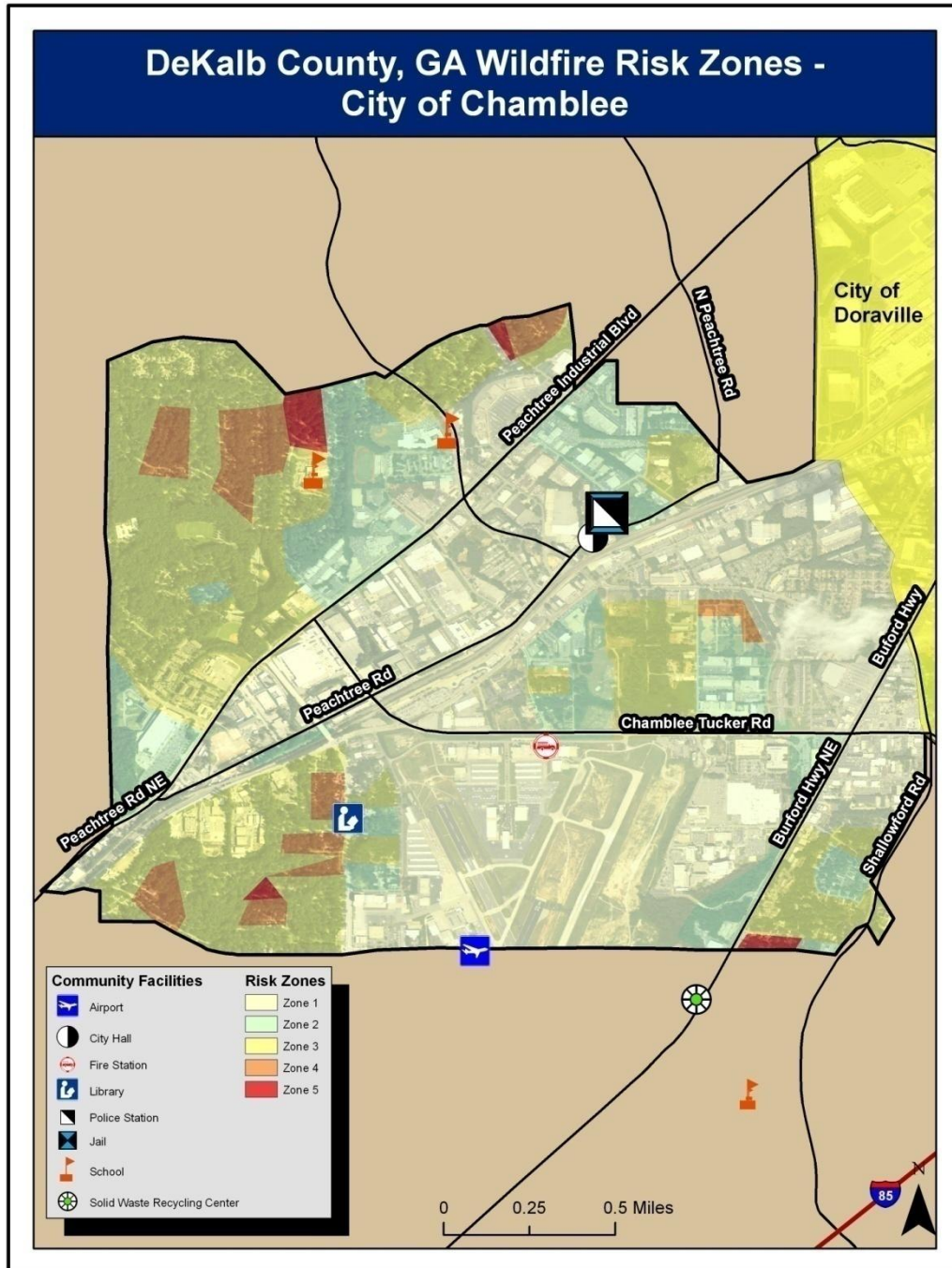


Figure 4.3.5-C
Fire Risk Zones – Clarkston

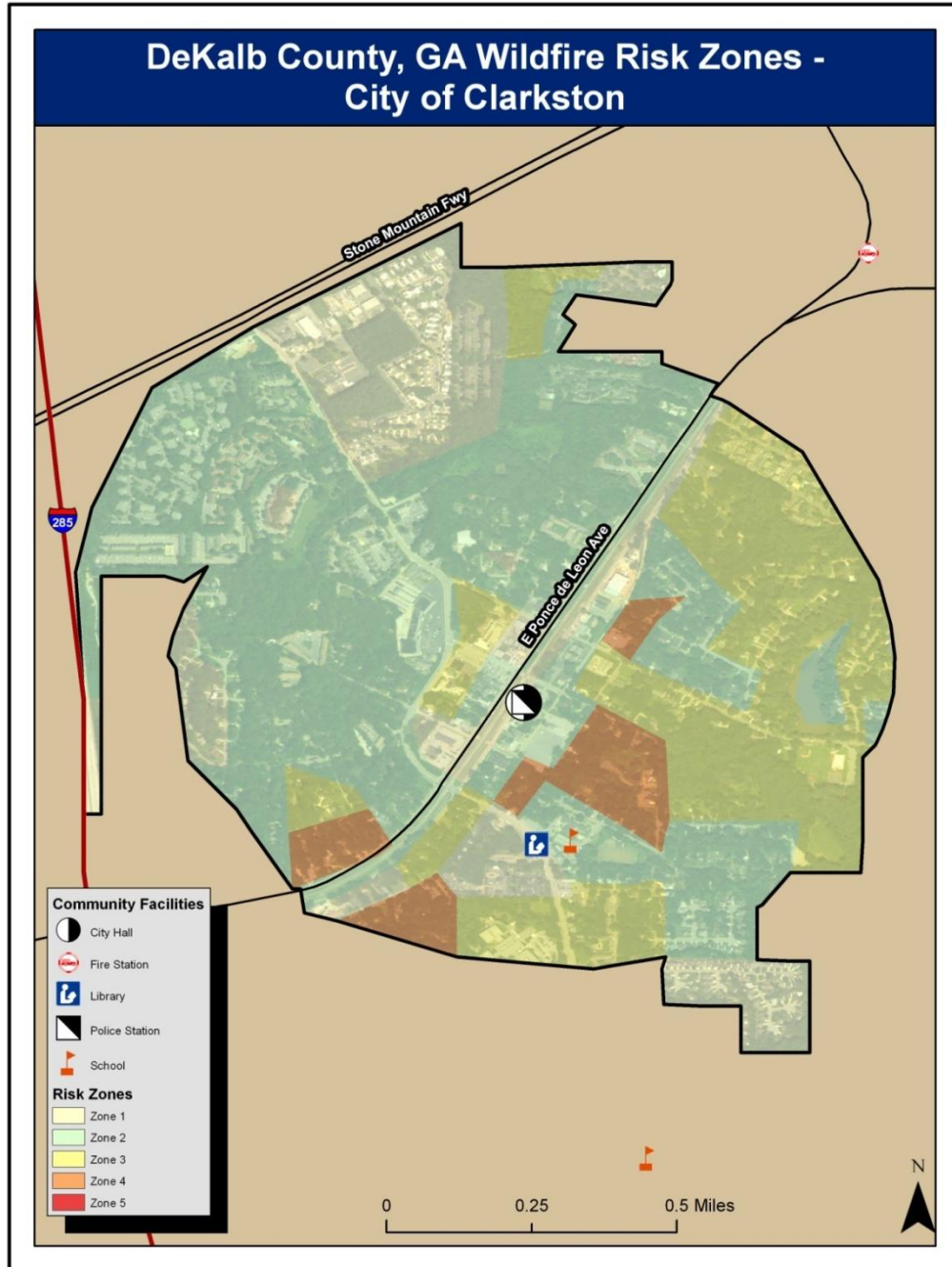


Figure 4.3.5-D
Fire Risk Zones – Decatur

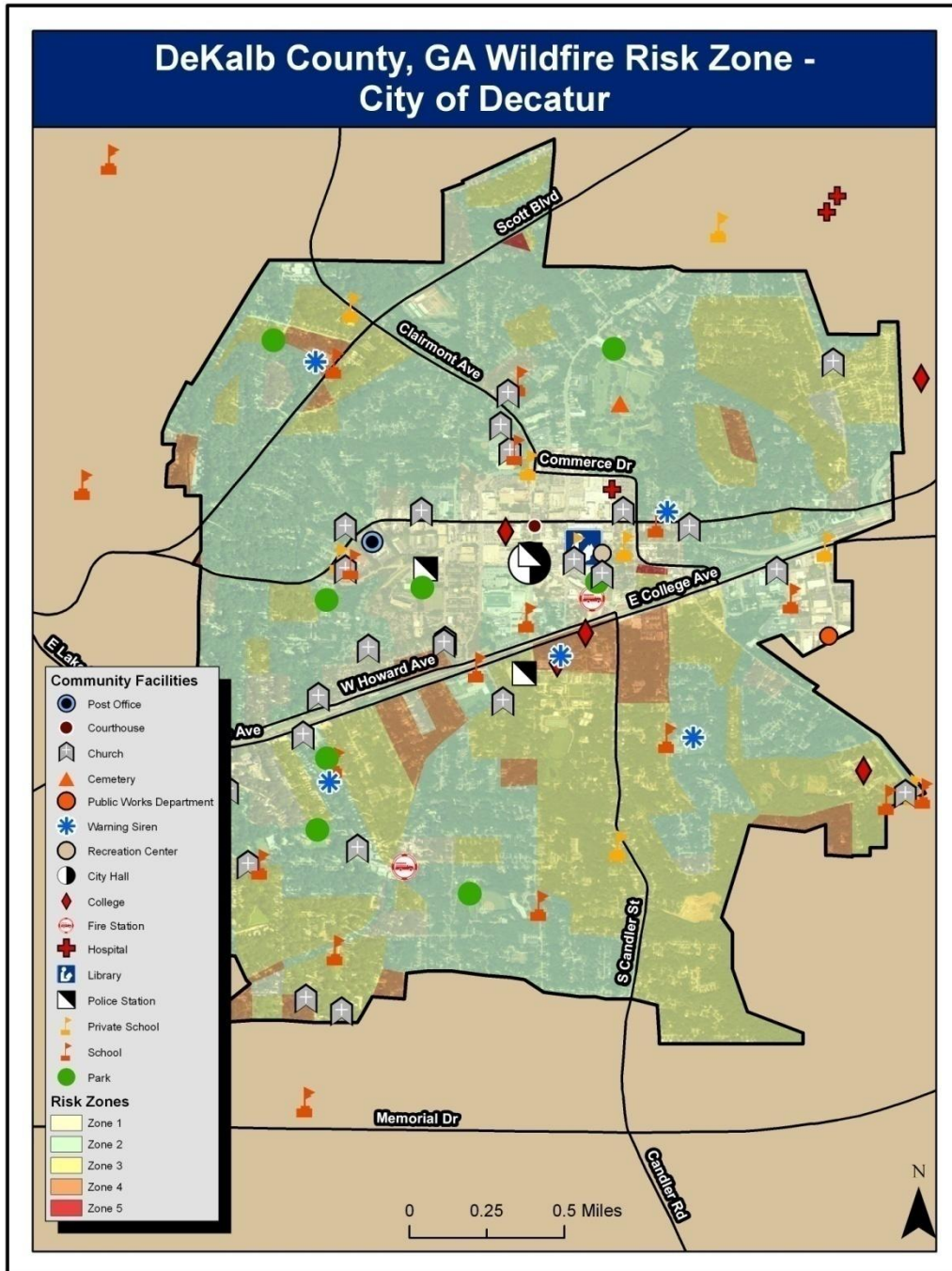
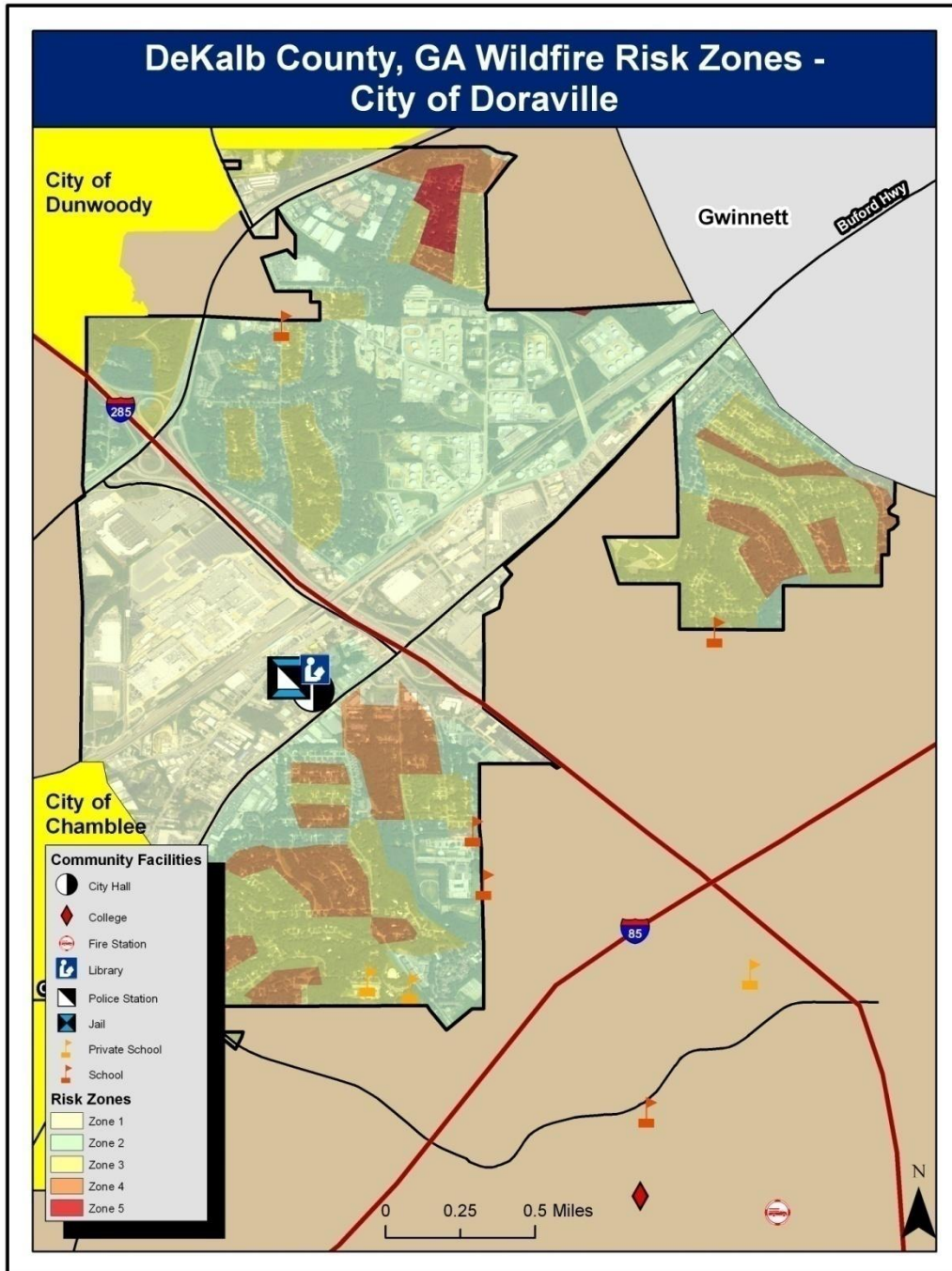


Figure 4.3.5-E
Fire Risk Zones – Doraville



**Figure 4.3.5-F
Fire Risk Zones – Dunwoody**

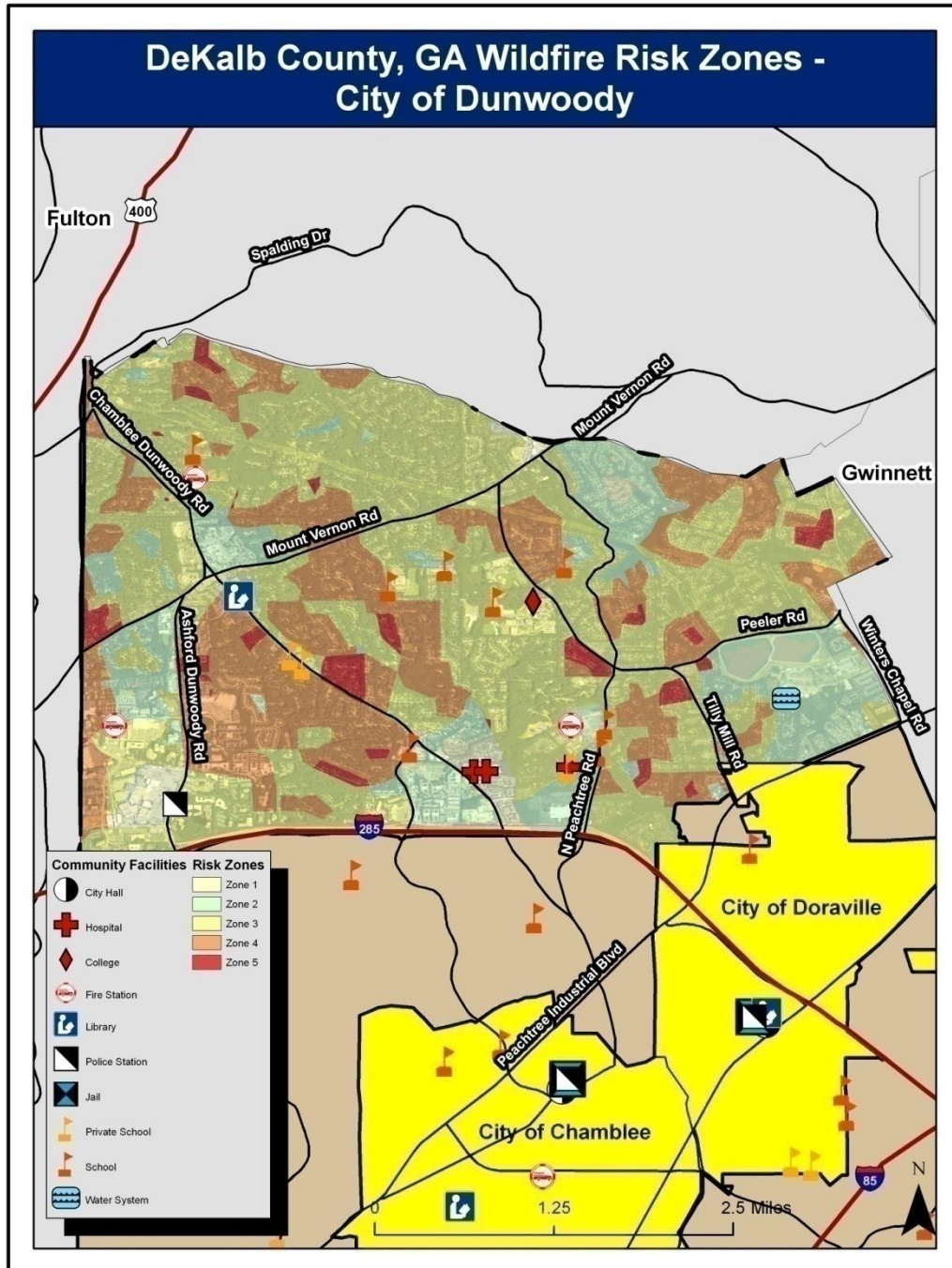
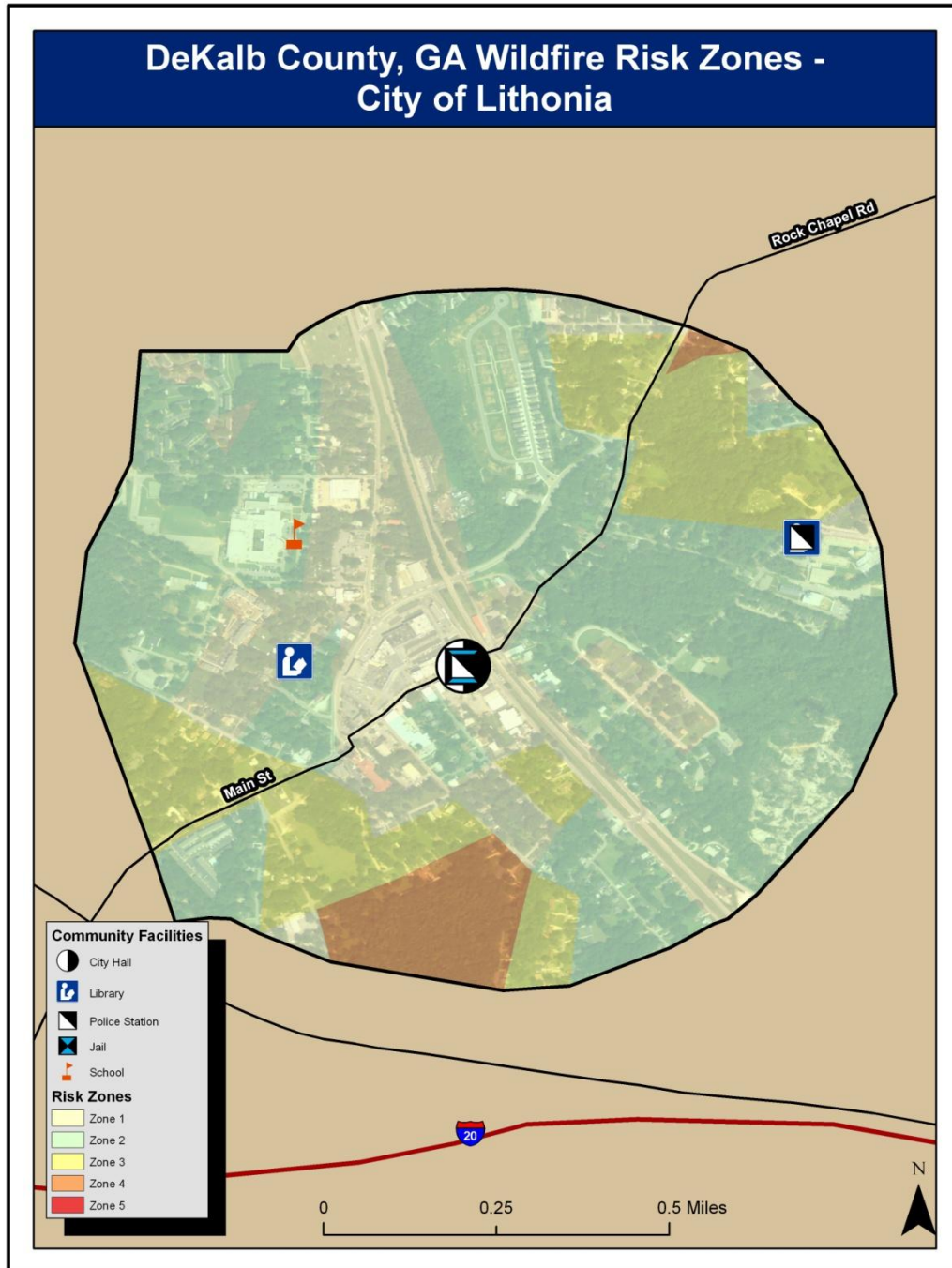


Figure 4.3.5-G
Fire Risk Zones – Lithonia



**Figure 4.3.5-H
Fire Risk Zones – Pine Lake**

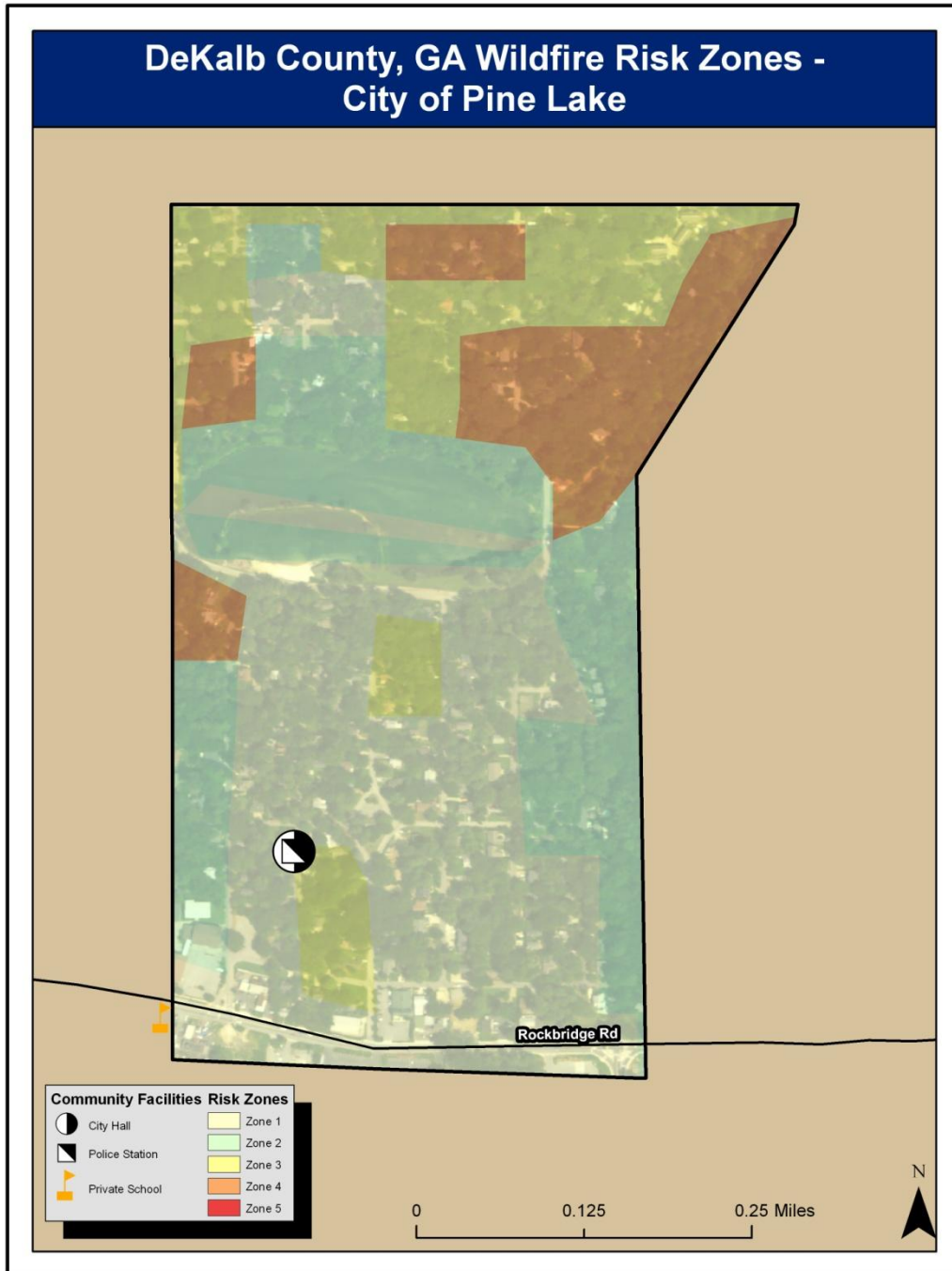
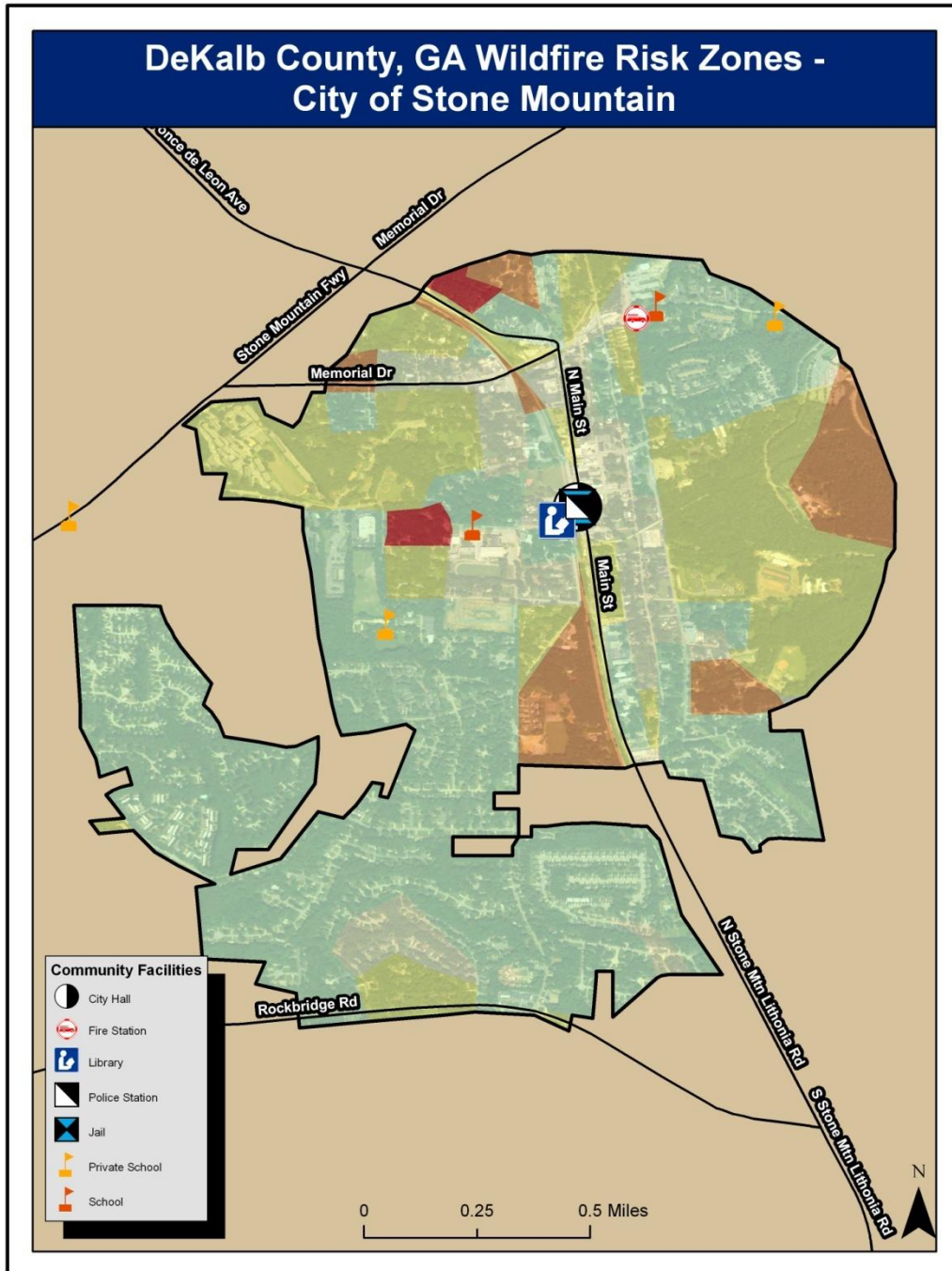
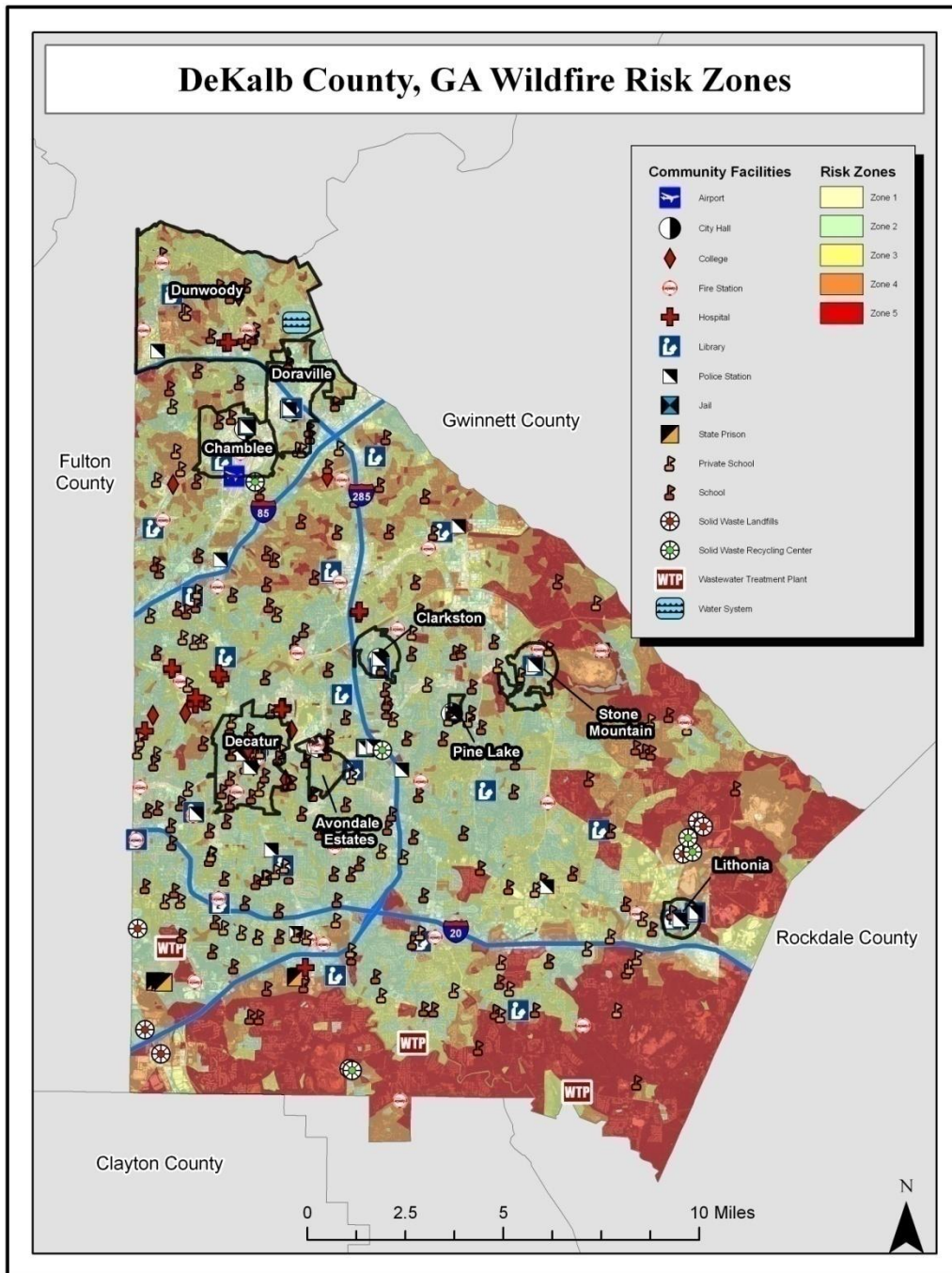


Figure 4.3.5-I
Fire Risk Zones – Stone Mountain



**Figure 4.3.5-J
Fire Risk Zones – Unincorporated DeKalb County**



4.3.5.2 Wildfire Vulnerability Assessment

Vulnerability describes how exposed or susceptible to damage an asset is, and depends on an asset's construction, contents, and the economic value of its functions. This vulnerability analysis predicts the extent of damage that may result from a hazard event of a given intensity in a given area on the existing and future built environment. Unlike with flooding, where the amount of damage is directly related to flood depths, velocity, and other factors; it is more difficult to estimate losses from wildfire. Wildfires are less predictable and driven by factors such as wind direction and seasonal precipitation. With indirect damages, the vulnerability of one element of the community is often related to the vulnerability of another. Indirect effects can be much more widespread and damaging than direct effects. For example, after a wildfire, the threat of future flooding, landslide, and erosion increases dramatically. In addition damage potential homes and businesses, wildfires may destroy agricultural economies creating indirect effects on labor and associated industries (e.g. transportation.)

4.3.5.2.1 Asset Inventory

Wildfire in DeKalb County can impact critical facilities as well as residential and commercial property. Figures 4.3.5-A through 4.3.5-J on the previous pages, show the critical facilities identified in the County. Using GIS, the previously described mapping was analyzed against an inventory of assets to identify vulnerabilities to the five levels of wildfire risks, resulting in five risk/exposure estimates based on level of risk. The results represent the aggregated dollar exposure and building count at the census block level for all building types from the HAZUS-MH Database, using replacement cost, by construction type values also stored in HAZUS.

Analysis at the census block level involved determining the proportion of total area for a census block to the area of hazard zone that intersects it. This spatial proportion was used to determine percentage of the buildings that would be affected within each block. These numbers were aggregated and presented for each jurisdiction and for the unincorporated areas of DeKalb County.

In general, dense urban areas offer greater resistance to the spread of wildfires, as they are not likely to contain continuous surface fuels despite the presence of mature trees.

4.3.5.2.2 Estimating Potential Exposure

Wildfire can create a multi-hazard effect, where areas that are burned by wildfire suddenly have greater flooding risks because the vegetation that prevented erosion is now gone. The watershed topology (streams and rivers) may change create the need for updated floodplain mapping. Also, air quality issues during a large-scale fire would cause additional economic losses to the structural losses described below. Road and business closures due to large-scale fires would also increase the economic losses shown below.

Table 4.3-16 provides a summary of assets and their approximate values exposed to the various mapped risk levels. It should be noted that the exposure numbers listed in the table include all buildings in a particular zone and jurisdiction assuming the worst case scenario of total loss for the entire zone. This table does not incorporate the non-quantifiable losses due to air quality issues or road and business closures in the “total exposure” calculation. Given the limitations with the mapping and other factors, these numbers are useful for little other than examining relative vulnerability between jurisdictions.

**Table 4.3-16
Potential Exposure from Wildfire Hazard by Jurisdiction**

Assets Exposed						
City	Risk Zone 1	Risk Zone 2	Risk Zone 3	Risk Zone 4	Risk Zone 5	Total
Avondale Estates	\$52,037,000	\$91,535,000	\$83,843,000	\$15,934,000	\$0	\$243,349,000
Chamblee	\$479,700,000	\$131,565,000	\$233,100,000	\$25,792,000	\$7,955,000	\$878,112,000
Clarkston	\$90,036,000	\$187,092,000	\$28,291,000	\$6,935,000	\$0	\$312,354,000
Decatur	\$536,800,000	\$803,849,000	\$384,994,000	\$108,434,000	\$721,000	\$1,834,798,000
Doraville	\$247,867,000	\$242,858,000	\$142,564,000	\$68,533,000	\$4,439,000	\$706,261,000
Dunwoody	\$631,644,000	\$1,064,737,000	\$2,366,550,000	\$1,205,016,000	\$234,090,000	\$5,502,037,000
Lithonia	\$50,781,000	\$65,737,000	\$15,515,000	\$3,236,000	\$0	\$135,269,000
Pine Lake	\$19,377,000	\$8,992,000	\$11,354,000	\$3,307,000	\$718,000	\$43,748,000
Stone Mountain	\$67,736,000	\$268,975,000	\$116,642,000	\$3,890,000	\$1,259,000	\$458,502,000
Unincorporated Areas	\$6,703,330,000	\$18,477,345,000	\$16,073,432,000	\$6,664,655,000	\$3,860,389,000	\$51,779,151,000
Total						\$61,893,581,000

In a typical year DeKalb County will not experience a wildfire of any significant size. Most events that occur in a typical year are localized events which are quickly contained by the local fire department. The consequences of a wildfire event in a typical year are negligible.

In a worst case scenario, the effects can escalate to catastrophic levels. Granted a catastrophic wildfire event would have to be coupled with other events such as droughts and high wind, but the wildfire portion of that event would be what causes the most damage and inflicts several casualties. Areas at the highest risk are those with limited access and also high amounts of surface fuels. Surface fuels can be vegetation but also can included wood framed homes, or homes with asphalt shingles. Damages from a catastrophic fire event would include the complete shutdown of facilities for over 30 days, multiple deaths, and more than 50% of the property in the county damaged.

4.3.6 Extreme Heat

4.3.6.1 Hazard Profile

Nature of Hazard

Extreme heat can be a forgotten natural hazard but it can be deadly. The Centers for Disease Control state that excessive heat exposure caused 8,015 deaths in the United States between 1979 and 1999.ⁱ The National Disaster Education Coalition, in *Talking About Disasters*, provides the following description of the extreme heat hazard:

“In recent years, excessive heat has caused more deaths than all other weather events, including floods. The American Meteorological Society reports that on average heat kills more than 1,000 people each year. A heat wave is a prolonged period of excessive heat, often combined with excessive humidity. Generally, excessive heat is defined as temperatures that hover 10 degrees or more above the average high temperature for the region during summer months, last for a prolonged period of time, and often are accompanied by high humidity.

Heat can kill by pushing the human body beyond its limits. Under normal conditions, the body's internal thermostat produces perspiration that evaporates and cools the body. However, in excessive heat and high humidity, evaporation is slowed and the body must work extra hard to maintain a normal temperature. Elderly people, young children, and those who are sick or overweight are more likely to become victims of excessive heat. Because men sweat more than women do, they become more quickly dehydrated and are more susceptible to heat illness.

The duration of excessive heat plays an important role in how people are affected by a heat wave. Studies have shown a significant rise in heat-related illnesses when excessive heat lasts more than two days.

People living in urban areas may be at greater risk from the effects of a prolonged heat wave than are people living in rural regions. An increased health problem, especially for those with respiratory difficulties, can occur when stagnant atmospheric conditions trap pollutants in urban areas, thus adding unhealthy air to excessively hot temperatures. In addition, asphalt and concrete store heat longer and gradually release heat, resulting in significantly higher temperatures, especially at night—an occurrence known as the "urban heat island effect."ⁱⁱ

Extreme heat can also cause water shortages and exacerbate fire hazards. Roads, bridges, and railroad tracks are susceptible to damage from extreme heat.ⁱⁱⁱ Demand for electricity can soar during periods of extreme heat, because the primary measure against extreme heat is the use of air conditioning. Brown-outs could result if electric supply cannot meet demand.

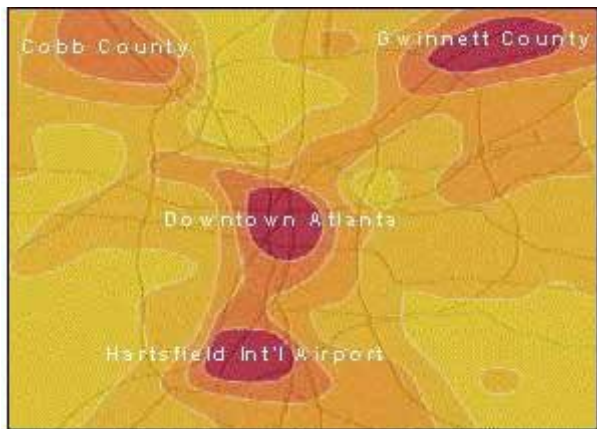
Disaster History

No comprehensive list of deaths or injuries from heat in DeKalb County was found during hazard research. However, it is known that at least 93 injuries occurred during the July 1986 extreme heat and drought that affected at least 50 counties including DeKalb. The NCDL database listed eight extreme

heat events between July of 1999 and May of 2010 which impacted DeKalb County. Although no deaths or injuries were noted for DeKalb County, there were two reported deaths in Coweta and Barrow Counties in July of 1999. It is likely that many unreported heat-related illnesses happen in DeKalb County every year. DeKalb County’s humid subtropical climate contributes to heat related illnesses.

Location and Extent/Probability of Occurrence

There is no particular portion of DeKalb County that is more susceptible to extreme heat than other portions. The highly urbanized city centers (particularly Decatur) near Atlanta may be somewhat hotter on average due to the “urban heat island effect” which results in upward radiation of heat from dark paved surfaces in addition to the downward radiation of the sun. There are certain populations and groups of people that are more susceptible. The population densities of elderly people, children and low income populations are shown previously in Figures 4.3.3-A, 4.3.3-B and 4.3.3-C in the Winter Weather Section. Based on limited historical records,



an extreme heat event can be expected approximately one time per year.

Landsat satellite image of multi-nodal heat island in Atlanta, GA. Darker tones denote higher temperatures. <http://www.epa.gov/heatisland/about/measuring.htm>

4.3.6.2 Extreme Heat Vulnerability Assessment and Effects

It is difficult to quantify vulnerability to extreme heat. Extreme heat can cause water shortages and exacerbate fire hazards. Roads, bridges, and railroad tracks are susceptible to damage from extreme heat.^{iv} Demand for electricity can soar during periods of extreme heat, because the primary measure against extreme heat is the use of air conditioning. Brown-outs could result if electric supply can not meet demand.

Because humidity is so relevant to heat-related illness, the NWS has devised the “Heat Index” (HI). The HI, given in degrees F, measures how hot it feels when relative humidity (RH) is added to the actual air temperature. For example, if the air temperature is 95°F and the RH is 55%, the HI is 110°F. HI values were devised for shady, light wind conditions, so exposure to full sunshine can increase HI values by up to 15°F. Below are HI ranges and the associated illnesses that may affect at-risk groups exposed to those conditions.

- 130° + heatstroke/sunstroke highly likely with continued exposure.
- 105°-130° sunstroke, heat cramps or heat exhaustion likely, and heatstroke possible with prolonged exposure and/or physical activity.
- 90°-105° sunstroke, heat cramps and heat exhaustion possible with prolonged exposure and/or physical activity.
- 80°- 90° fatigue possible with prolonged exposure and/or physical activity.

SECTION FOUR

Risk Assessment

Although most of these illnesses are not fatal, they can result in public health problems, creating strains on public safety and emergency care systems.

DeKalb County can typically expect to experience a heat wave several times a year. As shown below, climate records from the past 40 years indicate the Atlanta area receives about 36 days annually where the high is over 90 degrees.

Days over 90 Degrees

The annual value is the total of the unrounded monthly values. It may not agree with the sum of the rounded monthly values.

DATA THROUGH	2002	YRS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
ATLANTA, GA		42	0	0	0	*	1	8	13	10	3	0	0	0	36

<http://lwf.ncdc.noaa.gov/oa/climate/online/ccd/max90temp.html>

The duration and severity of such a heat wave is minimized because most facilities and automobiles have air conditioning. In a typical year the effects of heat wave are negligible due to the preparation of the residents and government within the county.

A worst case scenario would cause limited consequences. In an extended heat wave, some people will succumb to heat stroke and some facilities will be forced to shut down if their air conditioning units fail. These consequences will be limited to isolated cases.

4.3.7 Earthquake

The FEMA HAZUS model does not have updated demographics from the previous plan to perform a better analysis at this time. By the next Plan update, the FEMA HAZUS model will be updated with new decennial census information and new political boundaries (to include Dunwoody and other geographical boundary changes). Also the United States Geological Survey (USGS) is updating its “Shake Map” products for the US and maps for the southeastern US should be complete by 2011. Although demographics and political boundaries are not updated, building stock and damage functions have been updated. In the 2010 risk assessment, FEMA’s HAZUS Loss Estimation Model was run for a magnitude 5.0 earthquake in DeKalb County. The results of the model indicated that Approximately 28,000 buildings would experience some type of damage, with approximately 1,000 of those buildings being extensively or completely destroyed. For complete details on the HAZUS – MR4 analysis for a 5.0 magnitude earthquake in DeKalb County refer to Appendix E.

Peak ground acceleration (PGA) is a measure of the strength of ground movement, expressed by a percentage of gravity. Rapid ground acceleration results in greater damage to structures. PGA is used to project the risk of damage from future earthquakes by showing earthquake ground motions that have a specified probability (10%, 5%, or 2%) of being exceeded in a 50 year return period. Therefore these values are often used for reference in construction design, and in assessing relative hazards when making economic and safety decisions. Peak Ground Acceleration with only a 10% chance of being exceeded in a 50 year period is between 3 and 4% of gravity, according to USGS mapping. While there may be a minimal risk of damage inducing earthquakes in DeKalb County, the hazard was only selected for basic planning consideration based on the findings of the loss estimation from HAZUS and on lack of damage history associated with Earthquakes in DeKalb County.

There are no historical records of damage from earthquakes impacting DeKalb County. The USGS and online records indicate citizens within the greater Atlanta metro area reporting that they have felt quakes (back to the year 1811 and as recent as 2009) from epicenters beyond the immediate DeKalb County area. In a typical year, DeKalb County can expect to not experience an earthquake which will cause significant damage. In a worst case event one of the nearest large earthquake faults (either the New Madrid fault or the Charleston Fault) could cause a massive earthquake. The fault lines are capable of producing earthquakes greater than 7.0 in magnitude. The distance of DeKalb County from the epicenter of such an event would help to reduce the damage, but even so DeKalb County could expect to experience critical consequences. If this theoretical event were to occur, there would be multiple injuries, complete shutdown of facilities for more than two weeks, and over 25 percent of the assets within the county would be severely damaged.

4.4 ANALYSIS OF LAND USE AND DEVELOPMENT TRENDS

According to the U.S. Department of Commerce, Census Bureau, between 1970 and 1990 DeKalb County experienced a 68% increase in the number of housing units within the county, while at the same time experiencing a decrease in the number of persons per household. Currently the County is largely built out. In its Comprehensive Plan the Planning Department forecasted that by the year 2015 there would be no developable land available in DeKalb County. The vacant/undeveloped land forecast included the reduction of available land for floodplain conversion to open space and parks. Based on the built out nature of the County and its recognition of the need to remove property from floodplains for open space, it is likely that future vulnerability to that and most other hazards will fluctuate with increases in property value. In the more urbanized areas of the County, including the cities, adaptation and reuse of commercial properties can be expected as well as replacement of aging housing stock through attrition. As this occurs, with stronger building codes and growth ordinances (discussed more in Section 5), vulnerability can be expected to level or be reduced. Also, as the Atlanta metropolitan area and DeKalb County mature, services and programs to reduce losses can be expected to increase. For example a storm water utility fee for water quality and flood control improvements was recently implemented.

Avondale Estates

Avondale Estates, a historic suburb of Atlanta, is a planned community and is comprised primarily of higher end residential land use with a small planned commercial district. It is mostly built to capacity.

Chamblee

The City of Chamblee is primarily built out and unable to annex additional land. The majority of growth in Chamblee currently is mixed use in the city center, through adaptive reuse.

Clarkston

The City of Clarkston is largely built out with little room for additional development.

Decatur

The land area of the City of Decatur is 4.2 square miles and there is little vacant area available for growth in Decatur. In 1995 the Decatur Comprehensive Plan indicated only 30 undeveloped acres available. Fifty five percent of the existing land use is low density residential.

Doraville

The land area of the City of Doraville is 3.6 square miles. Residential and commercial land uses comprise more than 60% of Doraville's geography. As indicated in the 1993 Comprehensive Plan, at that time, only 2.5% of Doraville's area was undeveloped.

Dunwoody

The land area of the City of Dunwoody is 12.1 square miles. Before 2008, the area was considered by the U.S Census as a Census-Designated Place (CDP). Dunwoody contains several distinct villages and neighborhoods including the Perimeter Center, which is considered the business district.

Lithonia

The City of Lithonia is largely built out with little room for additional development.

Pine Lake

The City of Pine Lake has a population of 850 and encompasses only 0.19 square mile of land area. Pine Lake is a planned lake community with closely placed small cottages around the lake. It is entirely built out but is facing pressure to increasing the size of many residential units and in some cases raze and rebuild residential structures. The City has ambitions to annex additional commercial area to expand its tax base. New construction in newly annexed areas will be in accordance with codes and regulations.

Stone Mountain

The City of Stone Mountain encompasses 1.6 square miles of land area. The City has been mostly built out since the 1990s. Residential land use makes up about 75% of the developed area. Park and recreational uses cover approximately 14% of land area. The City's 1996 Comprehensive Plan indicates that there is no developable land available in Stone Mountain.

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SECTION 5 GOALS, OBJECTIVES, AND ACTIONS***Significant Changes to this Section from Previous Plan***

The capabilities and mitigation section was one of the last sections to be updated. All the information gathered for the Risk and Vulnerability Assessment (Section 4) was presented to each of the community members in order to assist them in evaluating, adding, and/or adjusting their mitigation goals for the next five years. Every community had taken steps toward completing some or all of their previously identified mitigation actions. Very few of the cities had used FEMA mitigation funds to fund the projects. The emphasis for the next five years was to finish the projects already started. The main factor stalling the completion of the projects was the lack of funding. Since this was the first time the Cities of Lithonia and Dunwoody participated in the planning process, the representatives worked diligently to identify mitigation actions and goals. As for the capabilities of each city some major changes included:

- Changes in local officials
- Changes in department responsibilities
- Development and implementation of stormwater utility fees separate from the county.
- Addition of official positions
- Adoption of plans, codes, ordinances, and/ or other guidance.

At the July 22nd, 2010 meeting, the MAC agreed to keep the existing goals of the 2005 plan.

The original method for gathering information to complete the capabilities assessment was to hold conversations with local officials and stakeholders. This method was determined to be the best approach in order to update the capabilities assessment and therefore individual meetings were held with all the cities.

5.1 OVERVIEW

This section provides information on how each jurisdiction plans to mitigate potential impacts to its community for the natural hazards that it has determined are most threatening to its citizens, businesses, and properties. The collaborative efforts within each municipality and the overall County are detailed here. This section incorporates the following for each of the participating jurisdictions:

- Mitigation goals and objectives

- Mitigation actions and priorities
- An implementation plan
- Documentation of the mitigation planning process.

Develop Mitigation Goals and Objectives

Collectively, the jurisdictions reviewed the hazard profile and loss estimation information presented in Section 4 and used it as a basis for developing mitigation goals and objectives. Mitigation goals are general explanations of what hazards and losses due to hazards should be prevented. They are typically long-range visions oriented toward jurisdictional policy. Objectives define strategies to attain the mitigation goals. Both are based on consistent and complementary goals contained within existing local plans, policy documents, and regulations, as well as attained public input. Further, each jurisdiction developed objectives and actions unique to specific vulnerabilities or issues within its boundaries.

Identify and Prioritize Mitigation Actions

Mitigation actions are a means of carrying out the objectives. They must be compatible with the plans, policies, and regulations of the jurisdiction. The jurisdiction must also have the legal, administrative, fiscal, and technical capacities to perform each action.

The process of analyzing the capacity of the jurisdiction is called the capabilities assessment, and it results in a list of acceptable and realistic mitigation actions. This list can then incorporate the social, technical, administrative, political, legal, economic, and environmental (STAPLE/E) opportunities and constraints of each action, and it can be trimmed accordingly. After completion of the capabilities assessment, each jurisdiction evaluated and prioritized their proposed mitigation actions. This step resulted in a list of acceptable and realistic actions that address the hazards identified in each jurisdiction. Each jurisdiction then identified and prioritized actions to be implemented during the short to medium term. An implementation schedule, funding source, and coordinating individual or agency are identified for each prioritized action item. Each community's approach to reducing the impacts of disasters varies and must be tailored to intertwine with the competing needs and objectives of that community. The framework chosen for working to achieve the goals and objectives is captured by six categories of mitigation actions:

- Prevention;
- Property protection;
- Public education and awareness;
- Natural resource protection;
- Emergency services; and,
- Structural projects.

PREVENTION MEASURES:

- Keep a hazard risk from getting worse;
- Ensure that future development does not increase hazard losses; and,

- Guide future development away from hazards, while maintaining other community goals such as economic development and quality of life and environment.

Communities can achieve significant progress toward hazard resistance through prevention measures, particularly in areas that have not been developed or where capital investment has not been substantial.

PROPERTY PROTECTION MEASURES:

- Modify existing buildings subject to hazard risk, or their surroundings;
- Directly protect people and property at risk; and,
- Are often inexpensive because they are implemented or cost-shared with property owners.

Protecting a building does not have to affect the building's appearance and is therefore a popular measure for historic and cultural sites.

PUBLIC EDUCATION AND AWARENESS MEASURES:

- Inform and remind people about hazardous areas and the measures they can take to avoid potential damage and injury.

Education and awareness measures can be tailored to different audiences, including but not limited to: property owners, potential property owners, business owners, children, and visitors.

NATURAL RESOURCE PROTECTION MEASURES:

- Reduce the intensity of hazard effects and improve the quality of the environment and wildlife habitats.

Parks, recreation, or environmental agencies or organizations usually implement these activities.

EMERGENCY SERVICES MEASURES:

- Protect people before and after a hazard event.

Actions taken to ensure the continuity of emergency services are considered to be mitigation.

STRUCTURAL MEASURES:

- Directly protect people and property at risk.

These measures are termed "structural" mitigation because they involve construction of man-made structures to control hazards.

EVALUATING ALTERNATIVES AND PRIORITIZING PROJECTS

The MAC, with the assistance of the consultant used the STAPLE/E Criteria (Social, Technical, Administrative, Political, Legal, Economic, and Environmental) to select and prioritize the most

appropriate mitigation alternatives. This methodology requires that the social, technical, administrative, political, legal, economic, and environmental aspects of a project be considered when reviewing potential actions. This process was used to help ensure that the most equitable and feasible actions would be undertaken based on capabilities. Table 5.1-1 provides information regarding the review and selection criteria for alternatives.

**Table 5.1-1
STAPLE/E Review and Selection Criteria for Alternatives**

SOCIAL
<ul style="list-style-type: none"> • IS THE PROPOSED ACTION SOCIALLY ACCEPTABLE TO THE COMMUNITY? • ARE THERE EQUITY ISSUES INVOLVED THAT WOULD RESULT IN ANY SEGMENT OF THE COMMUNITY BEING TREATED UNFAIRLY? • WILL THE ACTION CAUSE SOCIAL DISRUPTION?
TECHNICAL
<ul style="list-style-type: none"> • WILL THE PROPOSED ACTION WORK? • WILL IT CREATE MORE PROBLEMS THAN IT SOLVES? • DOES IT SOLVE A PROBLEM OR ONLY A SYMPTOM? • IS IT THE MOST USEFUL ACTION IN LIGHT OF OTHER COMMUNITY GOALS?
ADMINISTRATIVE
<ul style="list-style-type: none"> • CAN THE COMMUNITY IMPLEMENT THE ACTION? • IS THERE SOMEONE TO COORDINATE AND LEAD THE EFFORT? • IS THERE SUFFICIENT FUNDING, STAFF, AND TECHNICAL SUPPORT AVAILABLE? • ARE THERE ONGOING ADMINISTRATIVE REQUIREMENTS THAT NEED TO BE MET?
POLITICAL
<ul style="list-style-type: none"> • IS THE ACTION POLITICALLY ACCEPTABLE? • IS THERE PUBLIC SUPPORT BOTH TO IMPLEMENT AND TO MAINTAIN THE PROJECT?
LEGAL
<ul style="list-style-type: none"> • IS THE COMMUNITY AUTHORIZED TO IMPLEMENT THE PROPOSED ACTION? IS THERE A CLEAR LEGAL BASIS OR PRECEDENT FOR THIS ACTIVITY? • ARE THERE LEGAL SIDE EFFECTS? COULD THE ACTIVITY BE CONSTRUED AS A TAKING? • IS THE PROPOSED ACTION ALLOWED BY THE GENERAL PLAN, OR MUST THE GENERAL PLAN BE AMENDED TO ALLOW THE PROPOSED ACTION? • WILL THE COMMUNITY BE LIABLE FOR ACTION OR LACK OF ACTION? • WILL THE ACTIVITY BE CHALLENGED?
ECONOMIC
<ul style="list-style-type: none"> • WHAT ARE THE COSTS AND BENEFITS OF THIS ACTION? • DO THE BENEFITS EXCEED THE COSTS? • ARE INITIAL, MAINTENANCE, AND ADMINISTRATIVE COSTS TAKEN INTO ACCOUNT? • HAS FUNDING BEEN SECURED FOR THE PROPOSED ACTION? IF NOT, WHAT ARE THE POTENTIAL SOURCES (PUBLIC, NON-PROFIT, AND PRIVATE)? • HOW WILL THIS ACTION AFFECT THE FISCAL CAPABILITY OF THE COMMUNITY? • WHAT BURDEN WILL THIS ACTION PLACE ON THE TAX BASE OR LOCAL ECONOMY?

- WHAT ARE THE BUDGET AND REVENUE EFFECTS OF THIS ACTIVITY?
- DOES THE ACTION CONTRIBUTE TO OTHER COMMUNITY GOALS, SUCH AS CAPITAL IMPROVEMENTS OR ECONOMIC DEVELOPMENT?
- WHAT BENEFITS WILL THE ACTION PROVIDE?

ENVIRONMENTAL

- HOW WILL THE ACTION AFFECT THE ENVIRONMENT?
- WILL THE ACTION NEED ENVIRONMENTAL REGULATORY APPROVALS?
- WILL IT MEET LOCAL AND STATE REGULATORY REQUIREMENTS?
- ARE ENDANGERED OR THREATENED SPECIES LIKELY TO BE AFFECTED?

Prepare an Implementation Plan

The principal implementation plan was developed collectively for all jurisdictions. However, each jurisdiction prepared a strategy for implementing the mitigation actions unique to that jurisdiction. These strategies identify who is responsible for which action, what kind of funding mechanisms and other resources are available or will be pursued, and when the strategies will be completed. The goals, objectives, actions, and implementation strategies for the County of DeKalb form an overarching body for the plan, with each of the city’s jurisdictional section addressing unique objectives and actions.

5.2 REGIONAL CONSIDERATIONS

The Disaster Mitigation Act of 2000 requires that regions develop and maintain a document outlining measures that can be taken before a hazard event occurs that would help minimize the damage to life and property. The Multi-Hazard Mitigation Plan meets this requirement by including specific goals, objectives, and mitigation action items that each of the participating jurisdictions developed. Some of the overall goals and objectives share commonalities including: promoting disaster-resistant future development; increasing public understanding, support, and demand for effective hazard mitigation; building and supporting local capacity and commitment to continuously becoming less vulnerable to hazards; and improving coordination and communication with federal, state and local governments. However, the specific hazards and degree of risk vary between the different jurisdictions as do capabilities to mitigate. For that reason, there are mitigation goals, objectives, and actions that are jurisdictionally unique. Consequently, all goals, objectives, and actions will be implemented on a jurisdiction-by-jurisdiction basis, as presented in the city implementation sections of this Plan.

Table 5.2-1 includes all the jurisdictions in DeKalb County, including the county itself, and their participation in the NFIP. The table was created from data found on FEMA’s website: <http://www.fema.gov/cis/GA.html>.

**Table 5.2-1
DeKalb County and Jurisdiction NFIP Participation**

Communities Participating in the National Flood Program				
Community Name	Initial FHBM Identified	Initial FIRM Identified	Current Effective Identified	Reg-Emer Date
AVONDALE ESTATES, CITY OF		5/7/2001	(NSFHA)	1/21/2010

SECTION FIVE

Capability Assessment / Mitigation Plans

CHAMBLEE, CITY OF	6/7/1974	9/15/1977	5/7/2001	9/15/1977
CLARKSTON, CITY OF	2/21/1975	6/15/1981	5/7/2001	6/15/1981
DECATUR, CITY OF		6/19/1970	5/7/2001	6/11/1971
DEKALB COUNTY *	6/5/1970	5/15/1980	5/7/2001	5/15/1980
DORAVILLE, CITY OF	6/7/1974	9/1/1977	5/7/2001	9/1/1977
DUNWOODY, CITY OF				10/14/2009
LITHONIA, CITY OF		5/7/2001	(NSFHA)	1/30/2008
PINE LAKE, CITY OF	4/12/1974	6/15/1981	5/7/2001	6/15/1981
STONE MOUNTAIN, CITY OF	5/12/1974	8/1/1986	5/7/2001	8/1/1986
ATLANTA, CITY OF		10/14/1971	6/18/2010	10/14/1971

5.3 DEKALB COUNTY OVERARCHING MITIGATION PLAN

DeKalb County (DeKalb) used a core working group from the MAC to work with the consultants and the committee on this section of the plan. The group reviewed a set of jurisdictional-level hazard maps including detailed critical facility information and localized potential hazard exposure/loss estimates to help in identifying and ranking the top hazards that threaten the County on an overall basis and the level of attention each would receive in the planning process, as described in Section 4.

As noted previously in this plan, for the overall county, the hazards were ranked for level of planning consideration as follows:

- Flooding (Including Dam Breach)
- Wind (Hurricane, Tornado, Thunderstorm)
- Winter Storm
- Wildfire
- Extreme Heat
- Earthquake (minimal treatment)

5.3.1 Capabilities Assessment

The County identified current available capabilities for implementing hazard mitigation activities. The Capability Assessment (Assessment) portion of the jurisdictional mitigation plan identifies administrative, technical, legal and fiscal capabilities. This includes a summary of departments and their responsibilities associated with hazard mitigation as well as codes, ordinances, and plans already in place that contain mitigation activities or programmatic structure. The second part of the Assessment examined the County's fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

5.3.1.1 *Existing Institutions, Plans, Policies, and Ordinances*

Form of Governance

The DeKalb County government consists of a Board of Commissioners and a CEO. The County is divided into five districts and two super districts; one member of the board is elected from each district. In addition, the County employs a County Manager who oversees the day-to-day administration of the county, serves as the Board's chief advisor, and carries out the policies of the Board.

SECTION FIVE

Capability Assessment / Mitigation Plans

The County Manager also prepares a recommended budget, and recruits and hires most of the County's staff, while the Board acts as DeKalb County's legislative body, setting policy, approving budgets, and setting tax rates. County departments involved in activities related to Hazard Mitigation include:

DeKalb County Economic Development Department

- Brings new investment, expands existing industry, and develops sustainable economic strategies for balanced growth throughout the county.
- Maintains a database of investment opportunities along with commercial and industrial properties, in order to market DeKalb County to businesses around the world.
- Works with expanding companies to find financing alternatives for establishing a presence in DeKalb County.

DeKalb County Facilities Management Department

- Maintains safe, clean, comfortable, aesthetic and functional county buildings.
- Maintains other infrastructure and assets of DeKalb County in a similar manner.

DeKalb County Fire and Rescue

- Develops, implements, and monitors policies, procedures, budgets, fees, automatic aid agreements, mutual aid agreements, and serves as liaison with other county departments and outside agencies.
 - Coordinates adoption of codes and ordinances, reviews site and building plans for fire code compliance, develops and presents public education programs and manages the County's weed abatement program.
 - Manages the department's paramedic and EMT programs, responds to medical emergencies and other calls for service, provides training and oversight for the County's Public Access Defibrillation (PAD) program and participates with other community and regional health care providers to reduce public illness and injury.
 - Maintains the department's personnel, apparatus, equipment and fire stations in a state of readiness to respond to the community's needs, develops and implements standard operating procedures for various types of emergency responses, responds to all types of emergencies, and trains and interacts with neighboring jurisdictions and regional agencies.
- DeKalb County Emergency Management and Homeland Security
 - Coordinates the County's Disaster Preparedness Program, serves as liaison with all County departments and divisions, as well as the cities and other public and private organizations.
 - Develops, coordinates, and implements hazard-specific response plans.

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Capability Assessment / Mitigation Plans

- Maintains the operational readiness of the County’s Emergency Management Team, the E.O.C., and other key elements.
- Staffs the Emergency Operations Center during events and is the key coordinating Department with GEMA and other State agencies and FEMA.
- Responsible for Response and Recovery Planning.
- Assists with the development of grant applications and grant management.

DeKalb County GIS Department

- Develops and maintains the County’s GIS database.
- Responsible for the accuracy, security, and distribution of GIS data.

DeKalb County Planning and Development Department

- Develops and maintains the County Comprehensive Plan, zoning ordinances, and development standards.
- Provides research, analysis, and policy recommendations to the CEO and Board of Commissioners on land use, zoning, transportation planning, historic preservation, subdivision plat reviews, and urban design.
- Oversees the county development process assuring compliance with zoning and the Comprehensive Plan including environmental impact reports, design review, historic preservation, landscape review, habitat conservation, floodway prohibitions, and floodplain development standards.

DeKalb County Police Department

- Responds to safety concerns involving threats and/or damage to life or property.
- Acts as the enforcement entity for violations of State and local laws and ordinances.
- Primary emergency responders to acts of civil disobedience and public disorders and terrorism.
- Support personnel for emergency rescue and management.
- Investigative services for criminal acts that result in personal injury/death and the destruction of property.
- Develops and implements emergency response plans and policies, focusing on evacuation procedures and traffic control.
- Primary responders to acts of terrorism, focusing on suspect intervention and facility and staff protection.
- Responsible for the County 911 system.

DeKalb County Infrastructure Group

- Maintains county infrastructure (assets) ranging from streets to parks to buildings and vehicle fleet

SECTION FIVE

Capability Assessment / Mitigation Plans

- Responds to county emergencies, includes EOC response in disasters and assisting police and fire departments with hazardous materials clean up, traffic and perimeter control efforts, traffic accident clean up and evacuation routing.
- Operates, maintains, and enhances both the water distribution and sewer collection systems within DeKalb County, including with the city jurisdictions. Also has oversight of solid waste management.
- Is subdivided into sub-departments: Roads and Drainage, Sanitation, Transportation, Watershed Management, Parks and Recreation, Airport, and Library.
- Watershed Management is lead for the NFIP program, CRS program and flood related mitigation programs including acquisition of repetitive loss properties.
- Designed and will implement the county stormwater utility enterprise fund.
- Maintains and protects the county's parks and green spaces.
- Implements recreational programs for the County's residents.
- Maintains infrastructure at the various parks including swimming pools and picnic facilities.
- Involved with the maintenance of open space acquisitions.

Guiding Community Documents

DeKalb County has a range of guidance documents and plans for each of its departments. These include a Comprehensive Plan, public works and public utilities plans, capital improvement plans, and emergency management plans. The county uses building codes, zoning ordinances, subdivision ordinances, and various planning strategies to address how and where development occurs. One of the essential ways the County guides its future is through policies laid out in the Comprehensive Plan.

The Comprehensive Plan

DeKalb County's Comprehensive Plan is updated approximately every 10 years, but covers a 20 year planning period. It is prepared by the Planning and Development Department, but input is sought from all residents and business owners in the county. The current plan covers the period from 1995-2015, and was prepared in 1996. It is divided into ten chapters, including; Natural and Historic Resources, Population, Housing, Community Facilities, Transportation, Economic Development, Land Use, Goals and Policies, Short-Term Work Program, and the Appendix. The plan provides an assessment of existing conditions and future needs, and provides a statement of

DeKalb County
Comprehensive Plan 2005-2025

Community Agenda
Amended December 2009

Contact Us:
330 W. Ponce de Leon Avenue
Suite 500
Decatur, Georgia 30030-3221
Phone: 404-871-2155
Fax: 404-871-2619
Email: planninganddevelopment@co.dekalb.ga.us
Website: www.co.dekalb.ga.us/planning

DeKalb County Strategic Planning Division
Department of Planning and Development

http://www.co.dekalb.ga.us/planning/pdf/longRange/CommAgenda_Doc.pdf

the planned anticipated growth for the benefit of health, safety, and welfare of the present and future residents of the County. As stated in the plan itself, “the establishment of a comprehensive plan provides DeKalb County with the mechanism to direct anticipated growth and to plan for the needs of its citizens”.

Some of the County’s existing action strategies, as listed in the Comprehensive Plan, will or could have an impact on hazard mitigation. The following list includes some of those strategies.

1.2 The Initiative for a Green DeKalb:

This could incorporate appropriate use of floodplains to prevent building in hazard areas.

1.3 Rewarding property owners for maintaining contiguous areas of natural vegetation:

Helps decrease stormwater runoff.

1.5 Minimize Impervious Surfaces, Structural, and Other Controls:

All these methods have the potential to reduce stormwater runoff, thereby decreasing the potential for flooding.

1.6 Acquire by purchase, donation or easement floodplain areas for public passive recreation parks:

This has the obvious benefit of preventing development in the floodplain.

1.19 Protect natural resources from development which would create significant negative environmental or economic impacts:

This includes protecting any areas that would result in increased risk to natural hazards.

1.20 Develop an “Adopt a Stream” program to maintain drainage ways:

Keeping drainage ways free of large debris will help reduce the likelihood of blockage during a flooding event, which creates worse flooding upstream.

2.1 Encourage English as a Second Language programs:

Much information about hazards and the risks faced by the community is communicated through English. The same goes for warnings when hazards are more of an immediate threat, such as when thunderstorms are predicted within hours. Many residents of the County are not native English speakers, making the dissemination of hazard information very difficult. Any program that encourages a reduction in the existing language barrier will help protect the safety of DeKalb County’s residents.

3.8 Inform owners of housing built within the flood plains and about flood insurance and prioritize homes that flood severely:

This will obviously help deter occupancy of the floodplain, thus reducing risk to residents.

3.21 Ensure a licensing and certification program for builders and developers:

This will help to ensure quality building in the county, thereby making construction more resistant to hazards.

3.22 Strengthen local building code:

Implied is that by strengthening the code, buildings will be more resistant to hazards.

4.3 Conduct an analysis of impacts to the existing infrastructure for large developments prior to permitting to include drainage:

This would enable the county to understand the tax to the flood control and drainage system from new developments prior to their construction, thus allowing the proper planning to take place.

4.13 Increase neighborhood police patrols throughout the County:

Although intended as an effort in preventing crime, increased police patrols can also help in natural disaster scenarios, both in passing along crucial information, and helping direct emergency operations from near the source.

4.15 Identify neighborhoods lacking fire hydrants, and develop a schedule for installation:

This will lower the risk of damage and losses due to fire.

7.18 Carefully enumerate the powers of the Board of Zoning Appeals and do not permit said Board to grant any variance relating to flood plain regulations:

This helps ensure floodplain regulations are enforced properly and consistently.

7.41 Respect floodplain areas as green space overlay zones and do not permit development in floodplains regardless of previous construction:

This reduces the hazard due to floods.

In addition, the Comprehensive Plan states that “Flood prone areas ... should be reserved for less intensive uses. Many of the areas which should be preserved should be considered for park and recreation lands” and that “The floodplain areas should remain open and available for stormwater detention and flow. They should not be allowed to become incrementally developed, filled or inhibited from their natural functions.” (Page VII-23) The Comprehensive Plan goes on to suggest that floodplains be reserved not just to protect residents from flooding, but to improve quality of life, such as through development of parks, open spaces, or for bicycle and walking trails. Those areas specifically identified in the Comprehensive Plan include portions of Area Three, particularly the floodplains of Sugar Creek, Doless Creek, Doolittle Creek, Entrenchment Creek, Indian Creek, Peachtree Creek and its two forks, Stone Mountain Creek, and Crooked Creek.

Zoning and Subdivision Ordinances

DeKalb County’s zoning ordinance was adopted in 1999 and amended through the fall of 2004. In general, its stated purpose is to promote the public health, safety, morals, and general welfare of the residents of DeKalb County, and to implement the Comprehensive Plan. An entire portion of the ordinance (Division 3) is dedicated to defining the ordinance’s relationship to the Comprehensive Plan. The zoning ordinance is Chapter 27 of the County’s Code of Ordinances.

Building Codes

The County’s Building Code can be seen online at www.municode.com. It is Chapter 7 of the County’s Code of Ordinances. Among other things, the building code addresses fire prevention and fire safety. The code is modeled after the ISO, and many of the incorporated cities within DeKalb County use the same or a slightly modified version of this code.

Floodplain Management Program and Ordinance

The Floodplain Management Ordinance for DeKalb County exceeds the minimum standards of the NFIP. Floodplain management is administered by the Department of Watershed Management with the

support of planning and inspections. The ordinance, among other things requires 3' of additional elevation or freeboard above the base flood elevation for new or substantially improved construction. Also, sites that are 30% or more within the floodplain must provide no adverse impact studies prior to permits being issued. The county also has some regional flooding maps that include drainage flooding issues in addition to inundation area mapping. These maps are used as part of the overall decision making process for floodplain management and permitting. The maps are comprised of delineations on tax maps based on known historical flooding areas.

DeKalb County Repetitive Loss Flood Prone Structures Acquisition Program

As noted elsewhere in the plan, the County, through Watershed Management administers a program to acquire flood prone homes when it proves cost beneficial. The acquisitions are funded with grants from FEMA. The County purchases existing flood prone property from owners on a voluntary basis. In return, the structures are relocated outside of the floodplain or demolished. Once relocations/demolitions are complete, the County agrees to maintain the purchased land in perpetuity as open space. Guidelines for selecting and prioritizing properties to be acquired include:

- Owners willingness to participate
- Properties located within the floodway
- Properties with 2 to 3 losses that exceed the fair market value or 4 or more losses since 1978
- Properties with 2 or more insured losses within any 10 year period
- Substantially damaged properties
- Properties with the highest Benefit/Cost Ratio
- Properties with the largest amount of damages
- Properties with the highest depth of flooding above the first floor elevation during the 2002 flood

NFIP Community Rating System (CRS) - Floodplain Management Plan

DeKalb County is a Class 7 participant in the National Flood Insurance Program's (NFIP's) Community Rating System (CRS), resulting in a 15% reduction in flood insurance premiums for all DeKalb County residents and businesses holding flood insurance policies and 5% for flood policy holders voluntarily carrying flood insurance. In addition to the County, all of the incorporated cities (Avondale Estates, Chamblee, Clarkston, Decatur, Doraville, Dunwoody, Lithonia, Pine Lake, and Stone Mountain) are participants of the NFIP. Further information about each of their programs is included in the appropriate part of Section 5 of this document.

The Stormwater Management Utility – Enterprise Fund

The County has recently developed a stormwater utility, with associated property owner fees. The stormwater utility was developed as a way to fund the changes needed to comply with the NPDES requirements. The stormwater infrastructure in DeKalb County is becoming increasingly complex. In order to protect properties from flooding, and to preserve and enhance the environmental quality of area watersheds, a means of providing effective storm water management was needed. The utility serves this role by acting somewhat distinctly from the County. Instead of raising money through taxes, the utility assesses fees to landowners. The fee structure is based on the amount of impervious surface on the property, so that payment is based on actual stormwater produced.

The Stormwater Management Manual contains sections on the County's land development regulations, hydrology, storm drainage systems, culvert design, open channel hydraulics, storage facilities, energy

dissipation, and water quality best management practices. The manual provides the county a means for long-range planning for all its stormwater management needs. The program once fully funded will provide means for funding drainage related flood loss reduction initiatives. When the program is fully operational it will be staffed by approximately 16 employees to run the program and seek additional sources of grant funding from other sources.

Natural Resource Protection Legislation

Although one guiding document is not in existence that contains all the legislation protecting natural resources in DeKalb County, there are several separate documents that list these. One important act which has an impact on flooding is the Metropolitan River Protection Act of 1973. This act affects the Chattahoochee River by creating a protected area extending 2,000 feet from either bank of the river. This corridor includes a 50-foot undisturbed buffer and 150 foot impervious surface setback, a 35-foot undisturbed buffer along all tributary streams, restrictions on the amount of land disturbance and impervious surface allowed, and balancing of cut and fill in the floodplain.

Previous Mitigation Activities

In addition to its participation in the CRS program, DeKalb County has successfully procured grants and completed mitigation projects in the past, demonstrating the ability to do so. Some recent projects include:

- 1992 – 2 flood prone property acquisitions
- 1993-1997 - 13 additional repetitive loss property acquisition and demolition projects
- 1998-2003 - 6 additional acquisitions of flood prone repetitive loss properties
- 2004 - 24 property acquisitions using FEMA FMA AND HMGP (1209-0042 AND 0059) funding. This project had an approximate completion cost of \$4.5 Million
- 2004 – July 2010 – Drew Valley dentition facility and additional acquisitions.

DeKalb County will use the stormwater utility enterprise fund as local match for additional flood mitigation projects.

GIS, Computer, and Communication Technology

The County maintains a GIS system. Hazard layers created for this plan will be incorporated into that system for future planning and updates. The inventory of structures falling within hazard prone areas, as identified by this plan, along with information including the value of each structure will be included in the system and updated periodically. The County has a fully functional 911 emergency telephone system and dispatch capabilities as well as a reverse 911 system to issue warnings in advance of disasters.

The County is fully functional on the internet and has its own web site, which will be used to assist with communication necessary for implementation and future updates of this plan.

Financial Resources

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The County's yearly revenue has steadily grown over the last 10 years. In 1995 the revenues for the County was just under \$300 million. For 2005, that number is estimated to be just over \$500 million. The largest portion of the County's revenue comes from property taxes.

The County's budget has changed very little from 2004 to 2005, with most departments seeing a slight increase in budget; a reflection of the slight increase in the projected revenue for the year. The exceptions are the Public Works, Grady Hospital, and Capital projects, all of which have a decreased budget for the 2005 fiscal year. Public safety uses \$152 million which is the largest share of the \$502.8 million budget. Courts & Jail have a budget of \$117.3 million. Together, the budgets for Information Systems, Facilities Management, Public Works, Parks, and Capital Projects total about \$100 million.

The administrative and technical capabilities of the County are shown in Table 5.3-1, through identification of the staff, personnel, and department resources available to implement the actions identified this plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community.

**Table 5.3-1
DeKalb County: Administrative and Technical Capacity**

Staff/Personnel Resources	Y/N	Department/Agency and Position
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	Dept. of Planning and Development
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Dept. of Public Works and Dept. of Watershed Management
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Yes, Public Works and Dept. of Watershed Management
D. Floodplain manager	Y	Dept. of Watershed Management
E. Surveyors	Y	Dept. of Watershed Management and Dept. of Public Works
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Public Safety
G. Personnel skilled in GIS and/or HAZUS	Y	GIS Department
H. Scientists familiar with the hazards of the community	Y	Various
I. Emergency manager	Y	Emergency Management / Homeland Security
J. Grant writers	Y	Handled by individual departments

The legal and regulatory capabilities of DeKalb County are shown in Table 5.3-2, which presents the existing ordinances and codes that affect the physical or built environment of the County. Examples of

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legal and/or regulatory capabilities can include: the County’s building codes, zoning ordinances, subdivision ordinances, special purpose ordinances, growth management ordinances, site plan review, comprehensive plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

**Table 5.3-2
DeKalb County: Legal and Regulatory Capability**

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit (Y/N)
A. Building code	Y	N
B. Zoning ordinance	Y	N
C. Subdivision ordinance or regulations	Y	N
D. Special purpose ordinances (floodplain management, storm water management)	Y	N
E. Growth management ordinances (also called “smart growth” or anti-sprawl programs)	Y	N
F. Site plan review requirements	Y	N
G. General or comprehensive plan	Y	N
H. A capital improvements plan	Y	N
I. An economic development plan	Y	N
J. An emergency response plan	Y	N
K. A post-disaster recovery plan	N	N
L. A post-disaster recovery ordinance	N	N
M. Real estate disclosure requirements	N	N

5.3.1.2 Fiscal Resources

Table 5.3-3 shows specific financial and budgetary tools available to DeKalb County such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water, sewer, gas, or electric services; impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

**Table 5.3-3
DeKalb County: Fiscal Capability**

Financial Resources	Accessible or Eligible to Use (Yes/No)
A. Community Development Block Grants (CDBG)	Y
B. Capital improvements project funding	Y
C. Authority to levy taxes for specific purposes	Y – Vote required
D. Fees for water, sewer, gas, or electric service	Y
E. Impact fees for homebuyers or developers for new developments/homes	N
F. Incur debt through general obligation bonds	Y
G. Incur debt through special tax and revenue bonds	Y – Vote required
H. Incur debt through private activity bonds	N
I. Withhold spending in hazard-prone areas	N
J. Other Grants	N

5.3.2 Goals and Objectives and Actions

After review of the hazard identification and risk assessment and capabilities assessment, the County and cities (through the MAC) discussed the results, reviewed the mitigation goals and alternatives based on the priority areas and hazard types, and began developing a mitigation strategy. In addition, the multi-jurisdictional goals and objectives were solidified. They are discussed in more detail in sub-section 5.3.2.1, below.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdictions’ current capabilities. These preliminary goals, objectives, and actions were developed to represent a vision for long-term hazard reduction or enhancement of capabilities. To help in further development of these goals and objectives, the County compiled and reviewed current jurisdictional sources including the County’s planning documents, codes, and ordinances. In addition, County representatives met with consultant staff to specifically discuss these hazard-related goals, objectives, and actions as they related to the overall plan. Separate meetings were held with each city’s LPG to discuss their specific input to the goals and objectives.

One meeting of the MAC, with the public invited, and two public Board of Commissioner meetings were held to present the preliminary goals, objectives, and actions to interested citizens as well as to receive their continued input. At these meetings, specific consideration was given to hazard identification/profiles and the vulnerability assessment results. *The following sections present the hazard-related goals, objectives, and actions as prepared by the MAC and LPGs.*

5.3.2.1 Goals

DeKalb County and its nine incorporated cities have developed the following 5 goals for their Hazard Mitigation Plan. Objectives for achieving each goal are discussed in the subsequent section.

- Goal 1. Promote disaster resistant future development.
- Goal 2. Increase public understanding and support for effective hazard mitigation.
- Goal 3. Build and support capacity and commitment to become less vulnerable to hazards.
- Goal 4. Enhance hazard mitigation coordination and communication between federal, state, and local governments.
- Goal 5. Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities, due to all hazards found in DeKalb County.

5.3.2.2 Objectives

The same participants developed the following broad list of objectives to assist in the achievement of each of its five identified goals. For each of these objectives, specific actions were developed that would assist in their implementation. A discussion of the prioritization and implementation of the action items is provided in the following Section 5.3.2.3.

MITIGATION GOALS AND OBJECTIVES
Goal 1: Promote disaster resistant future development
<i>Objective 1.A: Facilitate the development or updating of the Comprehensive Plan and zoning ordinances to limit (or ensure safe) development in hazard areas.</i>
<i>Objective 1.B: Facilitate the adoption of building codes that protect existing assets and restrict new development in hazard areas.</i>
<i>Objective 1.C: Facilitate consistent enforcement of the Comprehensive Plan, zoning ordinances, and building code.</i>
Goal 2: Increase public understanding and support for effective hazard mitigation.
<i>Objective 2.A: Educate the public to increase awareness of hazards and opportunities for mitigation activities.</i>
<i>Objective 2.B: Increase public understanding, support and demand for hazard mitigation for new developments.</i>
<i>Objective 2.C: Promote hazard mitigation in the business community.</i>

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<i>Objective 2.D: Monitor and publicize the effectiveness of mitigation actions implemented countywide.</i>
Goal 3: Build and support capacity and commitment to become less vulnerable to hazards.
<i>Objective 3.A: Increase awareness and knowledge of hazard mitigation principles and practice among County Department officials.</i>
<i>Objective 3.B: Provide technical assistance to city jurisdictions to implement their mitigation plans.</i>
<i>Objective 3.C: Address identified data limitations regarding the lack of information about new development and build-out potential in hazard areas.</i>
<i>Objective 3.D: Address data limitations identified in Hazard Profiling and Risk Assessment.</i>
Goal 4: Enhance hazard mitigation coordination and communication with federal, state, and local governments.
<i>Objective 4.A: Participate in initiatives that have mutual hazard mitigation benefits for the county, cities, state, and federal governments.</i>
<i>Objective 4.B: Encourage other organizations to incorporate hazard mitigation activities into their existing programs and plans.</i>
<i>Objective 4.C: Continue partnerships between the state and local governments to identify, prioritize, and implement mitigation actions.</i>
<i>Objective 4.D: Continuously improve the County's capability and efficiency at administering pre- and post-disaster mitigation.</i>
<i>Objective 4.F: Provide technical support to cities in administering pre- and post-disaster mitigation programs.</i>
<i>Objective 4.G: Coordinate recovery activities while restoring and maintaining public services.</i>
Goal 5: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to all hazards found in DeKalb County.
<i>Objective 5.A: Educate local residents and businesses on the range of flooding that could affect the County and the potential impact.</i>
<i>Objective 5.B: Participate in initiatives that result in better risk communication and the evaluation of threats.</i>
<i>Objective 5.C: Decrease the vulnerability of public infrastructure including facilities, roadways, and utilities.</i>
<i>Objective 5.E: Record, collect, and maintain a comprehensive list of hazard related data.</i>
<i>Objective 5.F: Minimize repetitive losses caused by flooding.</i>
<i>Objective 5.G: Protect existing assets with the highest relative vulnerability to the effects of floods within the 100-year floodplain.</i>
<i>Objective 5.H: Strengthen existing development standards in high threat areas.</i>

<i>Objective 5.I: Address identified data limitations regarding the lack of information about the relative vulnerability of assets from the various hazards.</i>
<i>Objective 5.J: Obtain better information on highest risk county-owned buildings in the County.</i>
<i>Objective 5.K: Perform mitigation alternative studies at known hazard areas.</i>
<i>Objective 5.L: Educate property owners in hazard areas on preparation and mitigation techniques.</i>
<i>Objective 5.M: Protect floodplains from inappropriate development.</i>

5.3.2.3 Prioritization and Implementation of Mitigation Action Items

Once the comprehensive list of jurisdictional goals and objectives listed above was developed, proposed mitigation actions were developed and prioritized. This step resulted in a list of acceptable and realistic actions that address the hazards identified in each jurisdiction. This prioritized list of action items was formed by the LPG as a result of weighing STAPLE/E criteria.

The Disaster Mitigation Action of 2000 (at 44 CFR Parts 201 and 206) requires the development of an action plan that not only includes prioritized actions but one that includes information on how the prioritized actions will be implemented. For each of the strategies developed, the goal and objective(s) addressed are listed. In addition, each mitigation action item includes a priority level, responsible department, implementation strategy, timeframe for implementation, a potential funding source, and a discussion of the action’s benefits and costs. A description of each of these components is included below:

Priority Level: For each mitigation measure a priority level of *Very High, High, Medium, or Low* has been assigned. These priority levels have been developed based on input from Committee members, the overall planning consideration of the hazard as assigned in the hazard identification section of this document, the anticipated benefit-cost ratio, and consideration of the STAPLE/E criteria.

Responsible Department: The responsible department listed for each alternative is tasked with the lead role in all aspects of the implementation of that measure. However, many of the measures identified will require effort and support from other departments. The responsible department is expected to coordinate the efforts of all local departments as well as relevant regional, state, and federal entities.

Implementation Strategy: The implementation strategy developed for each measure includes a general description of potential methods that could be utilized or actions that could be taken. Due to the complex nature of a number of these measures, not all of the listed methods will ultimately prove feasible. Before initiating the implementation of each measure, the responsible department should develop a detailed project plan with particular attention to technical feasibility and cost effectiveness.

Timeframe for Implementation: The timeframe for implementation describes the length of time from the date of plan adoption to the target date for completion. It should be noted that timeframes listed

are goals and may be influenced by additional factors. Through the development of detailed project plans by the responsible department, the timeframe will be evaluated and revised as necessary.

Potential Funding Source: For each mitigation measure, potential funding sources are listed. Whenever possible, non-local sources of funding have been identified, including state and federal grants. The sources listed are not intended to represent all possible options. Additional opportunities for funding may be identified during implementation.

Benefit vs. Cost: For most measures, a general discussion comparing potential benefits and costs is provided and an anticipated level of cost effectiveness assigned. The levels assigned include *Highly Cost Beneficial*, *Cost Beneficial*, and *Potentially Cost Beneficial*. This discussion is not intended to replace a full benefit cost analysis that should be completed prior to implementation.

The prioritized mitigation actions, as well as an implementation strategy for each, are numbered within their appropriate heading: GEN (General Mitigation), WIN (Wind), FLD (Flood), ICE (Winter Storm), DAM (Dam Breach) EQ (Earthquake), EH (Extreme Heat) and WDF (Wildfire).

The proposed actions are listed and described below:

Action # GEN 1: Incorporation of Elements of this Plan into the Comprehensive Plan: A means for incorporating this plan into the County's existing plans, policies, or ordinances is required. The DeKalb County Comprehensive Plan is currently being examined for update. The Comprehensive Plan establishes the policy framework upon which regulations, codes, ordinances, and other programs are shaped. For that reason, it is the most efficient and effective document to incorporate elements of this mitigation plan. It is also a document with much broader distribution and interest throughout the County. Each revision of the Comprehensive Plan will include a review of this plan. The appropriate elements and hazard mitigation strategies will be included in the revision.

Priority: Very High

Objective(s) Addressed: 1A, 1C

Coordinating Individual/Organization: DeKalb County Planning Department, with Stakeholder and MAC input.

Implementation Strategy: Review Hazard Mitigation Plan concurrently with revision of Comprehensive Plan. Incorporate as many of the Hazard Mitigation Plan elements into the Comprehensive Plan as appropriate.

Timeframe for Implementation: Beginning with the next update of the Comprehensive Plan and continuing with each additional update.

Potential Funding Source: N/A

Current Status: Ongoing

Action # GEN 2: Post-Disaster Inspections Plus Mitigation Strategies: In a post storm environment, roadways, bridges, culverts and other infrastructure are inspected for damage. Those individuals conducting the inspection may have many good ideas about ways the damage could have been prevented. However there is currently no official structure for receiving the opinions of these individuals. The process of inspections could be slightly modified to include documentation of mitigation strategies during the post-disaster inspections.

Priority: Very High

Objective Addressed: 3A, 4D, 5B, 5C and 5F

Coordinating Individual/Organization: DeKalb County Infrastructure Group of Departments & Emergency Management Departments, All participating Cities Public Works Departments

Implementation Strategy: Create a checklist to be used by the inspectors in the field in a post-disaster environment. The checklist will include an area for mitigation opportunities to prevent future damage. This information will be quickly inventoried and captured in a database and the locations of damage mapped in GIS, for further examination and possible inclusions in updates of this plan.

Timeframe for Implementation: Beginning within 6 months of adoption of this plan and continuing with each disaster event.

Potential Funding Source: Departmental Budgets

Current Status: Currently updating Management Systems – Now Planning and Development tracks substantial damage.
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Action # GEN 3: Critical Facility Data Reconciliation and Audits: The three sources of information for critical facilities in the County overlap in many areas and are not consistent. This is due in part to the fact that the definitions of critical facility vary from source to source. As part of this plan, the MAC, LPGs, and consultant updated information in the GEMA critical facilities inventory tool. Reconciliation of the data sets at the county and local level is needed. Those facilities located in the highest identified risk zones should be audited for mitigation alternatives.

Priority: High

Objective Addressed: 3B, 3D, 4D, 4F 5C, 5E, 5I, 5J, 5K, 5L

Coordinating Individual/Organization: DeKalb County Infrastructure group of Departments, Building Inspectors and Facilities Management with support from GIS – City Public Works Departments

Implementation Strategy: The County will work with all jurisdictions to complete a thorough review of all critical facility data sources and create one database. Any structures missed in the update of the GEMA tool will be updated. Once there is one database, the county and the cities will conduct voluntary critical facilities audits of those structures located in the highest hazard prone areas. Audits will include scheduling visits to the facilities with hazard educated engineers. Data will be collected on building materials, elevations, if available, and other factors pertinent to the particular hazard. Audits will result in a brief (one or two page) summary of actions that the building owners could undertake to minimize potential losses in the futures and will help educate property owners on preparedness and mitigation techniques.

Timeframe for Implementation: Beginning with completed data reconciliation within one year of plan adoption. Then, 5 or more facility audits to be conducted within one year of data reconciliation. All facilities (willing to participate) should be audited within 5 years.

Potential Funding Source: Departmental Operating Budgets, Enterprise Fund, FEMA PDM-C Planning Funds

Current Status: The County still wants to pursue but are not sure of the level of accomplishment to date.

Action # GEN 4: Electronically Publicize Risk Data: The planning process identified, with the possible exception of flooding, a lack of awareness throughout the County and cities about the vulnerability that exists for many hazards. The risk information generated through this planning document, along with other miscellaneous risk information, is not widely available to the residents of DeKalb County. Having the information available over the internet would help to make residents, business owners, and all of DeKalb County more aware of hazards and their associated risks.

Priority: High

Objective Addressed: 2A, 2B, 2C, 2D, 3A, 3B, 4B, 4D, 4F, 5A, 5B, 5F, 5L and 5M

Coordinating Individual/Organization: DeKalb County Information Technology, with support from the GIS Department, Webmasters for the City jurisdictions

Implementation Strategy: A web page with appropriate links will be added to the County's website. Among other items, this plan will be posted with instructions and a means for residents

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and businesses to provide feedback through the website. Each participating jurisdiction with a website will, at minimum post a link to the County's website.

Timeframe for Implementation: Beginning within 1 year of plan adoption and continuing as necessary updates occur.

Potential Funding Source: Departmental Operating Budgets

Action # GEN 5: Storm Ready Designation: DeKalb County could benefit from additional awareness and outreach for storm readiness.

Priority: Medium

Objective Addressed: 3A, 4D

Coordinating Individual/Organization: Emergency Management and Homeland Security

Implementation Strategy: Meet with National Weather Service to review criteria for receiving "storm ready" designation. Compare criteria against programs and actions in this plan.

Timeframe for Implementation: Beginning within 2 years of plan adoption

Potential Funding Source: Departmental Budgets

Current Status: Accomplished action.

Action # FLD 1: Drew Valley Subdivision Property Acquisitions: The Drew Valley subdivision is an older, established neighborhood of single family homes, mostly constructed in the 1950's and 1960's. Many of these homes are built directly next to creeks, and have flooded several times. Two recent flood events, June 16-17, 2003, and Hurricane Ivan in the fall of 2004, were accurately recorded with photos and high water marks of the flooding in some of the homes. The 15 homes identified in this project for acquisition, generally have the highest flood risk of close to 100 homes in the neighborhood floodplain. These homes were also determined to be the most difficult to reduce flood risk through drainage improvement projects. Another project in the area (Action # FLD 2) is a series of drainage improvements which will substantially reduce the risk of the homes in the floodplain, except for these 15. These homes have lowest floor elevations are below the 10-year flood level. Eliminating these properties from the floodplain would reduce the flood insurance burden on those still in the program and add open space in the County as targeted in the Comprehensive Plan of the County and many of the Cities.

Priority: Very High

Objectives Addressed: 1A, 4D, 5F, 5M, 5L, 5G

Coordinating Individual/Organization: Floodplain Administrator, DeKalb County Public Works, Roads & Drainage Division

Implementation Strategy: Conduct voluntary property acquisition program for the 15 homes, create open space with vacant lots, preserve in perpetuity.

Implementation Timeline: Beginning within 12 month from date of plan adoption and carried out as funding allows

Benefit vs. Cost: FEMA B/C module yields a ratio of about 2

Potential Funding Source: PDM grant (75% share), DeKalb County Stormwater Utility Fee Enterprise Fund (25%) – HMGP as alternate potential source.

Current Status: Accomplished through FEMA HMGP grant.
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Action #FLD 2: Drew Valley Subdivision Drainage Improvements: The Drew Valley subdivision is an older, established neighborhood of single family homes, mostly constructed in the 1950's and 1960's. Many of these homes are built directly next to creeks, and have flooded several times. Two recent flood events, June 16-17, 2003, and Hurricane Ivan in the fall of 2004, were accurately recorded with photos and high water marks of the flooding in some of the homes. Through detailed modeling and analysis, DeKalb County has identified a series of drainage improvements within the neighborhood which would substantially reduce the flood risk to at least 40 homes. The proposed improvements consist of a detention pond to be located near the upstream end of the neighborhood, to substantially attenuate peak flood flows for the 2-year through 100-year flood events for the downstream homes. In conjunction, several culvert openings under road crossing would be enlarged, reducing the hydraulic back-up which contributes to existing flooding. The detention pond will eliminate increased peak flows that would result downstream of the culvert enlargements.

Priority: Very High

Objectives Addressed: 5F, 5M, 5L, 5G, 5A, 4D, 1A

Coordinating Individual/Organization: Floodplain Administrator, DeKalb County Public Works, Roads & Drainage Division

Implementation Strategy: Construct the already designed drainage improvements described above.

Benefit vs. Cost: FEMA B/C module yields a ratio of about 2.

Implementation Timeline: Beginning within 24 months of adoption continuing as funding allows

Potential Funding Source: PDM grant (75% share), DeKalb County Stormwater Utility Fee Enterprise Fund (25%) – HMGP and FMA grant programs as back up with same match.

Current Status: Detention pond completed; 2 box culverts under Drew Valley Rd started and rest will be underway in Fall 2010.

Action #FLD 3: Jackson Square Condominium Acquisitions: 32 Units of townhouse style condominium units sit near the banks of North Fork Peachtree Creek, and have lowest floor elevations below the 10-year flood level. The structures were constructed in 1965, and were apartments until bankruptcy and sale to a developer in 2000, when they were subsequently converted to condominiums. The units were not substantially improved at that time; therefore, minimum permits were required for the conversion. Approximately half of these units flooded on June 17, 2003, from about 3.5” of rain across the 32 square mile drainage area. All of these units flooded from the rains of Hurricane Ivan in the fall of 2004, which was estimated to be less than a 10-year rainfall event in this area. DeKalb County has explored other mitigation actions, but none are feasible to reduce the risk of flooding to these homes. Therefore, property acquisitions and demolition is the most cost effective solution, which is backed up by the FEMA B/C module. Eliminating these properties from the floodplain would reduce the flood insurance burden on those still in the program and add open space in the County as targeted in the Comprehensive Plan of the County and many of the Cities.

Priority: Very High

Objectives Addressed: 5F, 5M, 5L, 5G, 5A, 4D, 1A

Coordinating Individual/Organization: Floodplain Administrator, DeKalb County Public Works, Roads & Drainage Division

Implementation Strategy: Conduct property acquisitions, and develop permanent open space at the site.

Benefit vs. Cost: FEMA B/C module yields a ratio of about 2.

Implementation Timeline: Beginning within 12 months of plan adoption and continuing as funding allows

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Potential Funding Source: PDM grant (75% share), DeKalb County Stormwater Utility Fee Enterprise Fund (25%) – HMGP and FMA Grant funds as back-up with same match source.

Current Status: Accomplished action.

Action #FLD 4: Medlock Park Area Flood Property Acquisitions: The Medlock Park area is an older, established neighborhood of single family homes. Many of these homes are built directly next to creeks, and have flooded several times in the past. Approximately 43 homes are located in the floodplain in this subdivision, and about 20 have experienced serious flooding in the past. A few homes have already been bought out and demolished through HMGP grants. Eliminating these properties from the floodplain would reduce the flood insurance burden on those still in the program and add open space in the County as targeted in the Comprehensive Plan of the County and many of the Cities.

Priority: Very High

Objectives Addressed: 5F, 5M, 5L, 5G, 5A, 4D, 1A

Coordinating Individual/Organization: Floodplain Administrator, DeKalb County Roads & Drainage Division

Implementation Strategy: Develop Benefit Cost Analysis, Seek Grant Funding, acquire and demolish homes, develop permanent open space on the site.

Benefit v. Cost: To be determined. An advantageous B/C ratio is expected for the acquisition of at least some homes.

Timeframe for Implementation: Beginning within 24 months of plan adoption and continuing as funding allows

Potential Funding Source: Future Year PDM/HMGP grants (75% share), DeKalb County Stormwater Utility Fee Revenue (25%) – FMA as back-up, US Army Corp of Engineers

Current Status: Most of this action has been completed.

Action #FLD 5: Enhance Property Acquisition Program in All Repetitive Loss Areas: In addition to the specific projects listed above, the County has several more repetitive loss areas (see Section 4.3.1.1) and has identified over 100 homes for potential acquisition. The owners of these properties have expressed a desire to be bought out by the County. Eliminating these properties from the floodplain would reduce the flood insurance burden on those still in the program and add open space in the County as targeted in the Comprehensive Plan of the County and many of the Cities. There is a list of buildings with

interested owners maintained by Public Works. This project is not limited to homes on the list and will be available to all qualifying homes throughout the County.

Priority: Very High

Objectives Addressed: 5F, 5M, 5L, 5G, 5A, 4D, 1A

Coordinating Individual/Organization: Floodplain Administrator, DeKalb County Public Works, Roads & Drainage Division

Implementation Strategy: Develop Benefit Cost Analysis for prioritized properties, acquire funding, acquire and demolish structures on a funding available basis, preserve open space in perpetuity.

Benefit v. Cost: To be determined. An advantageous B/C ratio is expected for the acquisition of at least some homes.

Timeframe for Implementation: Beginning with a benefit cost analysis on selected structures and grant applications within one year of plan adoption, then ongoing for 5 years, funding dependent.

Potential Funding Source: Future Year PDM/HMGP grants (75% share), DeKalb County Stormwater Utility Enterprise Fund (25%), HMGP and FMA, U.S. Army Corp of Engineers

Current Status: Ongoing.

Action #FLD 6: Cooperating Technical Partner – Map Modernization: The basis for a sound floodplain management program is the quality of the risk information upon which development decisions are made. The FEMA FIRMS are the best available depiction of overall flooding risk in the County. The current FIRMS are outdated. FEMA is currently geo-referencing and completing a database for the digital flood maps as part of its overall map modernization initiative. It is not, however, updating the inundation studies. The digital maps FEMA is producing will provide a platform from which updated flood data (hydrologic, topographic, and hydraulic analysis modeling) can be added at a fraction of the cost and time previously required. FEMA Region IV has begun a process of scoping hazard mapping needs in DeKalb County. The county will seek an increased role in the re-mapping process via a Cooperating Technical Partnership (CTP) agreement with FEMA to ensure the accuracy and quality of new countywide mapping.

Priority: Very High

Objectives Addressed: 4A, 4C, 5H, 5I, 5J

Coordinating Individual/Organization: DeKalb County Public Works, Decatur Public Works Department – with input from other city NFIP administrators

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Implementation Strategy: Enter into a CTP agreement with FEMA and develop a mapping activity statement to actively participate in the scoping of flood hazard data updates for the new digital flood maps

Benefit v. Cost: FEMA has determined the re-mapping flood hazards is cost beneficial.

Timeframe for Implementation: Beginning with a CTP agreement within one year of adoption of plan, complete project within 3 years, outside funding dependent

Potential Funding Source: FEMA Map Modernization Program – Cooperating Technical Partners funds with match from Stormwater Enterprise Fund.

Current Status: Ongoing; RiskMAP products will be included once complete.
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Action #FLD 7: Monitor Repetitive Loss (RL) Properties for Substantial Improvement: Changes and alterations to repetitive loss properties can have a significant impact on whether they continue to flood. A systematic way of keeping track of these changes would help keep the County's repetitive loss database updated. DeKalb County will monitor RL properties for substantial improvements and will complete RL verification forms to keep FEMA lists current. The County will further monitor the performance of Substantially Improved buildings meeting current NFIP standards after floods. The County will also conduct voluntary audits of repetitive loss structures to assess specific vulnerability to flood hazards and develop recommendations for potential mitigation measures. These programs will be geared to educating homeowners on potential mitigation strategies. As part of this program, the County will pursue removing repetitive loss structures that no longer qualify as repetitive losses.

Priority: High

Objectives Addressed: 1C, 4D, 5E, 5F, 5H, 5L

Coordinating Individual/Organization: DeKalb County Public Works, Planning and Development Department, NFIP Administrators of all participating cities.

Implementation Strategy: During the permitting process, the County will continuously monitor existing repetitive loss structures for substantial improvement. Develop a system of record keeping to easily track and update annually repetitive loss properties as per FEMA's repetitive loss verification sheets.

Benefit v. Cost: N/A.

Timeframe for Implementation: Beginning with plan adoption and continuing as permit applications for RL properties are submitted.

Potential Funding Source: Departmental Operating Budget

Current Status: Ongoing.

Action #FLD 8: Lower CRS Rating to Class 7: DeKalb County and the City of Decatur participate in the NFIP CRS program and are both currently Class 8 participants, resulting in 10% insurance premium discounts. The County and City both believe with the completion of this plan they will be engaged in enough mitigation activities to have enough rating points to move to a Class 7.

Priority: High

Objectives Addressed: 2A, 4D, 5A, 5F, 5G, 5L

Coordinating Individual/Organization: DeKalb County Public Works, Decatur Public Works

Implementation Strategy: Schedule a verification meeting with FEMA's contractor, ISO, to review activities and apply for re-classification

Benefit v. Cost: Cost is minimal for significant benefit

Timeframe for Implementation: Beginning with a complete evaluation and program design within 2 years of plan adoption

Potential Funding Source: Departmental Operating Budget

Current Status: Completed; will be updated if necessary.

Action #FLD 9: Flood Insurance Public Education: There are nearly 17,000 structures in the floodplains throughout DeKalb County and only 3,400 flood insurance policies in effect. DeKalb County will design an outreach program to promote the purchase of insurance.

Priority: Medium

Objectives Addressed: 2A, 4D, 5A, 5F, 5G, 5L C, 4A

Coordinating Individual/Organization: DeKalb County Planning Department and Emergency Management, with the assistance of the Cities Public Works Departments

Implementation Strategy: Meet with FEMA and GA DNR Floodplain Management Program Staff to develop two programs. Solicit help from FEMA to have its Bureau and Statistical Agent to do more regularly scheduled training sessions for insurance agents and banks. Develop outreach materials for distribution with tax bills. Materials will explain the benefits of flood insurance and the consequences of not having it.

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Benefit v. Cost: Cost is minimal for significant benefit

Timeframe for Implementation: Within 3 years of plan adoption, two programs will be developed and outreach materials will be distributed in tax bills

Potential Funding Source: Departmental Operating Budgets

Current Status: Roads and Drainage website updated along with the floodplain assistance form. Adjustments made for Class 7 requirements.

Action #FLD 10: Develop Twice Per Year (or more) Creek Walks for Major Flooding Sources: Public sentiment during the planning process indicated that there are certain groups who feel more needs to be done to maintain stream channels by clearing debris and other invasive materials. The County will identify local groups, such as watershed associations and develop a program to have creek walks twice per year at each location to remove easily removable debris and to monitor and report other situations that may exacerbate flooding.

Priority: Medium

Objectives Addressed: 1C, 2A, 2C, 4D, 5A, 5B, 5C, 5E, 5F 5G

Coordinating Individual/Organization: DeKalb County Department of Watershed Management, Public Works Department with assistance from Emergency Management and select city Public Works Departments, along with Keep DeKalb Beautiful

Implementation Strategy: Identify stakeholder groups to assist and sponsor, notify abutting residents, schedule and guide the first inspection of each group and provide instructions on what can and cannot be realistically addressed after the findings of their walking inspection. Set a schedule for twice per year walks and make staff available to participate.

Benefit v. Cost: Cost is minimal, payoff is great.

Timeframe for Implementation: 2 years

Potential Funding Source: Departmental Operating Budgets

Current Status: Ongoing.

Action # WIN 1: Tornado Safe Rooms: Tornadoes, hurricanes, and other extreme wind events pose significant threat to the entirety of DeKalb County. Historically, DeKalb County has experienced a multitude of violent, storm related weather events, resulting in death, injuries, and property damage throughout the county. As a result, DeKalb has been declared in three Presidential Emergency Declarations in the past few years alone. Some examples are the Dunwoody tornadoes in 1998, (2 killed, hundreds injured), Ice Storm in 2000 (millions in infrastructure and property damage), Hurricane

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Ivan in 2004 (millions in infrastructure and property damage). Unfortunately, not all residents of the county have a safe place to retreat to during severe weather. This is especially true for large gatherings of people at schools, government buildings, county and municipal recreational venues (parks, stadiums), shopping malls, and other public places. If a tornado were to strike such a place, large numbers of lives could potentially be lost. Safe rooms are hardened areas designed to reduce or eliminate the destructive impact of severe weather, and other hazardous occurrences.

Priority: Very High

Objectives Addressed: 4A, 4C, 4D, 5B, 5J

Coordinating Individual/Organization: DeKalb County Facilities Management, Development Department (Building Inspection), DeKalb County Emergency Management, and LPG designee from each participating city.

Implementation Strategy: Form an assessment team to conduct a systematic review and analysis of designated facilities. A study will identify and determine the most beneficial locations for constructing / installing safe rooms around the county. Recommendations from the study could be incorporated into future revisions of this plan as a means to construct the safe rooms.

Benefit v. Cost: Anticipated to be cost beneficial, as many lives could be saved by safe rooms such as these

Potential Funding Source: FY2005 PDM grant (75% share), DeKalb County Government General Funds (25% Share), HMGP, Department of Homeland Security Grants

Implementation Timeline: 5 Years from date of plan adoption

Current Status: Not studied due to lack of funding.

Action #WIN 2: Wind Retrofit Project – 1950 and 1960 West Exchange Buildings: DeKalb County recently acquired twin buildings which are located in close proximity to east and west bound I-285 and Lavista Road in Tucker, Georgia. Their respective addresses are 1950 and 1960 West Exchange, Tucker Georgia 30084. These twin 5 story glass surrounded structures were constructed approximately 14 years ago and may have been exempt from certain building codes, standards, and construction techniques that would reduce their vulnerability to severe wind storms. This is of special concern to DeKalb County Emergency Management Officials because the county is currently in the process of relocating it's main Command and Control Operations for Police, Fire and Rescue, Homeland Security, 911 Emergency Communications Center, the County Wide Emergency Operations Multi Agency Command Center, Telecommunications department, and other highly critical and essential systems into both buildings. Disruption to these Critical Facilities due to broken and flying glass would have a devastating effect on the County's ability to deliver police, fire, and rescue services that provide security against loss of life and injury to persons and property. Mitigation strategies would include a detailed study of the structures to determine their ability to withstand tornado, hurricane, tropical storm force winds, micro-burst, strait-line winds, etc, especially with regard to the extensive glass exterior of both structures.

Priority: Very High

Objectives Addressed: 1B, 1C, 4A, 4D, 4G, 5G, 5J, 5K

Responsible Department: DeKalb County Emergency Management Agency

Implementation Strategy: Perform a comprehensive study of structures to determine specific areas of weakness and vulnerability. Compile a comprehensive list of effective mitigation strategies which may include special films or other materials that could be applied to all exterior glass panels to provide breakage protection from windborne debris from hurricanes, tornadoes, or severe thunderstorm activity. Mitigation measures should also be applied to reduce breakage from blast effects due to extremely close proximity of both structures to CSX Railroad Lines.

Benefit vs. Cost: Anticipated to be highly cost beneficial

Implementation Timeline: Beginning with a comprehensive study within 1 year of plan approval and targeting implementation of the identified mitigation strategies within 2 years of plan approval, funding permitting

Potential Funding Source: Homeland Security Grant Funds, PDM grant (75% share), DeKalb County Government (25% share)

Current Status: Planned Action; should be underway during the Fall of 2010.
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Action # WIN 3: Outdoor Alert and Warning System Evaluation: About 25 outdoor warning sirens were in operation at various locations throughout the county during the 1960's, 1970's and part of the 1980's. They were principally intended as a method of warning DeKalb County residents of an impending attack by a foreign enemy, and for tornado warnings. In 1988, the county decommissioned them. Without an outdoor warning siren system in place, hundreds of thousands of residents and visitors are at peril every day. DeKalb County boasts a variety of arts, entertainment, and outdoor recreational opportunities for visitors and residents. There are more than 100 DeKalb County Parks and 2 Georgia State Parks (Vaughter's Farm and Stone Mountain Park, one of the Southeast's most popular outdoor attractions) within the DeKalb County Boundary.

Priority: High

Objectives Addressed: 2A, 3A, 3B, 4A-D, 5B and 5K

Coordinating Individual/Organization: DeKalb County Emergency Management and all incorporated cities

Implementation Strategy: DeKalb County, in close coordination with the cities, State and Federal government will investigate alternative warning dissemination alternatives, potentially including a

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combination of some sirens, use of the existing reverse 911 system and other options. Once the most efficient and optimum warning delivery system is identified, the County will seek funds to develop and exercise it.

Benefit v. Cost: N/A

Potential Funding Source: DHS-FEMA Homeland Security Grant Funds

Implementation Timeline: A complete analysis of alternative warning dissemination systems within 2 years from the date of plan adoption

Current Status: County opted (and implemented) for CodeRed mass alert notification system. May pursue outdoor sirens to supplement notification.

Action #WIN 4: Wind Safety Awareness: The current building code addresses wind resistant construction techniques for certain construction types. Possible improvements or supplements could include additional requirements for structural bracing, straps and clips, anchor bolts, laminated or impact-resistant glass, and interlocking roof shingles. The Building Permit staff in the Planning and Development Department will provide wind proof construction and retrofit literature to those seeking building permits and will promote techniques to builders and developers during permitting.

Priority: Medium

Objectives Addressed: 1A, 1B and 2A-C

Responsible Department: DeKalb County Planning and Development Department, Building Permits

Implementation Strategy: Obtain literature from FEMA, the Institute for Business and Home Safety and other sources. Make it available in a prominent location at the permitting counter and train staff on its use and promotion

Benefit vs. Cost: N/A

Implementation Timeline: Within 6 months of plan approval

Potential Funding Source: N/A; literature is available for free

Current Status: Deferred.

Action # ICE/WIN 1: Tree Pruning Program: The electric, phone, and cable utilities have tree pruning programs to protect their lines from ice storms and severe winds. During these events, tree branches (and in some cases whole trees) can come down and cause damage to power lines, structures, and can

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block roads and other thoroughfares, disrupting travel and commerce. The programs do not go far enough to provide adequate protection since they are focused specifically on lines. The County will develop a program to supplement the utilities' programs in the vicinity of government owned buildings similar programs in place.

Priority: Very High

Objective Addressed: 3B, 5C, 5J

Coordinating Individual/Organization: DeKalb County Facilities Management, Arborist, and all incorporated cities

Implementation Strategy: Implement a county-wide tree pruning program, particularly focused on trees around government owned property and critical facilities. Identify old or diseased trees which pose an especially large hazard to the population, and to public buildings and infrastructures. Coordinate with local governments to assist them if they do not already have a similar program in place.

Timeframe for Implementation: Beginning within 1 year of plan adoption, then annually

Potential Funding Source: County General Fund

Current Status: Completed.

Action #ICE/WIN 2: Bury Power lines: During high winds and ice storms, power lines can easily collapse. Especially during ice storms, when the lines become coated, they become very heavy and brittle, and may snap in half. This creates not only a disruption in power, but a hazard to passersby from the exposed wires. Implementing a program to bury as many power lines as possible reduce this hazard. It also would be more aesthetically pleasing for county residents. This program would provide an opportunity for outreach about other hazards. This would compliment an existing project in the Comprehensive Plan (Section 7.20 requires new electrical lines be buried).

Priority: High

Objective Addressed: 1A, 1C, 2A, 2B, 2C, 3A, 3C and 4D

Coordinating Individual/Organization: Planning and Development Department, Permitting, with assistance from Public Works, Facilities Management, and Parks and Recreation, and all incorporated cities

Implementation Strategy: Modify subdivision regulations and other appropriate ordinances to require burying of power lines in all new developments.

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Benefit vs. Cost: Anticipated to be cost beneficial.

Implementation Timeframe: Within two years of plan adoption have regulations and ordinances modified and adopted

Potential Funding Source: Departmental Budgets

Current Status: In progress.

Action #ICE 3: Winter Roads Maintenance: During the winter time roads can become covered in snow or, more likely, in ice. The county currently has a means for clearing and thawing ice from roadways which includes prioritization of all roads for which the County has responsibility. The county will review its current methods in coordination with the cities and will create a brief written plan outlining its approach and prioritization with supporting information, so that as staff changes inevitably occur the approach will be available and periodically reviewed to add information. This will ensure that resources are deployed in a coordinated and efficient manner.

Priority: Medium

Objective Addressed: 3B, 4D, 5C

Coordinating Individual/Organization: Public Works, Roads and Drainage Division

Implementation Strategy: Convene a working group to review existing practices and make recommendations to Public Works, Roads and Drainage Division.

Benefit vs. Cost: N/A

Implementation Timeline: Within 6 months of adoption of plan

Potential Funding Source: Departmental Budgets

Current Status: In progress.

Action #WDF 1 – Wildfire Education: There is a lack of knowledge within the public, as well as within local government, about vulnerability to wildfire. Individuals and institutions alike may be taking unnecessary risks with their lives and property because they don't know the proper precautions to prevent wildfires. Begin an educational program that has two distinct halves: one targeted towards the community at large, and the other targeted towards government officials who make decisions and can potentially impact the county's relationship to wildfire prone areas. Try to move the county towards becoming a Firewise community.

Priority: Very High

Objective Addressed: 2A, 2B, 2C, 3A, 4A, 4B, 5L

Responsible Department: DeKalb County Fire and Rescue, with cooperation from all incorporated cities

Implementation Strategy: Mailings, Internet Postings

Implementation Timeline: Within 1 year of plan adoption have educational program implemented

Benefit vs. Cost: N/A

Potential Funding Source: County Fire Department Operational Budget, Georgia Forestry Commission, Urban & Community Forestry Financial Assistance Program

Current Status: Deferred

Action #WDF 2 – Wildfire Hazard Analysis/Mapping: The existing wildfire mapping for the county, used in this report, is not designed to be used at a countywide scale and is believed to be inaccurate. In some areas, the pixels of data are so large they are nearly useless, particularly in some of the smaller communities such as Pine Lake. Not only does this make the data difficult to use, but it makes it less credible in the eyes of the public, and for government officials who need to use it. The County will commission a study of actual wildfire threat to determine if re-mapping the hazard is cost effective.

Priority: Very High

Objective Addressed: 2A, 2B, 2C, 3A, 3C, 3D, 5I, 5J

Responsible Department: DeKalb County Fire and Rescue, and County GIS Department, and all incorporated cities

Implementation Strategy: Commission a wildfire vulnerability analysis.

Implementation Timeline: Within 1 year of plan adoption have study of wildfire threat complete

Benefit vs. Cost: N/A

Potential Funding Source: Georgia Forestry Commission U&CF Financial Assistance, National Fire Protection Association for Technical Assistance, USDA, Forestry Service.

Current Status: Deferred.

Action #WDF 3 – Review Subdivision Ordinance: The existing subdivision ordinance in the county does not address the need for defensible space between homes and wildfire prone areas.

Priority: Medium

Objective Addressed: 1A

Responsible Department: DeKalb County Planning and Development Department, Fire Department

Implementation Strategy: Review the subdivision ordinance for possible changes to incorporate defensible space, fire breaks, and other fire prevention planning techniques and incorporate appropriate changes.

Implementation Timeline: Within 3 years of plan adoption have ordinance revised and adopted

Benefit vs. Cost: N/A

Potential Funding Source: Departmental Operating Budgets, Information and models are available free from the National Fire Protection Associate and the Firewise Communities program

Current Status: Deferred

Action #WDF 4 –Firewise Communities Outreach: Outside of the County Fire Department, there is an emphasis on fire suppression rather than on activities individual property owners can undertake to prevent fires from destroying their buildings. The National Fire Protection Association’s (NFPA) Firewise Communities program provides assistance to local government officials (including planners outside of fire agencies) on fire mitigation at the site specific level. While most of the training includes action on the behalf of property owners that are already required or recommended, those actions may not be familiar to many owners and local government officials. The County will look into working with NFPA to obtain guidance to educate property owners.

Priority: Medium

Objective Addressed: 2A, 2B, 2C, 3A, 3B, 4D, 4F, 5B, 5L

Responsible Department: County Fire and Rescue Department with all incorporated cities.

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Implementation Strategy: Work with NFPA and the Georgia Forestry Commission to design a program appropriate for DeKalb County.

Implementation Timeline: Develop program within 1 year of plan adoption, conduct 2 trainings in the second year, then reevaluate as appropriate.

Benefit vs. Cost: unknown

Potential Funding Source: Georgia Forestry Commission U&CF Financial Assistance, National Fire Protection Association for Technical Assistance, USDA, Forestry Service.

Current Status: In progress with the Fire Department leading the effort.

Action #EH 1 – Heat Awareness: Residents of DeKalb County who are unaware of the threat posed by extreme heat, especially vulnerable populations such as the elderly, are at risk of suffering a myriad of heat related illnesses. However, it is relatively easy to avoid these heat related illnesses with a little knowledge and effort. Implement a program for educating the public, especially the elderly and other vulnerable populations, about the risks posed by exposure to extremely high temperatures.

Priority: Medium

Objective Addressed: 2A, 2B, 2C, 3A 4D, 5B, 5L

Responsible Department: DeKalb County Fire and Rescue, Emergency Management, with Parks and Recreation supporting, and cooperation from all incorporated cities

Implementation Strategy: Develop an outreach strategy and implementation plan.

Implementation Timeline: Within 6 months of plan adoption

Benefit vs. Cost: Anticipated to be marginally cost beneficial

Potential Funding Source: Departmental Operating Budgets

Current Status: Deferred.

Action #EH 2 – Cooling Center: Vulnerable populations in DeKalb County do not always have a place to go to escape the extreme summer heat. This can pose a serious threat to the health of these individuals. Especially at-risk are the elderly, some of whom will not be able to get to a reasonably cool shelter, even if one exists. Evaluate the existence of cool shelters in and around DeKalb County, and

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determine their geographical relationships to the vulnerable populations of the County. Determine an efficient way of encouraging or helping those portions of the populations that are especially vulnerable to extreme heat to get to the cooling centers. A transportation plan needs to be included. This can be incorporated into the outreach program.

Priority: Medium

Objective Addressed: 2A, 2B, 3A, 4D, 5B, 5L

Responsible Department: Emergency Management and Homeland Security, with support from Public Works, Facilities Management, Police, Fire, Parks and Recreation, Planning, the Human/Senior Services Division of the Human and Community Development Department and all incorporated cities

Implementation Timeline: Within 2 years of plan adoption have plan for cooling centers and transportation implemented

Benefit vs. Cost: N/A

Potential Funding Source: Departmental Operating Budgets to design the program, PDM and HMPG funds to upgrade facilities.

Current Status: Deferred

Action #DRT 1 – Drought Contingency Plan: The County maintains the water supply for the residents and businesses of DeKalb County. The county has a plan in place for ensuring there is enough water to serve all the needs of the county during years of low rainfall. Although this plan has functioned well in the past, there are additional measures that could be taken to protect the county from drought-related difficulties. Review the existing drought contingency plan, find ways to improve upon it, and implement those improvements.

Priority: Medium

Objective Addressed: 3A, 4D, 4G

Responsible Department: Department of Public Works, Water and Sewer Division, with support from DeKalb County Planning Department and all incorporated cities

Implementation Timeline: Begin reviewing the drought contingency plan within 2 years of plan adoption

Benefit vs. Cost: N/A

Potential Funding Source: Departmental Operating Budget

Current Status: In progress; not completed.
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Action #DRT 2 – Drought Outreach: Water conservation is an important element in meeting future water supply needs. The Regional Water Supply Plan prepared by the Atlanta Regional Commission shows that over 20 percent of the region’s water supply must come from water conservation efforts. The need for water conservation has only been reinforced by disputes with neighboring states and difficulties encountered in building new or reallocating old reservoirs. A concerted effort is needed by governments, businesses, and citizens to put conservation measures in place. Create an outreach program to instruct residents, business owners, local governments, and other institutions about the major elements being pursued as part of the region’s water conservation program, including Ultra Low Flow (ULF) Plumbing Fixtures, Low-water Using Landscaping (Xeriscaping), Water Recycling, and other tips for faucets, showers, toilets, and outdoor uses.

Priority: Medium

Objective Addressed: 1C, 2A, 2B, 2C, 3A, 4A, 4B, 4D, 4F and 5L

Responsible Department: DeKalb County Emergency Management, Department of Public Works/Water and Sewer Division, and County Planning Department, possibly supported by the ARC and all incorporated cities

Implementation Strategy: Design an outreach program combining mailings, internet, trainings, and technical assistance. Identify State and Federal agencies to provide support.

Implementation Timeline: Within 3 years of plan adoption, have a fully developed, functioning outreach program

Benefit vs. Cost: Minimal cost with potentially good benefits

Potential Funding Source: Departmental Operating Budgets, with potential financial and technical assistance from State and Federal agencies

Current Status: Deferred

Action #DRT 3 – Outreach to Large Water Users: Water conservation is an important element in meeting future water supply needs. There are several businesses and institutions in DeKalb County that use large quantities of water in their daily operations. The County Comprehensive Plan identified the 10

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largest water users in the County. It is believed that a reduction in these uses would have a significant impact on the availability of water to the whole county. Create a program to work with these large water-users to identify ways of reducing consumption, thus conserving water for the rest of the county during times of drought.

Priority: Medium

Objective Addressed: 1C, 2A, 2C, 3A, 4B, 4D, 5L

Responsible Department: DeKalb County Department of Watershed Management, MNGWPD (Water Planning District)

Implementation Strategy: Establish a Countywide task force, arrange meetings with top ten water users to design a work plan for working in partnership to identify water conservation opportunities (or document existing initiatives) that would result in win-win initiatives.

Implementation Timeline: Within 3 years of plan adoption, have a fully developed, functioning program, with contacts at each of the large water users identified.

Benefit vs. Cost: Anticipated to be cost beneficial, once it has been operating for a few years, particularly during periods of drought

Potential Funding Source: Private business/institutional funding from the water users

Current Status: In progress.

Action #LIT 1 – Surge Protection: During a thunderstorm, lightning can potentially strike a building containing important equipment. The lightning can easily move through the building and damage or destroy communications infrastructure and other crucial electronic devices. Determine which facilities in the county are at highest risk and highest vulnerability for such an event. Implement a program to install surge protection where it is needed most.

Priority: Medium

Objective Addressed: 5C

Responsible Department: Facilities Management and incorporated cities

Implementation Timeline: Within 2 years of plan adoption

Benefit vs. Cost: Anticipated to be highly cost beneficial.

Potential Funding Source: PDM or HMGP grants for construction component for public buildings, private business/institutional funds for privately held buildings

Current Status: Deferred.

Action # DAM 1: Dam Inventory Review: Multiple entities keep records on dam ownership and condition within the county. There is a need for a complete and comprehensive database of all dam locations, their condition, and potential inundation areas in the event of a breach.

Priority: Medium

Objective Addressed: 1A, 1C, 3A, 3C, 4A, 4B, 4C, 4F, 3D, 5E, 5I

Coordinating Individual/Organization: DeKalb County Department of Watershed Management, Public Works, Fire and Rescue, County GIS

Implementation Strategy: Work with Work with the State Dam Safety Program to inventory all dams in the County and cities and gather all available information, such as inspection schedule, inundation mapping, emergency operations plans and ownership. Visit dam sites and obtain GPS coordinates. Map the location of all dams with all associated attributes from data collected. Work with the State to evaluate steps for future action, if necessary.

Timeframe for Implementation: Within 2 years of plan adoption

Potential Funding Source: PDM planning grant for GIS work and updating this plan with new information.

Current Status: Accomplished action.

Action # EQ 1: Seismic Vulnerability Analysis for Critical Infrastructure: Complete seismic vulnerability analyses for lifeline utility and transportation systems, including: water, wastewater, natural gas, electric power, telecommunications and bridges.

Priority: Low

Objective Addressed: 5C, 5I, 5J,

Coordinating Individual/Organization: Facilities Management, utilities, and incorporated cities

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Implementation Strategy: Create a countywide working group to assess the most seismically vulnerable infrastructure and prioritize any potential retrofit projects.

Timeframe for Implementation: Within 2 years of plan adoption

Potential Funding Source: Departmental Operating Budgets, with potential financial and technical assistance from State and Federal agencies.

Current Status: This is a new action.

Action # EQ 2: Public Education for Seismic Vulnerability: Educate homeowners about structural and nonstructural retrofitting of vulnerable homes and encourage retrofit.

Priority: Low

Objective Addressed: 1B, 1C, 4A, 4B, 4C, 4F, 5L

Coordinating Individual/Organization: DeKalb County Emergency Management and all incorporated cities

Implementation Strategy: **Work with** Work with GEMA to build from the existing earthquake safety program provided to schools to further educate the community on structural and non-structural retrofitting of homes and businesses.

Timeframe for Implementation: Within 2 years of plan adoption

Potential Funding Source: PDM planning grant for planning work and materials associated with vulnerability assessment and public information.

Current Status: This is a new action but builds from ongoing work with DeKalb Emergency Management.

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5.4 CITY OF AVONDALE ESTATES

The City of Avondale Estates (Avondale Estates) formed a Local Planning Group (LPG) to work with the DeKalb County Mitigation Advisory Committee. The LPG reviewed a set of jurisdictional-level hazard maps including detailed critical facility information and localized potential hazard exposure/loss estimates to help identify the top hazards threatening their jurisdiction.

5.4.1 Capabilities Assessment

The LPG identified current capabilities available for implementing hazard mitigation activities. The Capability Assessment (Assessment) portion of the jurisdictional mitigation plan identifies administrative, technical, legal and fiscal capabilities. This includes a summary of departments and their responsibilities associated to hazard mitigation planning as well as codes, ordinances, and plans already in place associated to hazard mitigation planning. The second part of the Assessment provides Avondale Estates' fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

5.4.1.1 Existing Institutions, Plans, Policies, and Ordinances**Form of Governance**

The City of Avondale Estates utilizes the council-manager form of local governance, which includes both elected officials and a city manager appointed by the Board of Mayor and Commissioners. Avondale Estates has four Commission members and a Mayor elected at large, which means that members represent the entire city rather than specific districts.

The Board of Mayor and Commissioners is Avondale Estates' legislative body, setting policy, approving budgets, and setting tax rates. The Board hires the City Manager, who is responsible for the day-to-day administration of the city, and serves as the Board of Mayor and Commissioners chief advisor. The City Manager prepares a recommended budget, recruits and hires the employees of the City and carries out the board's policies. While the City Manager may recommend policy decisions, he or she is ultimately bound by the actions of the Board of Mayor and Commissioners. The Board of Mayor and Commissioners appoints the City Attorney, City Auditor, a Municipal Court Judge, and a City Solicitor. City Departments involved in activities related to Hazard Mitigation include:

City of Avondale Estates Public Works Department

- Maintains city infrastructure (assets) ranging from parks to buildings and vehicle fleet.
- Responds to city emergencies, includes EOC response in disasters and assisting police and fire departments with hazardous materials clean up, traffic and perimeter control efforts, traffic accident clean up and evacuation routing.
- Has recently begun to operate, maintain, and enhance the stormwater management system within the City of Avondale Estates

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Capability Assessment / Mitigation Plans

- Has oversight of solid waste management, including pickup of household garbage, yard waste, and debris.
- Includes a Parks Department, responsible for maintaining landscapes and other gardening duties.
- Enforces zoning and floodplain ordinances.

City of Avondale Estates Police Department

- Responds to safety concerns involving threats and/or damage to life or property. Acts as the enforcement entity for violations of State and local ordinances.
- Primary emergency responders to acts of civil disobedience and public disorders and terrorism. Support personnel for emergency rescue and management.
- Investigative services for criminal acts that result in personal injury/death and the destruction of property.
- Develops and implements emergency response plans and policies, focusing on evacuation procedures and traffic control.
- Primary responders to acts of terrorism, focusing on suspect intervention and facility and staff protection.

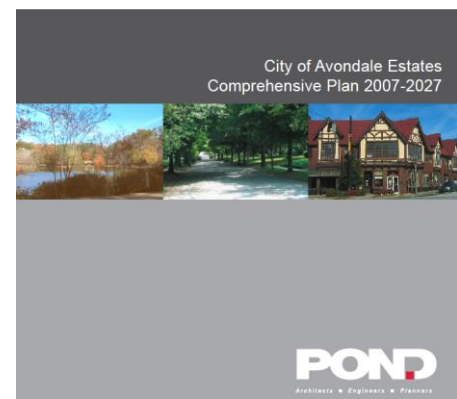
Guiding Community Documents

The City of Avondale Estates has a range of guidance documents and plans for each of its departments. The city uses building codes, zoning ordinances, and various planning strategies to address how and where development occurs. One of the essential ways the City guides its future is through policies laid out in the Comprehensive Plan.

The Comprehensive Plan

The Comprehensive Plan for the City of Avondale Estates was completed in 1998, and covers the planning period through 2020. It provides local officials with a tool to manage and guide the future growth and development of the City. It represents the City's participation in and contribution to the coordinated planning process as set forth by the Georgia Planning Act of 1989. It establishes a framework from which the City can work when planning for the future provision of public facilities and services, and will serve as the basis for local government decision making regarding economic development, environmental protection, and the future pattern of land use within the City.

The City of Avondale Estates' Comprehensive Plan includes sections on population, economic development, natural and historic resources, community facilities and services, housing, and land use. It includes goals, objectives, and implementation strategies.



<http://www.avondaleestates.org/resources/ndfs/Comprehensive%20Plan.pdf>

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Capability Assessment / Mitigation Plans

Floodplain Management

The City of Avondale Estates does not have any areas located in the SFHA. They are a participant in the NFIP.

Zoning and Subdivision Ordinances

The complete set of zoning and subdivision ordinances for the City of Avondale Estates can be found on the internet at www.municode.com. The Code Enforcement Officer is responsible for enforcing these ordinances.

Building Codes

The City of Avondale Estates has adopted the ICC Building Code. The code is enforced by the Code Enforcement Officer.

Stormwater Utility

The City of Avondale Estates has developed a stormwater utility, independent of the one run by the County. The utility will work in the same way that the county's and all other stormwater utilities work; by assessing fees based on the amount of stormwater produced and the amount of impervious surface. The utility is intended to be self-sufficient, with revenues being raised to maintain and improve the stormwater drainage infrastructure.

Emergency Response Plan

The City of Avondale Estates' Police Department develops and maintains the City's Emergency Response Plan.

Mitigation Activities

The City of Avondale Estates has not received mitigation grant money in the past. However, some public assistance money was granted post disaster. To date, the City has not performed any mitigation activities for the express purpose of mitigating hazards.

GIS, Computer, and Communication Technology

Dekalb County runs a 911 system which covers the City of Avondale Estates. The City also uses the county's GIS when necessary.

Financial Resources

Avondale Estate's amended expenditures for 2004 were approximately \$2.42 million. The revenue for 2004 was \$2.62 million. The budget for 2005 includes expected revenues and expected expenditures of \$2.60 million. The majority of the revenue will come from General Property Ad Valorem Taxes (~\$1.48 million), with the next largest portion coming from Franchise and Other Taxes (~\$660,000). The departments with the largest expenditures are Public Works and Public Safety at approximately \$900,000 and \$660,000, respectively.

The largest source of revenue for Avondale Estates is from property taxes. The collection of municipal court fines is also a source of revenue for the city.

The following is a summary of existing departments in Avondale Estates and their responsibilities related to hazard mitigation planning and implementation, as well as existing planning documents and regulations related to mitigation efforts within the community. The administrative and technical

SECTION FIVE

Capability Assessment / Mitigation Plans

capabilities of Avondale Estates, as shown in Table 5.4-1, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of this plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community.

**Table 5.4-1
City of Avondale Estates: Administrative and Technical Capacity**

Staff/Personnel Resources	Y/N	Department/Agency and Position
Planner(s) or engineer(s) with knowledge of land development and land management practices	N	
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	N	
Planners or Engineer(s) with an understanding of natural and/or manmade hazards	N	
Floodplain manager	Y	Code Enforcement Officer
Surveyors	N	
Staff with education or expertise to assess the community's vulnerability to hazards	N	
Personnel skilled in GIS and/or HAZUS	N	
Scientists familiar with the hazards of the community	N	
Emergency manager	N	
Grant writers	N	

The legal and regulatory capabilities of Avondale Estates are shown in Table 5.4-2, which presents the existing ordinances and codes that affect the physical or built environment of Avondale Estates. Examples of legal and/or regulatory capabilities can include: the City's building codes, zoning ordinances, subdivision ordinances, special purpose ordinances, growth management ordinances, site plan review, comprehensive plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

**Table 5.4-2
City of Avondale Estates: Legal and Regulatory Capability**

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit (Y/N)
A. Building code	Y	N

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B. Zoning ordinance	Y	N
C. Subdivision ordinance or regulations	Y	N
D. Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	N
E. Growth management ordinances (also called “smart growth” or anti-sprawl programs)	Y	N
F. Site plan review requirements	Y	N
G. General or comprehensive plan	Y	N
H. A capital improvements plan	Y	N
I. An economic development plan	Y	N
J. An emergency response plan	Y	N
K. A post-disaster recovery plan	N	N
L. A post-disaster recovery ordinance	N	N
M. Real estate disclosure requirements	Y	N

5.4.1.2 Fiscal Resources

Table 5.4-3 shows specific financial and budgetary tools available to Avondale Estates such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water, sewer, gas, or electric services; impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

**Table 5.4-3
City of Avondale Estates: Fiscal Capability**

Financial Resources	Accessible or Eligible to Use (Yes/No)
A. Community Development Block Grants (CDBG)	Y
B. Capital improvements project funding (PART OF GENERAL FUND)	Y
C. Authority to levy taxes for specific purposes	Y – Vote required
D. Fees for water, sewer, gas, or electric service	N
E. Impact fees for homebuyers or developers for new developments/homes	N
F. Incur debt through general obligation bonds DON'T PRACTICE	Y
G. Incur debt through special tax and revenue bonds	Y – Vote required
H. Incur debt through private activity bonds	N
I. Withhold spending in hazard-prone areas	N

J. Other Grants	N
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5.4.2 Goals, Objectives, and Actions

The LPG discussed the results of the hazard identification and risk assessments and reviewed mitigation goals and alternatives based on the priority areas and hazard types. They provided preliminary input and ideas for mitigation strategies. In addition, the City solidified its goals, which are discussed in more detail in sub-section 5.4.2.1, below.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction’s current capabilities assessment. These preliminary goals, objectives, and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further development of these goals and objectives, the LPG compiled and reviewed current jurisdictional sources including the City’s planning documents, codes, and ordinances. In addition, City representatives met with consultant staff to specifically discuss these hazard-related goals, objectives and actions as they relate to the overall plan. Representatives of numerous City departments involved in hazard mitigation planning participated in the Avondale Estates LPG. These members include:

Bryan Armstead, Public Works Supervisor

Warren Hutmacher, City Manager

Craig Mims, Director of Public Works

SSGT J. J. Browen, Acting Chief of Police

Public meetings were held throughout the County to present these preliminary goals, objectives and actions to citizens and to receive public input. At these meetings, specific consideration was given to hazard identification/profiles and the vulnerability assessment results. The following sections present the hazard-related goals, objectives, and actions as prepared by Avondale Estates’ LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens.

5.4.2.1 Goals

The City of Avondale Estates has developed the following Goal for their Hazard Mitigation Plan. Objectives for achieving this goal are discussed in the subsequent section.

Goal 1. To reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure and public facilities due to flooding and subsequent erosion

5.4.2.2 Objectives

The City of Avondale Estates developed the following objectives to assist in the achievement of its goal. For these objectives, specific actions were developed that would assist in their implementation. A discussion of the prioritization and implementation of the action items is provided in Section 5.4.2.3.

MITIGATION GOALS AND OBJECTIVES.	
Goal 1:	To reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure and public facilities due to flooding and subsequent erosion
	<i>Objective 1: To prevent erosion on roadways due to inadequate curb heights and absence of catch basins.</i>

5.4.2.3 Prioritization and Implementation of Mitigation Action Items Unique to Avondale Estates

Once the comprehensive list of jurisdictional goals and objectives listed above was developed, proposed mitigation actions were developed and prioritized. This step resulted in a list of acceptable and realistic actions that address the hazards identified in each jurisdiction. This prioritized list of action items was formed by the LPG as a result of weighing STAPLE/E criteria.

The Disaster Mitigation Action of 2000 (at 44 CFR Parts 201 and 206) requires the development of an action plan that not only includes prioritized actions but one that includes information on how the prioritized actions will be implemented. For each of the strategies developed, the goal and objective(s) addressed are listed. In addition, each mitigation action item includes a priority level, responsible department, implementation strategy, timeframe for implementation, a potential funding source, and a discussion of the action’s benefits and costs. A description of each of these components is included below:

Priority Level: For each mitigation measure a priority level of *Very High, High, Medium, or Low* has been assigned. These priority levels have been developed based on input from Committee members, the overall planning consideration of the hazard as assigned in the hazard identification section of this document, the anticipated benefit-cost ratio, and consideration of the STAPLE/E criteria.

Responsible Department: The responsible department listed for each alternative is tasked with the lead role in all aspects of the implementation of that measure. However, many of the measures identified will require effort and support from other departments. The responsible department is expected to coordinate the efforts of all local departments as well as relevant regional, state, and federal entities.

Implementation Strategy: The implementation strategy developed for each measure includes a general description of potential methods that could be utilized or actions that could be taken. Due to the complex nature of a number of these measures, not all of the listed methods will ultimately prove

feasible. Before initiating the implementation of each measure, the responsible department should develop a detailed project plan with particular attention to technical feasibility and cost effectiveness.

Timeframe for Implementation: The timeframe for implementation describes the length of time from the date of plan adoption to the target date for completion. It should be noted that timeframes listed are goals and may be influenced by additional factors. Through the development of detailed project plans by the responsible department, the timeframe will be evaluated and revised as necessary.

Potential Funding Source: For each mitigation measure, potential funding sources are listed. Whenever possible, non-local sources of funding have been identified, including state and federal grants. The sources listed are not intended to represent all possible options. Additional opportunities for funding may be identified during implementation.

Benefit vs. Cost: For most measures, a general discussion comparing potential benefits and costs is provided and an anticipated level of cost effectiveness assigned. The levels assigned include *Highly Cost Beneficial*, *Cost Beneficial*, and *Potentially Cost Beneficial*. This discussion is not intended to replace a full benefit cost analysis that should be completed prior to implementation.

The prioritized mitigation actions, as well as an implementation strategy for each, are numbered within their appropriate heading: GEN (General Mitigation), WIN (Wind), FLD (Flood), ICE (Winter Storm), DAM (Dam Breach) EQ (Earthquake), EH (Extreme Heat) and WDF (Wildfire).

The proposed actions are listed and described below:

Action #FLD 1: Stormwater System Infrastructure Improvements: Much of the City's Stormwater System Infrastructure is in need of repairs and upgrades. The installation of catch basins, inlets, and other methods of diverting storm water at various locations throughout the city is much needed. For example, at the intersection of Clarendon Ave and Wiltshire Dr. no catch basins exist. During rain events ponding occurs causing a severe traffic hazard. Presently, the City is experiencing erosion in this intersection and traveling east on Wiltshire Dr. The same is true along Clarendon Ave on both the east and west sides of the street. The ponding on the street gets so high that as vehicles go across the low area the wake they create causes water to get onto residential properties and endangers pedestrian traffic in the area. Installation of catch basins, inlets, curbing, and downstream storm lines would provide adequate capacity so that ponding does not occur.

Priority: Very High

Objectives Addressed: 1

Coordinating Individual/Organization: Bryan Armstead (with the assistance of a certified P.E.)

Benefit vs. Cost: The installation of catch basins, inlets, curbing, and downstream storm lines would allow for safer vehicular and pedestrian access on the streets and sidewalks. Emergency response units would also benefit from these improvements.

Implementation Timeline: Fiscal Year 2005-2006 or earliest feasible date.

Potential Funding Source: Funding for this work would have to come from grant funds in order to implement in a timely manner. Matching funds may be required from the City.

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5.5 CITY OF CHAMBLEE

The City of Chamblee (Chamblee) formed a Local Planning Group (LPG) to work with the DeKalb County Mitigation Advisory Committee. The LPG reviewed a set of jurisdictional-level hazard maps including detailed critical facility information and localized potential hazard exposure/loss estimates to help identify the top hazards threatening their jurisdiction. After reviewing the localized hazard maps and exposure/loss table above, the following hazards were identified by the Chamblee LPG as their most critical hazards:

Flooding – Frequent and historical

Wind – Frequent

Ice Storm – Historical

5.5.1 Capabilities Assessment

The LPG identified current capabilities available for implementing hazard mitigation activities. The Capability Assessment (Assessment) portion of the jurisdictional mitigation plan identifies administrative, technical, legal and fiscal capabilities. This includes a summary of departments and their responsibilities associated with hazard mitigation planning as well as codes, ordinances, and plans already in place associated to hazard mitigation planning. The second part of the Assessment provides Chamblee’s fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

5.5.1.1 Existing Institutions, Plans, Policies and Ordinances**Form of Governance**

The City of Chamblee utilizes the council-manager form of local governance, which includes both elected officials and an appointed city manager/chief executive officer. The five council members and the mayor serve at large, which means that members represent the entire city rather than specific districts.

The City Council is Chamblee’s legislative body, setting policy, approving budgets, and setting tax rates. Members also hire the City Manager, who is responsible for the day-to-day administration of the city, and serves as the city’s Chief Executive Officer. The City Manager prepares a recommended budget, recruits and hires most of the government’s staff, and carries out the council’s and the mayor’s policies. While the City Manager may recommend policy decisions, he or she is ultimately bound by the actions of the Council. The Council appoints the following additional staff members — City Attorney, Judges, Building Inspectors, Electrical Inspector, City Planner (a hired consultant), and a City Prosecutor.

Other City Departments involved in activities related to Hazard Mitigation include:

City of Chamblee Permits and Inspection

- Reviews and issues permits for antenna towers, buildings, demolition, electrical, grading/site development, HVAC, plumbing, signs, and tree removal.

- Provides all building and technical inspections with the exception of the Life Safety and ADA code inspections (handled by DeKalb Fire Department).

City of Chamblee Public Works Department

- Maintains city infrastructure (assets) ranging from sidewalks or sweeping streets to parks, buildings and vehicle fleet.
- Responds to city emergencies, includes EOC response in disasters and assisting police and fire departments with hazardous materials clean up, traffic and perimeter control efforts, traffic accident clean up and evacuation routing.
- Has oversight of solid waste management.
- Handles storm drainage through a stormwater utility with the county.
- Enforces the Soil Erosion Ordinance

City of Chamblee Police Department

- Responds to safety concerns involving threats and/or damage to life or property. Acts as the enforcement entity for violations of State and local laws and ordinances.
- Primary emergency responders to acts of civil disobedience and public disorders. Support personnel for emergency rescue and management.
- Investigative services for criminal acts that result in personal injury/death and the destruction of property.
- Develops and implements emergency response plans and policies, focusing on evacuation procedures and traffic control.
- Primary responders to acts of terrorism, focusing on suspect intervention and facility and staff protection.
- Operate under county emergency response plan.

City of Chamblee Parks and Recreation Department

- Maintains parks and green space.
- Oversees league sports and other activities.

Guiding Community Documents

The City of Chamblee has a range of guidance documents and plans for each of its departments. These include a Comprehensive Plan, building codes, zoning, subdivision and floodplain ordinances, to address how and where development occurs. One of the essential ways the City guides its future is through policies laid out in the Comprehensive Plan.

SECTION FIVE

Capability Assessment / Mitigation Plans

The Comprehensive Plan

The Comprehensive Plan for the City of Chamblee was recently updated and completed in June 2006.

City of Chamblee, Georgia
10th Year Comprehensive Plan Update
Community Agenda

Zoning and Subdivision Ordinances

The City's zoning and subdivision ordinances are currently being updated; the existing ordinances are available to the public at www.municode.com, and are found in Chapter 94, Appendix A, and Appendix B.



Building Codes

The City's building codes are standard, and can be found on www.municode.com, in Chapter 18 of the ordinances.

PRICE ROSS+associates
http://www.chambleega.com/client_resources/departments/development/Comprehensive%20Plan.pdf

Floodplain Management Ordinance

The City of Chamblee follows the requirements of the NFIP. In addition to the minimum requirements, the City forbids new development within the floodplain, and enforces a 25' buffer zone.

Stormwater Utility

The City of Chamblee has developed a stormwater utility, independent of the one run by the county; however the County and City have an intergovernmental agreement to perform major repairs and additions to the system. The utility works in the same way that the county's and all other stormwater utilities work; by assessing fees based on the amount of stormwater produced and amount of impervious surface. The utility is intended to be self-sufficient, by raising revenues to maintain and improve the stormwater drainage infrastructure. The storm water utility fee funds creek walks which are done for every stream on a yearly basis.

Mitigation Activities

The City of Chamblee has not performed, nor has it received any money for, hazard mitigation activities. However, a group of volunteers performs an annual creek walk for the purpose of maintaining the drainage of the creeks. In addition the City participates in EcoSystem 2006 and is required by law to comply with the NPDES.

GIS, Computer and Communication Technology

The City of Chamblee has ARC-VIEW for viewing and manipulating GIS files, however they do not have a database of the city's buildings, infrastructure, or parcels maintained by the city. Most GIS needs are handled by Pond and Company, a consultant hired to act as the City Engineer and City Planner. Pond uses county layers and zoning maps converted into real world coordinates. In addition, another consultant, CH2MHill, has mapped the stormwater utilities.

Financial Resources

Chamblee's proposed budget for 2005 is around \$7.9 million. The Police Department uses the largest share of the budget, with the Public Works and Administrative Departments also using a large portion.

SECTION FIVE

Capability Assessment / Mitigation Plans

The following is a summary of existing departments in Chamblee and their responsibilities related to hazard mitigation planning and implementation, as well as existing planning documents and regulations related to mitigation efforts within the community. The administrative and technical capabilities of Chamblee, as shown in Table 5.5-1, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community.

**Table 5.5-1
City of Chamblee: Administrative and Technical Capacity**

Staff/Personnel Resources	Y/N	Department/Agency and Position
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	City Planner/Engineer
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Building Inspectors and City Planner
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	City Planner/Engineer
D. Floodplain manager	Y	Coordinate - Engineer and Inspectors with assistance of State and County
E. Surveyors	N	
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	City Planner/Engineer
G. Personnel skilled in GIS and/or HAZUS	Y	CONSULTING PLANNER AND POLICE.CHIEF
H. Scientists familiar with the hazards of the community	N	
I. Emergency manager	Y	POLICE CHIEF COORDINATES WITH COUNTY
J. Grant writers	N	DEPARTMENTS HANDLE OWN

The legal and regulatory capabilities of Chamblee are shown in Table 5.5-2, which presents the existing ordinances and codes that affect the physical or built environment of Chamblee. Examples of legal and/or regulatory capabilities can include: the City's building codes, zoning ordinances, subdivision ordinances, and Comprehensive Plan.

**Table 5.5-2
City of Chamblee: Legal and Regulatory Capability**

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit (Y/N)
• Building code	Y	N
• Zoning ordinance	Y	N
• Subdivision ordinance or regulations	Y	N
• Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	N
• Growth management ordinances (also called “smart growth” or anti-sprawl programs)	N	N
• Site plan review requirements	Y	N
• Comprehensive plan	Y	N
• A capital improvements plan	N	N
• An economic development plan	N	N
• An emergency response plan	Y ¹	N
• A post-disaster recovery plan	Y ²	N
• A post-disaster recovery ordinance	N	N
• Real estate disclosure requirements	N	N

1) The plan exists at the county level. Chamblee participated in the plan, and is therefore covered by it.

2) The plan exists at the county level, through GEMA. Chamblee participated in the plan, and is therefore covered by it.

5.5.1.2 Fiscal Resources

Table 5.5-3 shows specific financial and budgetary tools available to Chamblee such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water, sewer, gas, or electric services; impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

**Table 5.5-3
City of Chamblee: Fiscal Capability**

Financial Resources	Accessible or Eligible to Use (Yes/No)
• Community Development Block Grants	Y ¹
• Capital improvements project funding	
• Authority to levy taxes for specific purposes	Y – Vote required ²
• Fees for water, sewer, gas, or electric service	N
• Impact fees for homebuyers or developers for new developments/homes	N
• Incur debt through general obligation bonds	N (can, but have not)
• Incur debt through special tax and revenue bonds	Y – Vote required
• Incur debt through private activity bonds	N
• Withhold spending in hazard-prone areas	N

1) CDBG – Entitlement County, through the County.

2) Would be highly unusual: is never used.

5.5.2 Goals, Objectives and Actions

During the presentation of findings for the hazard identification and risk assessment and capabilities assessment, the LPG provided preliminary input and ideas for mitigation strategies. In addition, the City solidified its goals, which are discussed in more detail in sub-section 5.5.2.1, below.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction’s current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further development of these goals and objectives, the LPG compiled and reviewed current jurisdictional sources including the City’s planning documents, codes, and ordinances. In addition, City representatives met with consultant staff to specifically discuss these hazard-related goals, objectives and actions as they related to the overall Plan. Representatives of numerous City departments involved in hazard mitigation planning, including Permits and Inspections, Parks and Recreation, Police, and Public Works participated in the Chamblee LPG. These members include:

- Dan Schultz, Permits Director
- Jim Gleason, City Manager
- Joel Holmes, Director, Parks & Recreation

- Nancy Williams, City Clerk
- William Tillman Hannon, Public Works Director
- Marc Johnson, Chief of Police

Once developed, City staff presented them to the City of Chamblee City Council for their approval.

Public meetings were held throughout the County to present these preliminary goals, objectives and actions to citizens and to receive public input. At these meetings, specific consideration was given to hazard identification/profiles and the vulnerability assessment results. The following sections present the hazard-related goals, objectives and actions as prepared by Chamblee’s LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens.

5.5.2.1 Goals

The City of Chamblee has developed the following Goals for their Hazard Mitigation Plan. Objectives for achieving each goal are discussed in the subsequent section.

Goal 1. Build and support capacity and commitment to become less vulnerable to hazards.

Goal 2. Reduce the possibility of damage and losses to existing assets (including people) due to flooding.

5.5.2.2 Objectives

The City of Chamblee developed the following broad list of objectives to assist in the achievement of each of its identified goals. For each of these objectives, specific actions were developed that would assist in their implementation. A discussion of the prioritization and implementation of the action items is provided in Section 5.5.2.3.

MITIGATION GOALS AND OBJECTIVES.
Goal 1: Build and support capacity and commitment to become less vulnerable to hazards.
<i>Objective 1A: To control and prevent flooding and other hazards.</i>
<i>Objective 1B: To provide additional protection to vulnerable populations from natural hazards.</i>
Goal 2: Reduce the possibility of damage and losses to existing assets (including people) due to flooding.
<i>Objective 2A: To map and fully understand the stormwater drainage system.</i>

5.5.2.3 Prioritization and Implementation of Mitigation Action Items

Once the comprehensive list of jurisdictional goals and objectives listed above was developed, proposed mitigation actions were developed and prioritized. This step resulted in a list of acceptable and realistic actions that address the hazards identified in each jurisdiction. This prioritized list of action items was formed by the LPG as a result of weighing STAPLE/E criteria.

All of the strategies identified in the remainder of this section are summarized in a table entitled *Mitigation Implementation Strategy Tracking Table for Chamblee*.

The prioritized mitigation actions, as well as an implementation strategy for each, are numbered within their appropriate heading: GEN (General Mitigation), WIN (Wind), FLD (Flood), ICE (Winter Storm), DAM (Dam Breach) EQ (Earthquake), EH (Extreme Heat) and WDF (Wildfire).

The proposed actions are listed and described below:

Action # GEN 1: Ongoing Program for Transporting Seniors during Extreme Weather: During extreme weather events, especially ice storms that disrupt power, elderly citizens face an increased threat of exposure to the elements. The risk of injury or death from freezing temperatures is higher among the elderly, so during ice storms they may need a place to stay with a generator, in order to insure they stay warm.

Priority: High

Objective Addressed: 1B

Coordinating Individual/Organization: City of Chamblee Parks and Recreation

Implementation Strategy: The City of Chamblee already has a program in place, operated by Parks and Recreation, which heats the Civic Center during ice storms, and picks up the senior citizens from their homes and delivers them to the Civic Center. The City will continue to operate this program into the future. The City will also expand this program to operate during extreme heat events, in the event that there is a power outage, or for senior citizens who do not have air conditioning.

Timeframe for Implementation: ongoing

Potential Funding Source: TBD

Current Status: Infrastructure is still in place and was used during the 2008 drought.

Action # GEN 2: Identify Overnight Shelters: Although the city currently operates a program to bring elderly citizens to the Civic Center during extreme weather events, this facility is only suitable for use

during the night. There are no cots or beds, and there are not proper resources to care for people during more extended stays.

Priority: Low

Objective Addressed: 1B

Coordinating Individual/Organization: City of Chamblee Parks and Recreation

Implementation Strategy: The City of Chamblee will attempt to identify other possible locations for sheltering needs. If none are found, Chamblee will attempt to find other solutions to the overnight sheltering needs of its citizens, including possible resources for bringing cots or beds to the Civic Center.

Timeframe for Implementation: Within 2 years of plan adoption

Potential Funding Source: TBD

Current Status: Deferred

Action # FLD 1: Drainage Improvements at Peachtree Industrial Blvd: The storm drain under Peachtree Industrial Blvd near Chamblee Plaza is quickly overwhelmed during rain events. The excess stormwater is forced to flow into the parking lot of the plaza and into Peachtree Industrial Blvd. This flooding is dangerous to the motorists and pedestrians that frequent the Plaza, and restricts commerce in the area as well as traffic using the state route to commute to downtown Atlanta.

Priority: High

Objectives Addressed: 1A, 2A

Coordinating Individual/Organization: City of Chamblee Public Works

Implementation Strategy: Coordinate with State of GA Dept. of Transportation to upsize the drainage system adjacent to Chamblee Plaza along Peachtree Industrial Blvd. (state route 141) to avoid flooding and road closure during heavy rain.

Timeframe for Implementation: Within 2 years of plan adoption

Potential Funding Source: PDM, HMGP, Local Funds

Current Status: A \$200,000 project is in final contract negotiations. The project is funded by the storm water utility fees.
--

Action # FLD 2: Floodplain Property Acquisitions with County: The City of Chamblee has some residential properties that may be appropriate candidates for acquisition.

Priority: Medium

Objectives Addressed: 1A, 1B

Coordinating Individual/Organization: City of Chamblee City Administrator and/or Floodplain Administrator

Implementation Strategy: Chamblee would like to coordinate with the county to incorporate some properties within the City of Chamblee into the County's existing property acquisition program.

Timeframe for Implementation: In progress

Potential Funding Source: PDM, HMGP, Stormwater Utility, Local Funds

Current Status: Deferred

Action # FLD 3: Map of Storm Drain System: The City experiences varying degrees of flooding within its borders. Much of the flooding is not riverine, but is drainage related. However, the city does not have a good database or good knowledge of the infrastructure that makes up the drainage system.

Priority: Very High

Objective Addressed: 2A

Coordinating Individual/Organization: City of Chamblee Public Works Department

Implementation Strategy: Conduct a survey of the storm drains in the city. Mark locations with GPS and input into a GIS database. Map the remaining portions of the system including pipes and pipe sizes, flow direction, etc. Work with the county to resolve any boundary discrepancies, as the City of Chamblee has locations of both inflow and outflow that are shared with the County.

Timeframe for Implementation: In progress

Potential Funding Source: Local Funds, PDM, Stormwater Utility

Current Status: Ongoing; working with the County by mapping and establishing jurisdictional boundaries. There are difficulties in data formats between different mapping platforms.
--

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Action # WIN 1: Extension of County’s Tornado Warning Siren Project: The County has included a project in this plan to reinstitute a tornado warning siren system. The City of Chamblee currently has no such system, and would like to be included should such a project come to fruition.

Priority: Medium

Objectives Addressed: 1A, 1B

Coordinating Individual/Organization: City of Chamblee Public Works Department

Implementation Strategy: Coordinate with the County to bring a warning siren into or near the borders of Chamblee so that all the hearing residents of the City are aware of approaching tornadoes.

Timeframe for Implementation: to be determined by the County

Potential Funding Source: PDM, HMGP

Current Status: Deferred

Action # WIN 2: Civic Center Roof Retrofit: The City Center is currently used to house senior citizens during daytime power outages. It can therefore be classified as a critical facility. However, this structure has a roof that is susceptible to wind damage due to the age and type of construction. This poses a hazard during wind events while the City’s senior citizens are housed inside.

Priority: High

Objectives Addressed: 1A, 1B

Coordinating Individual/Organization: City of Chamblee Parks and Recreation Department

Implementation Strategy: Retrofit the roof on the Civic Center in order to withstand more serious/stronger wind events.

Timeframe for Implementation: Within 3 years of plan adoption, funding dependent

Potential Funding Source: PDM, HMGP, Local Funds

Current Status: Deferred

Action # WIN/ICE 3: Continuation of Tree Removal Program: Dead or dying trees are more easily blown down or toppled during ice and wind events. The City of Chamblee currently has a program in place to

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remove dead trees on City property or within the right of way in order to prevent loss of life, injury, and damage to property and utilities.

Priority: High

Objective Addressed: 1A

Coordinating Individual/Organization: City of Chamblee Public Works and Parks and Recreation Departments

Implementation Strategy: The City of Chamblee will continue to operate this program.

Timeframe for Implementation: ongoing

Potential Funding Source: TBD

Current Status: Deferred

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5.6 CITY OF CLARKSTON

The City of Clarkston (Clarkston) formed a Local Planning Group (LPG) to work with the DeKalb County Mitigation Advisory Committee (MAC). The LPG reviewed a set of jurisdictional-level hazard maps including detailed critical facility information and localized potential hazard exposure/loss estimates to help identify the top hazards threatening their jurisdiction. After reviewing the localized hazard maps and exposure/loss estimates, the following hazards were identified by the Clarkston LPG as their top considerations:

Floods –Historical

High Wind – Frequent and historical

5.6.1 Capabilities Assessment

The LPG identified current capabilities available for implementing hazard mitigation activities. The Capability Assessment (Assessment) portion of the jurisdictional mitigation plan identifies administrative, technical, legal and fiscal capabilities. This includes a summary of departments and their responsibilities associated to hazard mitigation planning as well as codes, ordinances, and plans already in place associated to hazard mitigation planning. The second part of the Assessment provides Clarkston’s fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

5.6.1.1 Existing Institutions, Plans, Policies and Ordinances**Form of Governance**

The City of Clarkston utilizes the council-mayor form of local governance, with a hired city manager. Clarkston has six (6) council members and a mayor elected at large, which means that members represent the entire city rather than specific districts. The mayor controls the deciding vote if the council is split. The city manager is a new position which is to be appointed by the mayor and the council.

The City Council is Clarkston's legislative body, setting policy, approving budgets, and setting tax rates. The Mayor prepares a recommended budget, recruits and hires most of the government's staff, and carries out the council's policies. While the Mayor may recommend policy decisions, he or she is ultimately bound by the actions of the Council. The Council appoints five additional staff members — the City Manager, the City Attorney, the City Clerk, the City Auditor, and a Judge. Other City Departments involved in activities related to Hazard Mitigation include:

Administration

- Develop, implement and monitor policies, procedures, budgets, fees, automatic aid agreements, mutual aid agreements, and liaison with other city departments and outside agencies.

Emergency Medical Services

- Handled by DeKalb County. Manage the department's paramedic and EMT programs, respond to medical emergencies and other calls for service.

Emergency Management

- Handled by DeKalb County. Maintain the operational readiness of the City's Emergency Management Team, through Clarkston's Police Department.

Building Department/Public Works/Planning

- Coordinates adoption of building, plumbing, electrical, and mechanical codes. Develops building ordinances. Adopted County (ICC) building code.
- The City currently reviews site and building plans for compliance with building codes and ordinances. Damage assessment of structures from multiple causes to facilitate repair and future occupancy.
- Develops and maintains zoning ordinances and development standards. Oversight of city development process assuring compliance with zoning and comprehensive plan.
- Maintains city infrastructure (assets) ranging including parks, buildings, and vehicle fleet. (DeKalb County maintains the streets, however.)
- Responds to city emergencies, includes EOC response in disasters and assisting police and fire departments with hazardous materials clean up, traffic and perimeter control efforts, traffic accident clean up and evacuation routing.
- Has oversight of solid waste management, but no debris management plan.
- Reviews engineering on private and public grading, floodways, retention basins, transportation infrastructure and structures to assure compliance with Federal, State and local ordinances on structural stability.
- Develops engineering ordinances and policies that help protect and preserve city infrastructure.
- Evaluates all circulation elements for projected traffic impacts.
- Provides response personnel for evaluation of damaged infrastructure and rescue situations.
- Coordinates other response agencies assisting with damage assessment.

Police Department

- Responds to safety concerns involving threats and/or damage to life or property. Acts as the enforcement entity for violations of State and local laws and ordinances.
- Primary emergency responders to acts of civil disobedience and public disorders and terrorism. Support personnel for emergency rescue and management.
- Investigative services for criminal acts that result in personal injury/death and the destruction of property.

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- Develops and implements emergency response plans and policies, focusing on evacuation procedures and traffic control.
- Primary responders to acts of terrorism, focusing on suspect intervention and facility and staff protection.

City Arborist

- Works for Army Corp of Engineers.
- Helps to identify sick trees or those in danger of falling.

Guiding Community Documents

The City of Clarkston has a range of guidance documents and plans for each of its departments. These include a Comprehensive Plan, public works and public utilities plans, capital improvement plans, and emergency management plans. The city uses building codes, zoning ordinances, subdivision ordinances, and various planning strategies to address how and where development occurs. One of the essential ways the City guides its future is through policies laid out in the Comprehensive Plan.

The Comprehensive Plan

The Comprehensive Plan for the City of Clarkston was completed in 1995. The plan was updated in 2005. It covers the planning period through the year 2025. It includes sections on population, economic development, natural and historic resources, housing, and land use. It also lists goals, objectives, and strategies for implementing the plan. The purpose of the plan is to provide local officials with a tool to manage and guide the future growth and development of the city, and to establish a framework from which the city can work while planning for the future provision of public facilities and services.

Zoning Ordinances

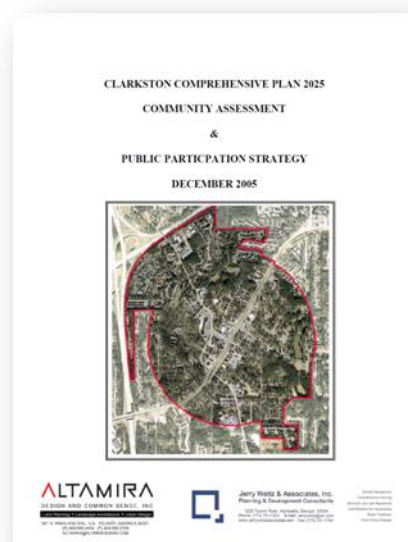
The entire set of ordinances for Clarkston can be found online at www.municode.com. Chapters relevant to hazard mitigation include Chapter 5 (Buildings, Construction, and Related Matters), Chapter 7.5 (Emergency Management), Chapter 9 (Fire Prevention), Chapter 13 (Parks and Recreation), Chapter 15 (Planning and Development), Chapter 17 (Subdivisions), and Appendix A (Zoning).

Building Codes

The City of Clarkston adopted the county's building code, which is based on the state's building code. This, in turn, is based on the ICC.

Floodplain Management Ordinance

The City of Clarkston meets the minimum standards of the NFIP. Within the city's boundaries, there is only one flooding source. This has been studied in detail and has known base flood elevations.



<http://www.cityofclarkston.com/DSN/wwwcityofclarkstoncom/Content/Clarkston%20Comprehensive%20Plan%202025.pdf>

The Stormwater Management Program

The stormwater management program is undertaken by the county. It is paid for by the county through a stormwater assessment fee.

Mitigation Activities

To date, Clarkston has not participated in any hazard mitigation activities, nor has it received any mitigation grant money.

GIS, Computer and Communication Technology

Clarkston relies on the county for GIS services. As part of this service, the county maintains a reverse 911 calling system.

Financial Resources

The proposed revenue for the City of Clarkston, for the year 2010 is \$2 million. The largest single source of revenue for the City comes from municipal court fines and forfeitures, with property taxes and insurance premium tax as the second and third largest sources. The Police Department is the largest single expenditure, using more than half the budget proposed for 2005.

The following is a summary of existing departments in Clarkston and their responsibilities related to hazard mitigation planning and implementation, as well as existing planning documents and regulations related to mitigation efforts within the community. The administrative and technical capabilities of Clarkston, as shown in Table 5.6-1, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community.

**Table 5.6-1
City of Clarkston: Administrative and Technical Capacity**

Staff/Personnel Resources	Y/N/J*	Department/Agency and Position
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	J	Public Works Director together with DeKalb County
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	N	Hire as needed
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	J	
D. Floodplain manager	Y	Public Works Director
E. Surveyors	N	Hire as needed

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Staff/Personnel Resources	Y/N/J*	Department/Agency and Position
F. Staff with education or expertise to assess the community's vulnerability to hazards	N	
G. Personnel skilled in GIS and/or HAZUS	N	Contractor collects data, County stores it.
H. Scientists familiar with the hazards of the community	N	
I. Emergency manager	N	
J. Grant writers	N	Public Works Director and City Clerk, with help from other staff, such as the Police Chief.

Abbreviation "J" is recognized as "Joint"

The legal and regulatory capabilities of Clarkston are shown in Table 5.6-2, which presents the existing ordinances and codes that affect the physical or built environment of Clarkston. Examples of legal and/or regulatory capabilities can include: the City's building codes, zoning ordinances, subdivision ordinances, Comprehensive Plans, and emergency response plans.

**Table 5.6-2
City of Clarkston: Legal and Regulatory Capability**

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit (Y/N)
A. Building code	Y	N
B. Zoning ordinance	Y	N
C. Subdivision ordinance or regulations	Y	N
D. Special purpose ordinances (floodplain management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	N
E. Growth management ordinances (also called "smart growth" or anti-sprawl programs, or Livable Cities Initiative)	Y	N
F. Site plan review requirements	Y	N
G. General or comprehensive plan	Y	N
H. A capital improvements plan	Y	N
I. An economic development plan	Y	N
J. An emergency response plan	Y	N
K. A post-disaster recovery plan	N	N
L. A post-disaster recovery ordinance	N	N
M. Real estate disclosure requirements	Y	N

Abbreviation “J” is recognized as “Joint”

5.6.1.2 Fiscal Resources

Table 5.6-3 shows specific financial and budgetary tools available to Clarkston such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water, sewer, gas, or electric services; impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

**Table 5.6-3
City of Clarkston: Fiscal Capability**

Financial Resources	Accessible or Eligible to Use (Yes/No)
A. Community Development Block Grants (CDBG)	Y
B. Capital improvements project funding	Y
C. Authority to levy taxes for specific purposes	Y – Vote required
D. Fees for water, sewer, gas, or electric service	N
E. Impact fees for homebuyers or developers for new developments/homes	N
F. Incur debt through general obligation bonds	N
G. Incur debt through special tax and revenue bonds	N
H. Incur debt through private activity bonds	N
I. Withhold spending in hazard-prone areas	N

Abbreviation “J” is recognized as “Joint”

5.6.2 Goals, Objectives and Actions

The LPG discussed the results of the hazard identification and risk assessments, reviewed mitigation goals and alternatives based on the priority areas and hazard types, and began developing the mitigation strategy. In addition, the City solidified its goals, which are discussed in more detail in sub-section 5.6.2.1, below. In formulating goals, the following priorities were identified.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction’s current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further development of these

goals and objectives, the LPG compiled and reviewed current jurisdictional sources including the City’s planning documents, codes, and ordinances. In addition, City representatives met with consultant staff and/or OES staff to specifically discuss these hazard-related goals, objectives and actions as they related to the overall Plan. Representatives of numerous City departments involved in hazard mitigation planning participated in the Clarkston LPG. These members include:

- Mike Shipman, Director of Public Works
- Danny Locket, Code Enforcement Officer
- Adam White, City Councilman
- Emanuel Ransom, City Councilman

Once developed, City staff presented them to the City of Clarkston City Council for their approval.

Public meetings were held throughout the County to present these preliminary goals, objectives and actions to citizens and to receive public input. At these meetings, specific consideration was given to hazard identification/profiles and the vulnerability assessment results. The following sections present the hazard-related goals, objectives and actions as prepared by Clarkston’s LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens.

5.6.2.1 **Goals**

The City of Clarkston has developed the following goals for their Hazard Mitigation Plan. Objectives for achieving each goal are discussed in the subsequent section. Build and support capacity and commitment to become less vulnerable to hazards.

Goal 1. Reduce the possibility of damage and losses to existing assets due to all hazards.

Goal 2. Build and support capacity and commitment to become less vulnerable to hazards.

5.6.2.2 **Objectives**

The City of Clarkston developed the following broad list of objectives to assist in the achievement of each of its identified goals. For each of these objectives, specific actions were developed that would assist in their implementation. A discussion of the prioritization and implementation of the action items is provided in Section 5.6.2.3.

MITIGATION GOALS AND OBJECTIVES.
Goal 1: Reduce the possibility of damage and losses to existing assets due to all hazards.
<i>Objective 1a: To prevent flooding of streets and parks to reduce public safety costs, disruption of commerce, damage to assets, and potential injuries.</i>
<i>Objective 1b: To prevent wind related damages to community assets.</i>

<p>Goal 2: Build and support capacity and commitment to become less vulnerable to hazards.</p>
<p><i>Objective 2: To identify ways to increase the city’s ability to access private property for mitigation-related maintenance activities.</i></p>

5.6.2.3 Prioritization and Implementation of Mitigation Action Items

Once the comprehensive list of jurisdictional goals and objectives listed above was developed, proposed mitigation actions were developed and prioritized. This step resulted in a list of acceptable and realistic actions that address the hazards identified in each jurisdiction. This prioritized list of action items was formed by the LPG weighing STAPLE/E criteria

All of the strategies identified in the remainder of this section are summarized in a table entitled *Mitigation Implementation Strategy Tracking Table for Clarkston*.

The prioritized mitigation actions, as well as an implementation strategy for each, are numbered within their appropriate heading: GEN (General Mitigation), WIN (Wind), FLD (Flood), ICE (Winter Storm), DAM (Dam Breach) EQ (Earthquake), THD (Thunderstorm), EH (Extreme Heat) and WDF (Wildfire).

The proposed actions are listed and described below:

Action # GEN 1: Critical Facility Identification with County: The state and the county currently have two distinct lists of all the existing critical facilities within the county. The City of Clarkston does not have an accurate list the critical facilities within its boundaries.

Priority: Medium

Objectives Addressed: all

Coordinating Individual/Organization: City of Clarkston Public Works Department

Implementation Strategy: The County has included a project in this plan to address the discrepancies between its critical facilities list and the state’s critical facilities list. The City of Clarkston would like to be included in that plan to make sure that all the critical facilities within Clarkston’s borders are included. Clarkston will coordinate with the County to make sure all the correct facilities are listed.

Timeframe for Implementation: Within 1 year of plan adoption

Potential Funding Source: General Fund

<p>Current Status: Completed for 2010, developing a way to make sure information is maintained.</p>
--

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Action # GEN 2: Right-of-Way Determination and Possible Acquisition: The City of Clarkston currently has unclear and sometimes non-existent right-of-way boundaries at streets and roads. This makes mitigation related activities (such as salting or gravelling roads during ice storms) much more difficult.

Priority: Very High

Objective Addressed: 2

Coordinating Individual/Organization: Building Department/Public Works/Planning, in conjunction with Administration Department

Implementation Strategy: A survey should be taken to determine precisely where the cities right-of-way currently lies. Next, those areas that would most benefit from an expanded right-of-way should be identified, and steps should be taken to acquire those pieces of land.

Timeframe for Implementation: Within 6 months of plan adoption, if funds are available

Potential Funding Source: General Fund

Current Status: In progress, but dependent on funding.

Action # FLD 1: Norman Road Drainage System Study: During rain events, the Norman Road drainage system floods. This flooding is so bad at times that sinkholes are created in the park, the streets, and private yards, which are a serious hazard to neighborhood children. In addition the streets typically become damaged and require regular repair.

Priority: Very High

Objective Addressed: 1a

Coordinating Individual/Organization: Public Works

Implementation Strategy: Commission a study for determining the cause of flooding in the Norman Road neighborhood. The study will recommend possible solutions to the problem. Eventually one of the solutions will be implemented to solve the problem.

Timeframe for Implementation: Have study begun or contracted out within 2 years of plan adoption, provided funding is available.

Potential Funding Source: PDM, FMA, General Fund, Stormwater Utility

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Current Status: Construction is currently out for bid. A \$500,000 grants was awarded of which the City is responsible for 20%. The project includes dredging the retention lake, repairing the dam and clearing the land.

Action # FLD 2: Flooding South of Montreal Road: The flooding source south of Montreal Road floods regularly, causing damage to roads, private property, and disrupting commerce due to road blockage.

Priority: Medium

Objective Addressed: 1a

Coordinating Individual/Organization: Public Works

Implementation Strategy: Study the flooding source and the surrounding drainage system to determine the likely cause of flooding and to determine some possible solutions to the problem. Determine the best solution and implement it.

Timeframe for Implementation: Within 5 years of plan adoption, funding dependent.

Potential Funding Source: general fund, stormwater utility

Current Status: In progress. First steps included observations of the area and clearing of land. The funding is not secured for completion of the project.

Action # FLD 3: Acquisition of Property on Hill Street: The property located at 3489 Hill Street floods for about 6 months out of the year. Drainage at this property is so poor that water sits in the yard and only drains after long spells of dry heat.

Priority: Medium

Objective Addressed: 1a

Coordinating Individual/Organization: Director of Public Works Mike Shipman

Implementation Strategy: Acquire the property at 3489 Hill Street and permanently turn the property into open space.

Timeframe for Implementation: To be performed within 5 years, funding dependent.

Potential Funding Source: PDM, HMGP, FMA

Current Status: No action has been taken but the property is possibly in foreclosure. More information needs to be gathered.

Action # FLD 4: Purchase Clark Lake: Clark Lake, currently owned by a homeowner’s association, floods regularly because of silting that decreases the capacity of the lake. The flooding damages a county road and a park that is owned by the City. The floodwaters regularly enter a city-owned swimming pool. This pool then has to be drained and cleaned which is expensive, as is the maintenance of the park after the floodwaters recede.

Priority: High

Objective Addressed: 1a

Coordinating Individual/Organization: Public Works

Implementation Strategy: Purchase the lake from the homeowner’s association and maintain it (dredge first, then prevent further siltation) to keep the lake from flooding.

Timeframe for Implementation: Within 3 years of plan adoption, funding dependent.

Potential Funding Source: PDM, HMGP, FMA

Current Status: This issue is addressed by Action FLD #1.
--

Action # THD 1: Lightning Rod for City Hall: There is no lightning rod on the City Hall building to protect the cities communications, computer, and other electronic equipment from damage due to electric surge during a lightning strike.

Priority: High

Objective Addressed: 1b

Coordinating Individual/Organization: Department of Public Works

Implementation Strategy: Install a lightning rod on City Hall to protect the contents of the building in case of a lightning strike.

Timeframe for Implementation: Within 1 year of plan adoption, funding dependent.

Potential Funding Source: PDM, General Fund

Current Status: Not discussed yet due to lack of funds.
--

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Action # THD 2: Retrofit of Police Station to protect against wind damage. The police station is highly vulnerable to wind and flying projectiles because it has large glass windows exposed to outside elements.

Priority: Medium

Objective Addressed: 1b

Coordinating Individual/Organization: Department of Public Works

Implementation Strategy: Hire a structural engineer to survey the building and make recommendations. Secure funds for the retrofit.

Timeframe for Implementation: Within 2 year of plan adoption, funding dependent.

Potential Funding Source: PDM, General Fund

Current Status: New action; currently deferred due to lack of funds.

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5.7 CITY OF DECATUR

The City of Decatur (Decatur) formed a Local Planning Group (LPG) to work with the DeKalb County Mitigation Advisory Committee. The LPG reviewed a set of jurisdictional-level hazard maps including detailed critical facility information and localized potential hazard exposure/loss estimates to help identify the top hazards threatening their jurisdiction. After reviewing the localized hazard maps and exposure/loss estimates, the City concluded that its resources are best used on addressing its most frequent and damaging hazard, flooding.

5.7.1 Capabilities Assessment

The LPG identified current capabilities available for implementing hazard mitigation activities. The Capability Assessment portion of the jurisdictional mitigation plan identifies administrative, technical, legal and fiscal capabilities. This includes a summary of departments and their responsibilities associated to hazard mitigation planning as well as codes, ordinances, and plans already in place associated to hazard mitigation planning. The second part of the Assessment provides Decatur's fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

5.7.1.1 Existing Institutions, Plans, Policies and Ordinances**Form of Governance**

The City of Decatur is chartered as a Commission- manager form of local government, which includes both elected officials and an appointed city manager. Decatur has five Commission members. Two each are elected from two districts and one member is elected at-large. The Commission members elect a mayor and a mayor pro-tem each year.

The City Commission is Decatur's legislative body, which includes responsibilities for setting policy, approving budgets, and setting tax rates. The City Manager is responsible for the day-to-day administration of the city, and serves as the Commission's chief advisor. The City Manager prepares a recommended budget, is responsible for all personnel activities, and ensures that the Commission's policies are executed. While the City Manager may recommend policy decisions, he or she is ultimately bound by the actions of the Commission. The Commission appoints the City Attorney and the Municipal Court Judges, as well as citizen based boards and commissions.

City Departments involved in activities related to Hazard Mitigation include:

City of Decatur Fire Department

- Administration: Develop, implement and monitor policies, procedures, budgets, fees, automatic aid agreements, mutual aid agreements, and liaison with other city departments and outside agencies.
- Coordinate adoption of codes and ordinances, review site and building plans for fire code compliance, develop and present public education programs.

- First Responder. Maintain the department's personnel, medical vehicles and equipment in a state of readiness to respond to the community's medical emergency needs, train and interact with the neighboring EMS division and regional agencies.
- Suppression Division: Maintain the department's personnel, apparatus, equipment and fire stations in a state of readiness to respond to the community's needs, develop and implement standard operating procedures for various types of emergency responses, respond to all types of emergencies, and train and interact with neighboring jurisdictions and regional agencies.
- Perform functions in the Emergency Operations Center or on-scene as assigned.
- Provide Emergency Management Committee and/or Emergency Operations Center initial situation/damage reports as per field units' observations and reports from the general public.
- Provide supplies, equipment, and personnel as requested.
- Provide initial emergency medical services care.
- Contain, control hazardous materials.
- Provide limited response to search and rescue off-road situations, and coordinate heavy rescue operations.
- Augment warning system by providing siren-equipped and/or public address mobile units, and/or staffing for door-to-door warning.
- Support other public safety operations.
- Order evacuation whenever necessary to protect lives and property.

City of Decatur Planning, Zoning & Inspections Division

- Develop and maintain city Comprehensive Plan, zoning ordinances and development standards.
- Oversight of city development process assuring compliance with zoning and Comprehensive Plan, and including environmental impact reports, design review, historic preservation, landscape review, habitat conservation, floodway prohibitions, and floodplain development standards.

City of Decatur Public Works Department

- Maintains city infrastructure (assets) ranging from parks to buildings and vehicle fleet.
- Responds to city emergencies, includes EOC response in disasters and assisting with hazardous materials clean up, traffic and perimeter control efforts, traffic accident clean up and evacuation routing.

City of Decatur Engineering Division

- Reviews engineering on private and public grading, floodways, retention basins, transportation infrastructure and structures to assure compliance with Federal, State and local ordinances on seismic and structural stability.
- Develops engineering ordinances and policies that help protect and preserve city infrastructure.
- Evaluates all circulation elements for projected traffic impacts.
- Determines needed infrastructure improvements, and stormwater system capabilities.
- Provides maintenance of the transportation and drainage infrastructures on publicly owned land.
- Maintains sidewalks, curbs and pavements. Also maintains traffic signs and markings.
- Manages the City's Stormwater Utility which provides maintenance to the City owned drainage infrastructure including flumes, ditches, detention ponds, inlets, manholes, pipes and culverts.
- Provides response personnel for evaluation of damaged infrastructure and rescue situations.
- Responds as part of the City's EOC Team.
- Coordinates other response agencies assisting with damage assessment.

City of Decatur Police Department

- Perform functions in the Emergency Operations Center or on-scene as assigned.
- Provide Emergency Management Committee and/or Emergency Operations Center initial situation/damage reports as per field units' observations and reports from the general public.
- Provide supplies, equipment, and personnel as requested.
- Augment warning system by providing siren-equipped and/or public address mobile units, and/or staffing for door-to-door warning.
- Responsible for lost person search and rescue, and coordination of heavy rescue operations.
- Maintain law and order and provide public safety activities as required.
- Provide security for key facilities.
- Protect property in evacuated areas.
- Provide assistance in the capture and control of animals.
- Enforce orders of fire officers and implement/enforce evacuation orders, when necessary.
- Provide law enforcement and traffic control in support of fire department actions.

- Order/conduct and ensures transportation for evacuations when necessary to save lives and property.
- Coordinate mobilization of emergency transportation services.
- Responds to safety concerns involving threats and/or damage to life or property. Acts as the enforcement entity for violations of State and local laws and ordinances.
- Primary emergency responders to acts of civil disobedience and public disorders and terrorism. Support personnel for emergency rescue and management.
- Investigative services for criminal acts that result in personal injury/death and the destruction of property.
- Develops and implements emergency response plans and policies, focusing on evacuation procedures and traffic control.
- Primary responders to acts of terrorism, focusing on suspect intervention and facility and staff protection.
- Maintains the City's reverse 911 system
- Maintains the City's Tornado Warning System

City of Decatur Public Information Office

- Supports all departments with interaction with media and provision of information to the community at large.
- Maintains City web site

Guiding Community Documents

The City of Decatur has a range of guidance documents and plans for each of its departments. These include a Strategic Plan and a Comprehensive Plan, public works and public utilities plans, and emergency management plans. The city uses building codes, zoning ordinances, subdivision ordinances, and various planning strategies to address how and where development occurs. The essential ways the City guides its future is through policies laid out in the Strategic Plan and Comprehensive Plan.

The Strategic Plan

The Strategic Plan was adopted in 2000 and provides a ten-year strategic plan for the City principles for managing growth, encouraging community interaction and providing quality services. Ten goals support the three principles. The City, along with over 600 citizens, are currently revising this document and it is anticipated that completion and approval of this document will occur in 2010.

The Comprehensive Plan

The Comprehensive Plan for the City of Decatur was updated and adopted in 2005. The comprehensive plan is an official document adopted by the Decatur City Commission that describes and helps guide

decisions about the physical, economic, and social aspects of a community. The plan is generally broad and long-range in nature, usually covering a 20 year period and addresses such elements as population, economic development, housing, natural and cultural resources, community facilities and services, intergovernmental coordination, transportation, and land use. In addition to these eight elements, a vision statement describing what citizens and community leaders need and desire is also included.

Zoning and Subdivision Ordinances

The City has a Zoning Ordinance as part of its Code of Ordinances. The entire Code can be viewed online at www.municode.com.

Building Codes

The City of Decatur's Building Codes are based on the IBC, IRC, and IFPC. The City Building Department is principally responsible for enforcing State and city codes for building residential and commercial structures, enforcing environmental codes and guidelines for maintaining existing structures. The Fire department maintains an ISO class 2 (second highest) rating. The City Building Department received a rating of "three" in early 2000 for its building code effectiveness in residential, commercial, and industrial construction from the Insurance Services Office (ISO). It has not been rated since that time.

Floodplain Management Ordinance

The City of Decatur has an enforced floodplain ordinance that is administered by the Engineering Division with the Department of Public Works. All floodplains were studied in detail in the early 1990's, however, the maps are outdated. The hydraulics was modeled using general reach basins and flow was not split at sub-basins. Because Decatur sits on the ridge line of the subcontinental divide, the FEMA maps were highly inaccurate in the upper reaches of the watersheds due to its modeling methodology. Due to the mapping inaccuracies the City undertook updating all of FIRM panels through participation in FEMA's Map Modernization program by initiating a remodeling project that started in 2006. The remapping project was completed in 2007, accepted by FEMA in 2008 and the new maps and waterway profiles, issued as a LOMR, became effective on February 20, 2008. The City is now mapped to future conditions standards to the 100 acre upstream limit, with all Zone A areas removed and replaced with Zone AE.

Stormwater Utility

The City of Decatur instituted a stormwater utility in 1999. The City's utility is independent of the one run by the county. The utility assesses fees based on the amount of stormwater produced and the amount of impervious surface. The utility is intended to be self-sufficient, with revenues raised to maintain and improve the stormwater drainage infrastructure. . The City has prioritized stormwater improvement projects in its Stormwater Master Plan, completed in 2005. The main focus of stormwater improvements was given to the main drainage trunk line that runs in a western direction from Pate Street across the Decatur High School and the Allen Wilson Terrace Property and eventually daylight at Peavine Creek by the Post Office. This drainage trunk line carries all the stormwater runoff in downtown Decatur is in bad condition. The Stormwater Utility will be used for these improvements as well as smaller localized flood prone areas throughout the City limits.

Emergency Management Plan

In 2006 with a revision in 2009, the Decatur Comprehensive Emergency Management Plan outlines the activities that the City of Decatur will take to mitigate, prepare for, respond to and recover from the effects of an emergency or disaster. The Plan was developed to minimize the adverse effects to life and property from natural and man-made emergencies and disasters. The Plan was also created to ensure the continuity of services to the citizens of the City of Decatur. The ability to respond quickly and in an organized manner is vital to the continuation of city services during an emergency or during the recovery from a catastrophic event.

The City of Decatur acknowledges that the State of Georgia has given emergency management authority for DeKalb County to the DeKalb County Emergency Management Agency (DEMA). The City of Decatur Comprehensive Emergency Management Plan is intended to complement the DeKalb County Emergency Management Agency plan.

Mitigation Activities**1. Pre-Disaster Mitigation (PDM) Grant Program – Project #PDMC-PJ-04-GA-2007-001:**

January 15, 2007, the City of Decatur filed for a PDM grant for 4 floodplain properties at 514, 520, 526 and 532 Westchester Drive. Of the 4 properties 2 were designated as repetitive losses by FEMA. The City received official notification of the grant award from the Georgia Department of Homeland Security on October 19, 2007. The grant was a 75/25 grant with the PDM portion being \$1,239,962 and the City match being \$419,400.

2. In 2009, as part of the HMPG program, the City of Decatur was awarded 109,000 for the purchase and installation of an outdoor warning system. The system consists of four sirens. The City received official notification of the grant award from the Georgia Department of Emergency Management. The grant was funded with 75% Federal, 15% State of Georgia and 10% Decatur match.

3. 2009, Fire Station Two construction was completed. This was the first of many planned city building projects to utilizing continuity of government strategies into the finished project. The building was designed with backup power, a dedicated plug and play 911 center \ EOC room, and the ability to be used for a temporary shelter or any other city building during an emergency. This project was funded with bonds issued by the City.

4. Decatur Public Works began an annual City Tree maintenance program 5 years ago. This mitigation program has proven to reduce the damage that the city was routinely seeing as a result of inclement weather.

GIS, Computer and Communication Technology

Decatur currently uses the county's layers for its GIS needs, supplemented by a parcel layer unique to the City. The City also has its own 911 call system, as well as a reverse 911 system in place. Phase II wireless is complete. The 911 operator is able to pinpoint the cell phone user to the nearest tower and nearest triangulation point.

In 2006, the City acquired an incident notification system that enables the City to contact every residence with a recorded message in the case of an emergency. In 2010, an outdoor warning system was installed consisting of 5 sirens; the system is sounded by 911 operators.

Financial Resources

The city's yearly budget revenue has grown slightly over the last 10 years. In 1995, the revenues for the city were just under \$11.4 million. For 2010 that number is estimated to be just over \$18.4 million. The largest portion of the city's revenue comes from property taxes.

The budget for the city from 2009 to 2010 has changed very little, with most departments seeing a slight decrease in budget; a reflection of the slight decrease in the projected revenue for the year. Public Safety uses the largest share of the \$18.4 million budget, at \$7.9 million. Together, the budgets for Engineering, Sanitation and Facilities Maintenance total about \$3.3 million.

The following is a summary of existing departments in Decatur and their responsibilities related to hazard mitigation planning and implementation, as well as existing planning documents and regulations related to mitigation efforts within the community. The administrative and technical capabilities of Decatur, as shown in Table 5.7-1, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community.

**Table 5.7-1
City of Decatur: Administrative and Technical Capacity**

Staff/Personnel Resources	Y/N	Department/Agency and Position
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	Engineering Division
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Engineering Division, and Building Department
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Engineering Division
D. Floodplain manager	Y	Engineering Division
E. Surveyors	N	
F. Staff with education or expertise to assess the community’s vulnerability to hazards	Y	Fire Department
G. Personnel skilled in GIS and/or HAZUS	Y	Engineering Division (GIS only)
H. Scientists familiar with the hazards of the community	N	
I. Emergency manager	Y	
J. Grant writers	Y	

The legal and regulatory capabilities of Decatur are shown in Table 5.7-2, which presents the existing ordinances and codes that affect the physical or built environment of Decatur. Examples of legal and/or regulatory capabilities can include: the City’s building codes, zoning ordinances, subdivision ordinances, special purpose ordinances, growth management ordinances, site plan review, Comprehensive Plans, capital improvement plans, economic development plans, and emergency response plans.

**Table 5.7-2
City of Decatur: Legal and Regulatory Capability**

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit (Y/N)
A. Building code	Y	N
B. Zoning ordinance	Y	N
C. Subdivision ordinance or regulations	Y	N
D. Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	N
E. Growth management ordinances (also called “smart growth” or anti-sprawl programs) LIVABLE CITIES INITIATIVE -	Y	N
F. Site plan review requirements	Y	N
G. General or comprehensive plan	Y	N
H. A capital improvements plan	Y	N
I. An economic development plan (PART OF COMP PLAN)	Y	N
J. An emergency response plan	Y	N
K. A post-disaster recovery plan (INCLUDED IN EM PLAN IN WORKS)	Y	N
L. A post-disaster recovery ordinance	N	N
M. Real estate disclosure requirements (STATE STATUTE – FLOODPLAIN)	N	N

5.7.1.2 Fiscal Resources

Table 5.7-3 shows specific financial and budgetary tools available to Decatur such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

**Table 5.7-3
City of Decatur: Fiscal Capability**

Financial Resources	Accessible or Eligible to Use (Yes/No)
A. Community Development Block Grants	N
B. Capital improvements project funding	Y
C. Authority to levy taxes for specific purposes (Have only used once, in conjunction with the County)	Y – Vote required
D. Fees for water, sewer, gas, or electric service	N
E. Impact fees for homebuyers or developers for new developments/homes	Y (but not used)
F. Incur debt through general obligation bonds	Y– Vote required
G. Incur debt through special tax and revenue bonds	Y – Vote required
H. Incur debt through private activity bonds	N
I. Withhold spending in hazard-prone areas	N
J. Other Grants	Y

5.7.2 Goals, Objectives, and Actions

The LPG discussed the results of the hazard identification and risk assessments, reviewed mitigation goals and alternatives based on the priority areas and hazard types, and began developing the mitigation strategy. In addition, the City solidified its goals, which are discussed in more detail in subsection 5.7.2.1, below.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction’s current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further development of these goals and objectives, the LPG compiled and reviewed current jurisdictional sources including the City’s planning documents, codes, and ordinances. In addition, City representatives met with consultant staff and/or OES to specifically discuss these hazard-related goals, objectives and actions as they related to the overall Plan. Representatives of numerous City departments involved in hazard mitigation planning, including Fire, Police, and Public Works participated in the Decatur LPG. These members include:

- Tony Parker, Assistant City Manager- Emergency Services
- David Junger, Assistant City Manager- Public Works Director
- Meredith Roark, Assistant to the City Manager
- Amanda Thompson, *Planning Director*

- John Madajewski, Senior Engineer
- Julie Gyuricza, Stormwater Management Engineer

Once developed, City staff presented them to the City of Decatur City Commission for their approval.

Public meetings were held throughout the County to present these preliminary goals, objectives and actions to citizens and to receive public input. At these meetings, specific consideration was given to hazard identification/profiles and the vulnerability assessment results. The following sections present the hazard-related goals, objectives and actions as prepared by Decatur’s LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens.

5.7.2.1 Goals

The City of Decatur has developed the following goals for their Hazard Mitigation Plan. Objectives for achieving each goal are discussed in the subsequent section.

Goal 1: Reduce the possibility of damage and losses to our citizens, employees, property, and critical facilities/infrastructure due to natural hazards.

5.7.2.2 Objectives

The City of Decatur developed the following broad list of objectives to assist in the achievement of each of its identified goals. For each of these objectives, specific actions were developed that would assist in their implementation. A discussion of the prioritization and implementation of the action items is provided in Section 5.7.2.3.

MITIGATION GOALS AND OBJECTIVES.
Goal 1: Reduce the possibility of damage and losses to our citizens, employees, property, and critical facilities/infrastructure due to natural hazards.
<i>Objective 1.A: Reduce flooding.</i>
<i>Objective 1.B: Improve personal safety of occupants and reduce property damage</i>
<i>Objective 1.C: Decrease the vulnerability of public infrastructure including facilities, roadways, and utilities.</i>
<i>Objective 1.D: Provide for the continuity of government</i>
<i>Objective 1.E: City tree maintenance</i>

5.7.2.3 *Prioritization and Implementation of Mitigation Action Items*

Once the comprehensive list of jurisdictional goals and objectives listed above was developed, proposed mitigation actions were developed and prioritized. This step resulted in a list of acceptable and realistic actions that address the hazards identified in each jurisdiction. This prioritized list of action items was formed by the LPG as a result of weighing STAPLE/E criteria.

The Disaster Mitigation Action of 2000 (at 44 CFR Parts 201 and 206) requires the development of an action plan that not only includes prioritized actions but one that includes information on how the prioritized actions will be implemented. For each of the strategies developed, the goal and objective(s) addressed are listed. In addition, each mitigation action item includes a priority level, responsible department, implementation strategy, timeframe for implementation, a potential funding source, and a discussion of the action's benefits and costs. A description of each of these components is included below:

Priority Level: For each mitigation measure a priority level of *Very High, High, Medium, or Low* has been assigned. These priority levels have been developed based on input from Committee members, the overall planning consideration of the hazard as assigned in the hazard identification section of this document, the anticipated benefit-cost ratio, and consideration of the STAPLE/E criteria.

Responsible Department: The responsible department listed for each alternative is tasked with the lead role in all aspects of the implementation of that measure. However, many of the measures identified will require effort and support from other departments. The responsible department is expected to coordinate the efforts of all local departments as well as relevant regional, state, and federal entities.

Implementation Strategy: The implementation strategy developed for each measure includes a general description of potential methods that could be utilized or actions that could be taken. Due to the complex nature of a number of these measures, not all of the listed methods will ultimately prove feasible. Before initiating the implementation of each measure, the responsible department should develop a detailed project plan with particular attention to technical feasibility and cost effectiveness.

Timeframe for Implementation: The timeframe for implementation describes the length of time from the date of plan adoption to the target date for completion. It should be noted that timeframes listed are goals and may be influenced by additional factors. Through the development of detailed project plans by the responsible department, the timeframe will be evaluated and revised as necessary.

Potential Funding Source: For each mitigation measure, potential funding sources are listed. Whenever possible, non-local sources of funding have been identified, including state and federal grants. The sources listed are not intended to represent all possible options. Additional opportunities for funding may be identified during implementation.

Benefit vs. Cost: For most measures, a general discussion comparing potential benefits and costs is provided and an anticipated level of cost effectiveness assigned. The levels assigned include *Highly Cost Beneficial*, *Cost Beneficial*, and *Potentially Cost Beneficial*. This discussion is not intended to replace a full benefit cost analysis that should be completed prior to implementation.

All of the strategies identified in the remainder of this section are summarized in a table entitled *Mitigation Implementation Strategy Tracking Table for Decatur*.

The prioritized mitigation actions, as well as an implementation strategy for each, are numbered within their appropriate heading: GEN (General Mitigation), WIN (Wind), FLD (Flood), ICE (Winter Storm), DAM (Dam Breach) EQ (Earthquake), EH (Extreme Heat) and WDF (Wildfire).

The proposed actions are listed and described below:

Action #FLD 1: Stormwater System Infrastructure Improvements: Much of the City's Stormwater System Infrastructure is in need of repairs and upgrades. Pipes and culverts are undersized in many instances causing localized flooding. For example, the culvert immediately downstream of the Police Department is substantially undersized leading to flooding of the parking lot under minimal (perhaps 2 to 5-yr) storm events. The same is true of the culvert in front of the Fire Station. The ponding on the street gets so high that as vehicles go across the low area the wake they create causes water to get into the Fire Station building. During rain events both the Police and Fire Departments must move their equipment from their parking lots, leading to reduced emergency response time if a call comes in during the storm event. . The City is currently funding a conceptual stormwater management project for improvements to these areas. The downtown main drainage trunk lines that span these areas are currently be redesigned and resized to handle the 25 year storm event and eliminate ponding. This is possible through funding from the City's Stormwater Utility.

Priority: Very High

Objectives Addressed: 1A, 1B, 1C, 1D

Coordinating Individual/Organization: Julie K. Gyuricza, P.E. Stormwater Management Engineer

Implementation Strategy: Replace culverts and downstream storm lines with a system that provides adequate capacity so that ponding does not occur..

Benefit vs. Cost: Replacing the undersized and eroding system will allow for safer vehicular access on the street and also improve emergency response for both the Police Department and the Fire Department.

Implementation Timeline: Fiscal Year 2011-2012 or earliest feasible date.

Potential Funding Source:

Funding for this work will come from the Stormwater Utility Fund.

Current Status: Currently deferred due to lack of funds.

Action # FLD 2: Flood- prone Property Acquisition: There are several properties , mostly single-family, that were built in the floodplain prior to the regulations against such construction, some as early as the 1940's and 1950's. These properties are subject to periodic flooding and cannot be upgraded due to their location. Some do not even have flood insurance because the structures pre-date the requirement for flood insurance, but are nonetheless subject to flood damages. Of these properties 6 are classified as repetitive losses by FEMA and will be considered for acquisition and removal as FEMA grant programs become available and City can allocate matching funds like the 4 properties on Westchester Drive that were acquisition through the referenced PDM grant.

Priority: Very High

Objectives Addressed: 1A, 1B

Coordinating Individual/Organization: John Madajewski, Senior Engineer

Implementation Strategy: Remove structures from floodplain and return area to its natural state.

Implementation Timeline: Fiscal year 2011 or 2012

Benefit vs. Cost: The properties in question have been flooded many times in the past, although some do not appear in the roster of repetitive loss properties because the owners do not have flood insurance. Over time it will be cost effective to remove the properties from the floodplain and eliminate the periodic property damages.

Potential Funding Source: Funding for property acquisition must be from grant funds. Matching funds may be required from the City. PDM, HMGP, FMA grant programs.

Current Status: Deferred.

Action # FLD/GEN/ICE/WIND 3: Continuity of Government: With the approval of Capital Improvement Bond referendum in 2006, The City of Decatur began utilizing continuity of government strategies in the building projects. This project will allow for many different emergency uses for the remodeled City buildings to include: backup power, dedicated plug and play 911 center \ EOC room, and temporary shelter. This stage we have completed one fire station and have four other city buildings in the final design phases.

Priority: High

Objectives Addressed: 1B, 1C, 1D

Coordinating Individual/Organization: Hugh Saxon, Deputy City Manager
David Junger, Assistant City Manager
Tony Parker, Assistant City Manager

Implementation Strategy: Utilize continuity of government strategies in City building projects.

Implementation Timeline: Fiscal year 2006-15

Benefit vs. Cost: The properties in question were built for single use occupancies with little thought of emergency operations. Minimal added cost to construction will provide effective added value when providing for the welfare of our citizens during natural disasters.

Potential Funding Source: Funding for construction projects will come from city issued bonds, city annual budget and from grant opportunities. Matching funds may be required from the City for grants. HMGP, Assistant to FF's grants programs.

Current Status: New action; currently deferred due to lack of funds.

Action # Ice/Wind 1: City Tree Maintenance: Annual Tree Maintenance

Priority: Medium

Objectives Addressed: 1B, 1C, 1D, 1E

Coordinating Individual/Organization: David Junger, Assistant City Manager/Public Works

Implementation Strategy:

Implement an annual tree-maintenance and trimming program. Work with City Arborist to identify and mitigate possible dangerous trees and/or tree limbs. Perform outreach to the community, through Codes Enforcement, so residents know to call and report trees and limbs that may threaten roads and other infrastructure.

Implementation Timeline: Annually

Benefit vs. Cost: Though the program has been established in the last 5 years, the City has seen a marked reduction in storm damage due to trees.

Potential Funding Source: This program is funded as part of the Decatur Public Works Annual Budget.

Current Status: New action; some ongoing activities and full implementation currently deferred due to lack of funds.

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5.8 CITY OF DORAVILLE

The City of Doraville (Doraville) formed a Local Planning Group (LPG) to work with the DeKalb County Mitigation Advisory Committee. The LPG reviewed a set of jurisdictional-level hazard maps including detailed critical facility information and localized potential hazard exposure/loss estimates to help identify the top hazards threatening their jurisdiction. In addition, LPG was supplied with exposure/loss estimates for Doraville. After reviewing the localized hazard maps and exposure/loss table above, the following hazards were identified by the Doraville LPG as their top three:

River/Flash Flooding – Frequent and historical

Wind - Frequent

Ice/Winter Storm – Frequent and historical

5.8.1 Capabilities Assessment

The LPG identified current capabilities available for implementing hazard mitigation activities. The Capability Assessment (Assessment) portion of the jurisdictional mitigation plan identifies administrative, technical, legal and fiscal capabilities. This includes a summary of departments and their responsibilities associated to hazard mitigation planning as well as codes, ordinances, and plans already in place associated to hazard mitigation planning. The second part of the Assessment provides Doraville's fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

5.8.2 Existing Institutions, Plans, Policies and Ordinances**Form of Governance**

The City of Doraville utilizes the mayor-council form of local governance. Doraville has six council members and a mayor elected from within the three districts in the city.

The City Council is Doraville's legislative body, setting policy, approving budgets, and setting tax rates. The Mayor is the City Administrator and is responsible for the day-to-day administration of the city, and serves as the Council's chief advisor. The Mayor prepares a recommended budget, recruits and hires most of the government's staff, and carries out the council's policies. While the Mayor may recommend policy decisions, he or she is ultimately bound by the actions of the Council. The Council appoints three additional staff members — the City Attorney, City Clerk, and a Judge. Other City Departments involved in activities related to Hazard Mitigation include:

- City of Doraville Maintenance Department
 - Maintains city infrastructure (assets) ranging from parks to buildings and vehicle fleet.
 - Responds to city emergencies, includes EOC response in disasters and assisting the police department with hazardous materials clean up, traffic and perimeter control efforts, traffic accident clean up and evacuation routing.
- City of Doraville Police Department

SECTION FIVE

Capability Assessment / Mitigation Plans

- Responds to safety concerns involving threats and/or damage to life or property. Acts as the enforcement entity for violations of State and local laws and ordinances.
- Primary emergency responders to acts of civil disobedience and public disorders and terrorism. Support personnel for emergency rescue and management.
- Investigative services for criminal acts that result in personal injury/death and the destruction of property.
- Develops and implements emergency response plans and policies, focusing on evacuation procedures and traffic control.
- Primary responders to acts of terrorism, focusing on suspect intervention and facility and staff protection.

Guiding Community Documents

The City of Doraville has guidance documents and plans for its departments, including a Comprehensive Plan, and Standard Operating Procedures for hazardous materials spills and other incidents. The city uses building codes, zoning ordinances, and various planning strategies to address how and where development occurs. One of the essential ways the City guides its future is through policies laid out in the Comprehensive Plan.

The Comprehensive Plan

The City of Doraville's Comprehensive Plan includes sections on population, economic development, natural and historic resources, community facilities and services, housing, and land use. Like this plan, it lays out goals, objectives, and implementation strategies for achieving those goals and objectives. The purpose of the plan is to provide local officials with a tool to manage and guide the future growth and development of the city. The planning period is through the year 2010, and was last updated in 2005.

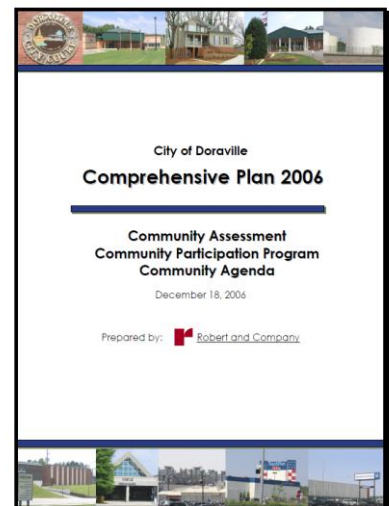
Zoning and Subdivision Ordinances

Doraville's zoning ordinance was adopted in 1986. It is designed to reduce congestion in the roads and streets, protect the development of both urban, urbanizing, and non-urban areas, secure safety from fire, flood, erosion, and other hazards, provide adequate light and air to the residents of the city, promote the health and welfare of the residents, give the city a pleasing aesthetic quality, encourage distribution of population and land development, and to facilitate economic and other provisions for transportation, communications, water supply, drainage, sanitation, education, recreation and other public requirements.

Building Regulations

The City of Doraville's Building Regulations make up Chapter 5 of the Code of Ordinances, which can be seen online at www.doravillega.us. They are based on Doraville's building code.

Floodplain Regulation



<http://www.doravillega.us/pdfs/community/Comp%20Plan%202006/Cover.pdf>

The City of Doraville's floodplain regulation meets the minimum standards of the NFIP. The Flood Insurance Rate Map it is based on was effective May 7, 2001. Zones in Doraville include Zone AE, which means base flood elevations are determined.

Stormwater Utility

The City of Doraville developed a stormwater utility, independent of the one run by the county. The utility will work in the same way that the county's and all other stormwater utilities work; by assessing fees based on amount of stormwater produced, as determined based on the amount of impervious surface. The utility is intended to be self-sufficient, by raising revenues to maintain and improve the stormwater drainage infrastructure.

Mitigation Activities

The City of Doraville has not received grant money for mitigation activities, or for post-disaster recovery efforts. The City of Doraville has not had any special mitigation-related projects, although hazards are considered in the Comprehensive Plan.

GIS, Computer and Communication Technology

The City of Doraville relies on DeKalb County for its technological needs. The City of Doraville now operates a 911 system. The County has GIS capabilities, which the City may take advantage of as needed.

Financial Resources

The City of Doraville had a 2010 budget of \$10 million. The largest source of revenue for the City was from property taxes, followed by municipal court fines. The three areas that required the largest portion of the budget were the Administrative Department, the Courts, and the Police Department.

The following is a summary of existing departments in Doraville and their responsibilities related to hazard mitigation planning and implementation, as well as existing planning documents and regulations related to mitigation efforts within the community. The administrative and technical capabilities of Doraville, as shown in Table 5.8-1, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community.

**Table 5.8-1
City of Doraville: Administrative and Technical Capacity**

Staff/Personnel Resources	Y/N	Department/Agency and Position
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	City Planner
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Consultant – Building Official
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	City Planner
D. Floodplain manager	Y	Inspector
E. Surveyors	N	
F. Staff with education or expertise to assess the community’s vulnerability to hazards	N	
G. Personnel skilled in GIS and/or HAZUS	N	
H. Scientists familiar with the hazards of the community	N	
I. Emergency manager	Y	Mayor
J. Grant writers	Y	Mayor Assistance

The legal and regulatory capabilities of Doraville are shown in Table 5.8-2, which presents the existing ordinances and codes that affect the physical or built environment of Doraville. Examples of legal and/or regulatory capabilities can include: the City’s building codes, zoning ordinances, subdivision ordinances, special purpose ordinances, growth management ordinances, site plan review, Comprehensive Plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

**Table 5.8-2
City of Doraville: Legal and Regulatory Capability**

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit (Y/N)
A. Building code	Y	N
B. Zoning ordinance	Y	N
C. Subdivision ordinance or regulations	N	N
D. Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	N
E. Growth management ordinances (also called “smart growth” or anti-sprawl programs)	Y	N
F. Site plan review requirements	Y	N
G. General or comprehensive plan	Y	N
H. A capital improvements plan	N	N
I. An economic development plan	N	N
J. An emergency response plan	Y	N
K. A post-disaster recovery plan	Y	N
L. A post-disaster recovery ordinance	N	N
M. Real estate disclosure requirements	Y	N

5.8.2.1 Fiscal Resources

Table 5.8-3 shows specific financial and budgetary tools available to Doraville such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; storm water utility fees; and withholding spending in hazard-prone areas.

**Table 5.8-3
City of Doraville: Fiscal Capability**

Financial Resources	Accessible or Eligible to Use (Yes/No)
A. Community Development Block Grants (CDBG)	N
B. Capital improvements project funding	N
C. Authority to levy taxes for specific purposes	Y – Vote required
D. Fees for water, sewer, gas, or electric service	N
E. Impact fees for homebuyers or developers for new developments/homes	N
F. Incur debt through general obligation bonds	Y
G. Incur debt through special tax and revenue bonds	N
H. Incur debt through private activity bonds	N
I. Withhold spending in hazard-prone areas	N
J. Other Grants	N

5.8.3 Goals, Objectives, and Actions

The LPG discussed the results of the hazard identification and risk assessments, reviewed mitigation goals and alternatives based on the priority areas and hazard types, and began developing the mitigation strategy. In addition, the City solidified its goals, which are discussed in more detail in sub-section 5.8.3.1, below.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction’s current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further development of these goals and objectives, the LPG compiled and reviewed current jurisdictional sources including the City’s planning documents, codes, and ordinances. In addition, City representatives met with consultant staff to specifically discuss these hazard-related goals, objectives and actions as they related to the overall Plan. Representatives of numerous City departments involved in hazard mitigation planning participated in the Doraville LPG. These members include:

- Mayor Ray Jenkins
- Councilman Brian Bates

- Councilwoman Donna Pittman
- City Clerk Rhonda Blackmon
- Major Chuck Atkinson
- Inspector Steven Strickland
- City Attorney Murray Weed

Once developed, City staff presented them to the City of Doraville City Council for their approval.

Public meetings were held throughout the County to present the preliminary goals, objectives, and actions to citizens and to receive public input. At these meetings, specific consideration was given to hazard identification/profiles and the vulnerability assessment results. The following sections present the hazard-related goals, objectives and actions as prepared by Doraville’s LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens.

5.8.3.1 Goals

The City of Doraville has developed the following Goal for their Hazard Mitigation Plan. Objectives for achieving the goal are discussed in the subsequent section.

Goal: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to flooding, winter storms, and high winds.

5.8.3.2 Objectives

The City of Doraville developed the following broad list of objectives to assist in the achievement of each of its identified goals. For each of these objectives, specific actions were developed that would assist in their implementation. A discussion of the prioritization and implementation of the action items is provided in Section 5.8.3.3.

MITIGATION GOALS AND OBJECTIVES.
Goal: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to flooding, winter storms, and high winds.
<i>Objective 1: Minimize preventable flooding caused by the secondary drainage system.</i>
<i>Objective 2: Decrease the vulnerability of public infrastructure from all hazards, especially utilities such as powerlines, communications infrastructure, and electronic equipment.</i>

5.8.3.3 Prioritization and Implementation of Mitigation Action Items

Once the comprehensive list of jurisdictional goals and objectives listed above was developed, proposed mitigation actions were developed and prioritized. This step resulted in a list of acceptable and realistic actions that address the hazards identified in each jurisdiction. This prioritized list of action items was formed by the LPG as a result of weighing STAPLE/E criteria.

All of the strategies identified in the remainder of this section are summarized in a table entitled *Mitigation Implementation Strategy Tracking Table for Doraville*.

The prioritized mitigation actions, as well as an implementation strategy for each, are numbered within their appropriate heading: GEN (General Mitigation), WIN (Wind), FLD (Flood), ICE (Winter Storm), DAM (Dam Breach) EQ (Earthquake), EH (Extreme Heat) and WDF (Wildfire).

The proposed actions are listed and described below:

Action # FLD 1: Map of Storm Drain System: The City is taking over control of the storm drainage system within its boundaries. The system has previously been under the domain of the county. The City therefore does not have a good database or good knowledge of the infrastructure that it is assuming control over.

Priority: Very High

Objective Addressed: 1

Coordinating Individual/Organization: City of Doraville Maintenance Department/Inspection Department

Implementation Strategy: Conduct a survey of, at a minimum, the storm drains in the city. Mark locations with pinpoints on the city map. With additional funds, map the remaining portions of the system including pipes and pipe sizes, flow direction, etc.

Timeframe for Implementation: Completion within 2 years of plan adoption provided funding is available.

Potential Funding Source: Storm Water Utility

<p>Current Status: The City of Doraville hired a consultant to complete this action. The project is in the final stages of completion and the city and consultant will be working on creating a maintenance plan.</p>
--

Action # FLD 2: Storm Drain Infrastructure: The storm drain infrastructure within the City of Doraville is old and needs updating and replacing.

Priority: High

Objective Addressed: 1

Coordinating Individual/Organization: Engineering Consultant/Contracting with DeKalb County

Implementation Strategy: Implement a priority list of outdated or faulty storm drain infrastructure and start replacing outdated or faulty storm drain infrastructure.

Timeframe for Implementation: Start within 12 months of adoption of plan, provided sufficient funds are available. This action will be ongoing.

Potential Funding Source: Storm Water Utility Fees/Grants

<p>Current Status: A priority list has been generated. Areas of highest need will be replaced as funding becomes available.</p>
--

Action # ICE/WIN 1: Tree Trimming Program: Tree limbs can break loose and damage infrastructure during large wind events. They can fall on homes, automobiles, and most commonly, on power lines. The disruption of power to any community can further hinder response and recovery during a hazard event, as can those limbs that have simply fallen into the road and blocked traffic.

Priority: High

Objective Addressed: 2

Coordinating Individual/Organization: City of Doraville Maintenance Department/Power Companies

Implementation Strategy: Implement a tree-trimming program. Work with power companies to identify those branches that are threatening power lines. Perform some outreach to the community so residents know to call and report limbs that may threaten roads and other infrastructure.

Timeframe for Implementation: Within 6 months of plan adoption provided sufficient funds and labor are available. This action will be ongoing.

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Potential Funding Source: Maintenance Department/Power Companies

Current Status: The City of Doraville has identified areas which need to be trimmed.

Action # LIT 1: Surge Protection: During a thunderstorm, lightning can potentially strike a building containing important equipment. The lightning can easily move through the building and damage or destroy communications infrastructure and other crucial electronic devices.

Priority: Medium

Objective Addressed: 2

Coordinating Individual/Organization: Maintenance Department

Implementation Strategy: Determine which facilities in the City are at risk for such a lightning strike, and which would most seriously be impacted by such an event. Implement a program to install surge protection where it is needed most.

Timeframe for Implementation: Within 2 years of adoption of plan, provided sufficient funds are available.

Potential Funding Source: General Funds

Current Status: This action has not been implemented on a city wide basis due to the lack of resources. Before the next update this action will be reexamined to see if it can be implemented in new construction or retrofit projects.

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5.9 CITY OF DUNWOODY

The City of Dunwoody (Dunwoody) formed a Local Planning Group (LPG) to work with the DeKalb County Mitigation Advisory Committee. The LPG reviewed a set of jurisdictional-level information including critical facility information and potential hazard exposure/loss estimates to help identify the top hazards threatening their jurisdiction. After reviewing the hazard information and exposure/loss estimates, the following hazards were identified by the Dunwoody LPG as their most critical hazards:

Flooding – Frequent and Historical

Winter Storm – Frequent and Historical

Tornado – Historical

5.9.1 Capabilities Assessment

The LPG identified current capabilities available for implementing hazard mitigation activities. The Capability Assessment portion of the jurisdictional mitigation plan identifies administrative, technical, legal and fiscal capabilities. This includes a summary of departments and their responsibilities related to hazard mitigation planning as well as codes, ordinances, and plans already in place applicable to hazard mitigation planning. The second part of the Assessment provides Dunwoody's fiscal capabilities that may be applicable to providing financial resources for implementing identified mitigation action items.

5.9.1.1 Existing Institutions, Plans, Policies and Ordinances**Form of Governance**

The City of Dunwoody was incorporated in December of 2008. Dunwoody is chartered as a Council-Manager form of local government, which includes both elected officials and an appointed city manager. Dunwoody has six Council Members. Three each are elected from three districts and three members are elected at-large. The Mayor is also elected at-large. The Council members elect a Mayor Pro-Tem each year.

The Mayor and City Council make up Dunwoody's legislative body, which includes responsibilities for setting policy, approving budgets, and setting tax rates. The City Manager is responsible for the day-to-day administration of the city, and serves as the Mayor and Council's chief advisor. The City Manager prepares a recommended budget, is responsible for all personnel activities, and ensures that the Mayor and Council's policies are executed. While the City Manager may recommend policy decisions, he or she is ultimately bound by the actions of the Mayor and Council. The Mayor and Council appoints the City Attorney and the City Clerk, as well as citizen based boards and commissions.

City Departments involved in activities related to Hazard Mitigation include:

- City of Dunwoody Community Development Department
 - Develop and maintain city Comprehensive Land Use Plan, Zoning Ordinance, and Land Development regulations.

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-
- Oversight of city development process assuring compliance with zoning and Comprehensive Land Use Plan, and including environmental impact reports, design review, landscape review, and floodplain development standards.
 - Review and issue permits for buildings, demolition, electrical, grading/site development, HVAC, plumbing, signs, and tree removal.
 - Conduct building and technical inspections with the exception of the Life Safety and ADA code inspections, which are completed by DeKalb County.
 - City of Dunwoody Engineering Division
 - Reviews engineering on private and public earthwork, floodways, retention basins, transportation infrastructure and structures to assure compliance with Federal, State and local ordinances on seismic and structural stability.
 - Develops engineering ordinances and policies that help protect and preserve city infrastructure.
 - City of Dunwoody Public Works Department
 - Maintains city infrastructure (assets) including parks, buildings, streets, sidewalks, traffic signals, and markings.
 - Responds to city emergencies, includes Emergency Operations Center response in disasters.
 - Oversees maintenance of trees in public rights of way.
 - Maintains sidewalks, curbs and pavements. Also maintains traffic signs and markings.
 - Coordinates other response agencies assisting with damage assessment.
 - Evaluates all circulation elements for projected traffic impacts.
 - City of Dunwoody Stormwater Division
 - Determines needed infrastructure improvements, and stormwater system capabilities.
 - Manages the City's Stormwater Utility which provides maintenance to the City owned drainage infrastructure including flumes, ditches, detention ponds, inlets, manholes, pipes and culverts.
 - Provides response personnel for evaluation of damaged infrastructure and rescue situations.
 - City of Dunwoody Police Department
 - Performs functions in the Emergency Operations Center or on-scene as assigned.
 - Provides Emergency Management Committee and/or Emergency Operations Center initial situation/damage reports as per field units' observations and reports from the general public.
 - Conducts lost person search and rescue, and coordination of heavy rescue operations.
 - Maintains law and order and provide public safety activities as required.

- Provides security for critical facilities.
- Provides assistance in the capture and control of animals.
- Protects property in evacuated areas.
- Enforces orders of fire officers and implement/enforce evacuation orders, when necessary.
- Provides law enforcement and traffic control in support of fire department actions.
- Orders/conducts and ensures transportation for evacuations when necessary to save lives and property.
- Coordinates mobilization of emergency transportation services.
- Responds to safety concerns involving threats and/or damage to life or property. Acts as the enforcement entity for violations of State and local laws and ordinances.
- Provides primary emergency responders to acts of civil disobedience and public disorders and terrorism. Support personnel for emergency rescue and management.
- Investigative services for criminal acts that result in personal injury/death and the destruction of property.
- Develops and implements emergency response plans and policies, focusing on evacuation procedures and traffic control.
- Primary responders to acts of terrorism, focusing on suspect intervention and facility and staff protection.
- City of Dunwoody Marketing and Public Relations Division
 - Supports all departments with media interaction and provision of information to the community-at-large.
 - Maintains City website

Guiding Community Documents

The City of Dunwoody has a range of guidance documents and plans for each of its departments. The city uses Zoning Ordinance, Land Development Ordinance, the Building and Buildings Regulations Ordinance, and various planning strategies to address how and where development occurs. The essential ways the City guides its future is through policies laid out in the Comprehensive Land Use Plan.

The Comprehensive Land Use Plan

The inaugural Comprehensive Land Use Plan for the City of Dunwoody is currently under review by the Department of Community Affairs and Atlanta Regional Commission. Dunwoody anticipates adoption by the close of 2010. The Comprehensive Land Use Plan is an official document that describes and helps guide decisions about the physical, economic, and social aspects of a community. The plan is generally broad and long-range in nature, covering the 2030 planning period and addresses such elements as population, economic development, housing, natural and cultural resources, community facilities and

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services, intergovernmental coordination, transportation, and land use. In addition to these eight elements, a vision statement describing what citizens and community leaders need and desire is also included.

Zoning and Land Development Ordinances

The City has a Zoning Ordinance and a Land Development Ordinance as part of its Code of Ordinances. The entire Code can be viewed online at www.municode.com. The City of Dunwoody is a Local Issuing Authority for land disturbance activities.

Buildings and Building Regulations Ordinance

The City has a Buildings and Building Regulations Ordinance, also available at www.municode.com which is based on the IBC, IRC, and IFPC. The City of Dunwoody Building and Inspections Division is principally responsible for enforcing state and city codes for building residential and commercial structures and enforcing environmental codes and guidelines for maintaining existing structures.

Floodplain Management Ordinance

As part of the City of Dunwoody's Land Development Ordinance, Dunwoody has a floodplain ordinance that is administered by the Community Development Department. Any construction or other development must receive a development permit prior to working within any area of special flood hazard. The City of Dunwoody participates in the National Flood Insurance Program and maintains for public inspection the applicable Flood Insurance Rate Maps.

Stormwater Utility

The City of Dunwoody instituted a stormwater utility in 2009. The City's utility is independent of the one run by the County. The utility assesses fees based on the amount of stormwater produced and the amount of impervious surface. The utility is intended to be self-sufficient, with revenues raised to maintain and improve the stormwater drainage infrastructure. In 2010, Dunwoody began conducting a Stormwater Asset Inventory. As of July 2010, over 40% of the City's stormwater structures have been surveyed. Moving forward, the City plans to survey 20% of the stormwater assets each year.

Emergency Management

The City of Dunwoody acknowledges that the State of Georgia has given emergency management authority for DeKalb County to the DeKalb County Emergency Management Agency (DEMA). The City of Dunwoody's emergency management plan, including an inclement weather call notification system, and Emergency Operations Center standard operating procedures are intended to complement the DeKalb County Emergency Management Agency plan.

Mitigation Activities

With the City of Dunwoody's recent incorporation, Dunwoody has not performed hazard mitigation activities. However, as noted above the City is planning and conducting inventory and analysis to better prepare for hazard mitigation in the future.

GIS Technology

Dunwoody operates its own Geographic Information Systems database. In 2010, the City will complete its basemap and preliminary layers.

Financial Resources

Dunwoody’s Fiscal Year 2010 approved budget is just over \$16.8 million. Dunwoody’s diversified revenue stream includes property taxes, business and occupational taxes, homestead option sales tax, insurance premium taxes, franchise fees, licenses and permits, and court fines.

The following is a summary of existing departments in Dunwoody and their responsibilities related to hazard mitigation planning and implementation, as well as existing planning documents and regulations related to mitigation efforts within the community. The administrative and technical capabilities of Dunwoody, as shown in Table 5.9-1, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community.

**Table 5.9-1
City of Dunwoody: Administrative and Technical Capacity**

Staff/Personnel Resources	Y/N	Department/Agency and Position
K. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	Community Development Department and Public Works Department
L. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Community Development Department and Public Works Department
M. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Community Development Department and Public Works Department
N. Floodplain manager	Y	Community Development Department
O. Surveyors	Y	Community Development Department and Public Works Department
P. Staff with education or expertise to assess the community’s vulnerability to hazards	Y	Community Development Department and Public Works Department
Q. Personnel skilled in GIS and/or HAZUS	Y	Community Development Department, Public Works Department, and Police Department (GIS only)
R. Scientists familiar with the hazards of the community	N	
S. Emergency manager	Y	Police Chief
T. Grant writers	Y	All departments

The legal and regulatory capabilities of Dunwoody are shown in Table 5.9-2, which presents the existing ordinances and codes that affect the physical or built environment of Dunwoody. Examples of legal and/or regulatory capabilities include: the City’s building codes, zoning ordinances, subdivision

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ordinances, special purpose ordinances, growth management ordinances, site plan review, Comprehensive Land Use Plan, capital improvement plans, economic development plans, and emergency response plans.

**Table 5.9-2
City of Dunwoody: Legal and Regulatory Capability**

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit (Y/N)
N. Building code	Y	N
O. Zoning ordinance	Y	N
P. Subdivision ordinance or regulations	Y	N
Q. Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	N
R. Growth management ordinances (also called “smart growth” or anti-sprawl programs)	N	N
S. Site plan review requirements	Y	N
T. General or comprehensive plan	Y	N
U. A capital improvements plan	Y	N
V. An economic development plan	N	N
W. An emergency response plan	Y	N
X. A post-disaster recovery plan	N	N
Y. A post-disaster recovery ordinance	N	N
Z. Real estate disclosure requirements	N	N

5.9.1.2 Fiscal Resources

Table 5.9-3 shows specific financial and budgetary tools available to Dunwoody such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

**Table 5.9-3
City of Dunwoody: Fiscal Capability**

Financial Resources	Accessible or Eligible to Use (Yes/No)
K. Community Development Block Grants	Y
L. Capital improvements project funding	Y
M. Authority to levy taxes for specific purposes	Y – Vote required
N. Fees for water, sewer, gas, electric service stormwater	Y
O. Impact fees for homebuyers or developers for new	N

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developments/homes	
P. Incur debt through general obligation bonds	Y– Vote required
Q. Incur debt through special tax and revenue bonds	Y – Vote required
R. Incur debt through private activity bonds	N
S. Withhold spending in hazard-prone areas	N
T. Other Grants	Y

5.9.2 Goals, Objectives, and Actions

The LPG discussed the results of the hazard identification and risk assessments, reviewed mitigation goals and alternatives based on the priority areas and hazard types, and began developing the mitigation strategy. In addition, the City solidified its goals, which are discussed in more detail in sub-section 1.1.2.1, below.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction’s current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further development of these goals and objectives, the LPG compiled and reviewed current jurisdictional sources including the City’s planning documents, codes, and ordinances. In addition, City representatives met with consultant staff to specifically discuss these hazard-related goals, objectives and actions as they related to the overall Plan. Representatives of numerous City departments involved in hazard mitigation planning, including Community Development, Public Works, and Police participated in the Dunwoody LPG. These members include:

- Chuck Davis – Deputy Public Works Director
- Rich Edinger – City Engineer
- Kimberly Greer – Assistant to the City Manager
- Billy Grogan – Chief of Police
- Warren Hutmacher – City Manager
- Howard Koontz – City Arborist
- Michael Smith – Public Works Director
- Michael Tuller – Community Development Director

Once developed, City staff presented them to the City of Dunwoody City Council for their approval.

Public meetings were held throughout the County to present these preliminary goals, objectives and actions to citizens and to receive public input. At these meetings, specific consideration was given to hazard identification/profiles and the vulnerability assessment results. The following sections present the hazard-related goals, objectives and actions as prepared by Dunwoody’s LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens.

5.9.2.1 Goals

The City of Dunwoody has developed the following goal for our Hazard Mitigation Plan. Objectives for achieving this goal are discussed in the subsequent section.

Goal 1: Reduce the possibility of damage and losses to our citizens, employees, property, and critical facilities/infrastructure due to natural hazards.

5.9.2.2 Objectives

The City of Dunwoody developed the following broad list of objectives to assist in the achievement of each of its identified goal. For each of these objectives, specific actions were developed that would assist in their implementation. A discussion of the prioritization and implementation of the action items is provided in Section 1.1.2.3.

MITIGATION GOALS AND OBJECTIVES.
Goal 1: Reduce the possibility of damage and losses to our citizens, employees, property, and critical facilities/infrastructure due to natural hazards.
<i>Objective 1.A: Mitigate flood damage</i>
<i>Objective 1.B: Improve personal safety of residents and reduce property damage</i>
<i>Objective 1.C: Decrease the vulnerability of public infrastructure including facilities and roadways.</i>
<i>Objective 1.D: Provide for the continuity of government</i>
<i>Objective 1.E: City tree maintenance</i>

5.9.2.3 Prioritization and Implementation of Mitigation Action Items

Once the comprehensive list of jurisdictional goals and objectives listed above was developed, proposed mitigation actions were developed and prioritized. This step resulted in a list of acceptable and realistic actions that address the hazards identified in each jurisdiction. This prioritized list of action items was formed by the LPG as a result of weighing STAPLE/E criteria.

The Disaster Mitigation Action of 2000 (at 44 CFR Parts 201 and 206) requires the development of an action plan that not only includes prioritized actions but one that includes information on how the prioritized actions will be implemented. For each of the strategies developed, the goal and objective(s) addressed are listed. In addition, each mitigation action item includes a priority level, responsible department, implementation strategy, timeframe for implementation, a potential funding source, and a discussion of the action's benefits and costs. A description of each of these components is included below:

Priority Level: For each mitigation measure a priority level of *Very High*, *High*, *Medium*, or *Low* has been assigned. These priority levels have been developed based on input from Committee members, the overall planning consideration of the hazard as assigned in the hazard identification section of this document, the anticipated benefit-cost ratio, and consideration of the STAPLE/E criteria.

Responsible Department: The responsible department listed for each alternative is tasked with the lead role in all aspects of the implementation of that measure. However, many of the measures identified will require effort and support from other departments. The responsible department is expected to coordinate the efforts of all local departments as well as relevant regional, state, and federal entities.

Implementation Strategy: The implementation strategy developed for each measure includes a general description of potential methods that could be utilized or actions that could be taken. Due to the complex nature of a number of these measures, not all of the listed methods will ultimately prove feasible. Before initiating the implementation of each measure, the responsible department should develop a detailed project plan with particular attention to technical feasibility and cost effectiveness.

Timeframe for Implementation: The timeframe for implementation describes the length of time from the date of plan adoption to the target date for completion. It should be noted that timeframes listed are goals and may be influenced by additional factors. Through the development of detailed project plans by the responsible department, the timeframe will be evaluated and revised as necessary.

Potential Funding Source: For each mitigation measure, potential funding sources are listed. Whenever possible, non-local sources of funding have been identified, including state and federal grants. The sources listed are not intended to represent all possible options. Additional opportunities for funding may be identified during implementation.

Benefit vs. Cost: For most measures, a general discussion comparing potential benefits and costs is provided and an anticipated level of cost effectiveness assigned. The levels assigned include *Highly Cost Beneficial*, *Cost Beneficial*, and *Potentially Cost Beneficial*. This discussion is not intended to replace a full benefit cost analysis that should be completed prior to implementation.

All of the strategies identified in the remainder of this section are summarized in an appended table entitled *Mitigation Implementation Strategy Tracking Table for Dunwoody*.

The prioritized mitigation actions, as well as an implementation strategy for each, are numbered within their appropriate heading: GEN (General Mitigation), WIN (Wind), FLD (Flood), ICE (Winter Storm), DAM (Dam Breach) EQ (Earthquake), EH (Extreme Heat) and WDF (Wildfire).

As Dunwoody is a recently incorporated community, their actions are essentially “new” relative to the mitigation plan and thus they will show no current status. The proposed actions are listed and described below:

Action #FLD 1: Stormwater System Infrastructure Mapping: In 2009, the City took over the storm drainage system within its boundaries. The system has previously been under the domain of the County. The City therefore does not have a good database or knowledge of the infrastructure.

Priority: Very High

Objectives Addressed: 1A, 1B, 1C, 1D

Coordinating Individual/Organization: Public Works Department

Implementation Strategy: Conduct GPS surveying all the existing stormwater structures & conveyances and determining the condition and materials of each.

Benefit vs. Cost: By gathering data regarding the condition of the structures and conveyances, the City can better evaluate replacement costs and remaining service life.

Implementation Timeline: Fiscal Year 2010-2012 or earliest feasible date.

Potential Funding Source: Funding for stormwater system infrastructure mapping may be available from grant funds such as PDM, HMGP, FMA grant programs. Matching funds may be required from the City which may be available from the Stormwater Utility Fund.

Action #FLD 2: Stormwater System Infrastructure Improvements: Much of the City's Stormwater System Infrastructure is in need of repairs and upgrades. Pipes and culverts are undersized or in need of repair which in many instances causes localized flooding.

Priority: Very High

Objectives Addressed: 1A, 1B, 1C, 1D

Coordinating Individual/Organization: Public Works Department

Implementation Strategy: Replace culverts and downstream storm lines with a system that provides adequate capacity to provide relief for minor localized flooding.

Benefit vs. Cost: Replacing the undersized and eroding system will allow for safer vehicular access on the street and also improve emergency response for the Police Department.

Implementation Timeline: Fiscal Year 2011-2012 or earliest feasible date.

Potential Funding Source: Funding for stormwater system infrastructure may be available from grant funds such as PDM, HMGP, FMA grant programs. Matching funds may be required from the City which may be available from the Stormwater Utility Fund.

Action #FLD 3: Floodplain Mapping: Since the City's incorporation, we have not updated the floodplain maps. In partnership with FEMA, Dunwoody seeks to maintain accurate floodplain maps will allow the City and property owners to prepare and mitigate possible future flooding issues.

Priority: Very High

Objectives Addressed: 1A, 1B, 1C, 1D

Coordinating Individual/Organization: Public Works Department

Implementation Strategy: Update the floodplain maps in conjunction with FEMA using the most current data and calculation techniques. Additionally, expanding the data to include the “Future” floodplain based on comprehensive plan.

Benefit vs. Cost: This will allow the City to make property owners aware of possible future flooding issues which will reduce the possibility of flood damage. This information will also allow the City to be better prepared to the possible impact to the City’s infrastructure.

Implementation Timeline: Fiscal Year 2011-2012 or earliest feasible date.

Potential Funding Source: Funding for this work will come from the Stormwater Utility Fund. Grant funding for floodplain mapping may be available from grant funds such as PDM, HMGP, FMA grant programs.

Action # FLD 4: Flood-prone Property Acquisition: There are several properties, mostly single-family, that were built in the floodplain prior to the regulations against such construction. These properties are subject to periodic flooding and cannot be upgraded due to their location. Some do not even have flood insurance because the structures pre-date the requirement for flood insurance, but are nonetheless subject to flood damages. Of these properties, 8 are classified as repetitive losses by FEMA and will be considered for acquisition and removal as FEMA grant programs become available and City can allocate matching funds.

Priority: Very High

Objectives Addressed: 1A, 1B

Coordinating Individual/Organization: Community Development Department and Public Works Department

Implementation Strategy: Remove structures from floodplain and return area to its natural state.

Benefit vs. Cost: The properties in question have been flooded many times in the past, although some do not appear in the roster of repetitive loss properties because the owners do not have flood insurance. Over time it will be cost effective to remove the properties from the floodplain and eliminate the periodic property damages.

Implementation Timeline: Fiscal Year 2011-2012 or earliest feasible date.

Potential Funding Source: Funding for property acquisition must be from grant funds, such as PDM, HMGP, FMA grant programs. Matching funds may be required from the City.

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Action # GEN 1: Emergency Alert and Warning System: Emergency notification systems can be an effective way to warn the public of severe weather and other emergency situations. The City of Dunwoody has no emergency notification system.

Priority: High

Objectives Addressed: 1A, 1B

Coordinating Individual/Organization: Police Department

Implementation Strategy: Establish an implementation strategy to acquire an emergency notification system to alert Dunwoody residents are aware of severe weather situations such as tornados.

Benefit vs. Cost: Although notification systems require a substantial investment and ongoing maintenance costs, Dunwoody currently has no means of alerting the public for the possibility of tornado or severe weather activity in our area. With the installation of an emergency notification system, the City of Dunwoody will be able to enhance its level of emergency preparedness and keep its residents safer.

Implementation Timeline: Fiscal Year 2011-2012 or earliest feasible date.

Potential Funding Source: Funding for an emergency alert and warning system must be from grant funds. Matching funds may be required from the City. PDM, HMGP, FMA grant programs.

Action # ICE 1: City Tree Maintenance: Dead or dying trees are more easily blown down or toppled during winter storms. Removing dead trees on City property or within the right of way can prevent loss of life, injury, and damage to property and utilities.

Priority: Medium

Objectives Addressed: 1B, 1C, 1D, 1E

Coordinating Individual/Organization: Public Works Department and Community Development Department

Implementation Strategy: Implement tree maintenance and trimming program. Work with the City Arborist to identify and mitigate possible dangerous trees and/or tree limbs in public rights of way. Perform outreach to the community, through code enforcement, so residents know to call and report trees and limbs that may threaten property, roads and other infrastructure.

Benefit vs. Cost: Although identifying and mitigating possible dangerous trees and/or tree limbs can be costly, an ongoing effort will result in reduction of storm damage due to trees.

Implementation Timeline: Fiscal Year 2011 or earliest feasible date.

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Potential Funding Source: This program could be funded through the Community Forestry Program Budget.

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5.10 CITY OF LITHONIA

The City of Lithonia formed a Local Planning Group (LPG) to work with the DeKalb County Mitigation Advisory Committee. The LPG reviewed a set of jurisdictional-level hazard maps including detailed critical facility information and localized potential hazard exposure/loss estimates to help identify the top hazards threatening their jurisdiction. After reviewing the localized hazard maps and exposure/loss table, the following hazards were identified by the Lithonia LPG as their most critical hazards:

Flooding – Frequent localized issues

Wildfire – Potential Impact could cause devastating results

Ice Storm – Frequent localized issues

Wind Storm – Historical data suggests frequent events

5.10.1 Capabilities Assessment

The LPG identified current capabilities available for implementing hazard mitigation activities. The Capability Assessment (Assessment) portion of the jurisdictional mitigation plan identifies administrative, technical, legal and fiscal capabilities. This includes a summary of departments and their responsibilities associated with hazard mitigation planning as well as codes, ordinances, and plans already in place associated to hazard mitigation planning. The second part of the Assessment provides Lithonia’s fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

5.10.1.1 Existing Institutions, Plans, Policies and Ordinances**Form of Governance**

The City of Lithonia utilizes the council-administrator form of local governance, which includes both elected officials and an appointed administrator. In 2010, the City was currently in the process of selecting an administrator.

The City Council is Lithonia’s legislative body, setting policy, approving budgets, and setting tax rates. Members also hire the City Administrator, who is responsible for the day-to-day administration of the city. The City Administrator prepares a recommended budget, recruits and hires most of the government's staff, and carries out the council's and the mayor’s policies. While the City Administrator may recommend policy decisions, he or she is ultimately bound by the actions of the Council. The Council appoints the following additional staff members — Building Inspectors, City Planner (a hired consultant), and a City Prosecutor. The City Attorney, Clerk, and Judge are elected officials.

Other City Departments involved in activities related to Hazard Mitigation include:

City of Lithonia Maintenance Department

- Maintains city infrastructure (assets) ranging from sidewalks or sweeping streets to parks, buildings and vehicle fleet.

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- Responds to city emergencies, includes EOC response in disasters and assisting police and fire departments with hazardous materials clean up, traffic and perimeter control efforts, traffic accident clean up and evacuation routing.
- Has oversight of solid waste management, in conjunction with the county.
- Handles storm drainage through a stormwater utility with the county.
- Oversight of Soil Erosion Ordinance.
- Maintains green space areas in conjunction with the county.

City of Lithonia Police Department

- Responds to safety concerns involving threats and/or damage to life or property. Acts as the enforcement entity for violations of State and local laws and ordinances.
- Primary emergency responders to acts of civil disobedience and public disorders. Support personnel for emergency rescue and management.
- Investigative services for criminal acts that result in personal injury/death and the destruction of property.
- Develops and implements emergency response plans and policies, focusing on evacuation procedures and traffic control.
- Primary responders to acts of terrorism, focusing on suspect intervention and facility and staff protection.
- Operate under county emergency response plan.

Guiding Community Documents

The City of Lithonia has a range of guidance documents and plans for each of its departments. These include a Comprehensive Plan, building codes, zoning, subdivision and floodplain ordinances, to address how and where development occurs. One of the essential ways the City guides its future is through policies laid out in the Comprehensive Plan.

The Comprehensive Plan

The Comprehensive Plan for the City of Lithonia has been recently approved.

Zoning and Subdivision Ordinances

The City's zoning and subdivision ordinances are currently being completed.

Building Codes

The city hires a consultant called "Safe Built" which follows all required building codes.

Floodplain Management Ordinance

The City of Lithonia follows the requirements of the NFIP.

Stormwater Utility

The City of Lithonia has developed an intergovernmental stormwater utility agreement with the County to perform major repairs and additions to the system. The utility works by assessing fees based on the

amount of stormwater produced and amount of impervious surface. The utility is intended to be self-sufficient, by raising revenues to maintain and improve the stormwater drainage infrastructure.

Mitigation Activities

The City of Lithonia has not performed, nor has it received any money for, hazard mitigation activities. The City is required by law to comply with the NPDES.

GIS, Computer and Communication Technology

The City of Lithonia has an intergovernmental agreement with the DeKalb County GIS department. The County GIS department is responsible for facilitating request from the city.

Financial Resources

Lithonia's proposed budget for 2010 is around \$1 million. The Police Department uses the largest share of the budget, with the Public Works and Administrative Departments also using a large portion.

The following is a summary of existing departments in Lithonia and their responsibilities related to hazard mitigation planning and implementation, as well as existing planning documents and regulations related to mitigation efforts within the community. The administrative and technical capabilities of Lithonia, as shown in Table 5.10-1, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community.

**Table 5.10-1
City of Lithonia: Administrative and Technical Capacity**

Staff/Personnel Resources	Y/N	Department/Agency and Position
K. Planner(s) or engineer(s) with knowledge of land development and land management practices	N	
L. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	N	
M. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	N	
N. Floodplain manager	N	
O. Surveyors	N	
P. Staff with education or expertise to assess the community’s vulnerability to hazards	Y	Local Planning Group
Q. Personnel skilled in GIS and/or HAZUS	N	
R. Scientists familiar with the hazards of the community	N	
S. Emergency manager	N	
T. Grant writers	N	

The legal and regulatory capabilities of Lithonia are shown in Table 5.10-2, which presents the existing ordinances and codes that affect the physical or built environment of Lithonia. Examples of legal and/or regulatory capabilities can include: the City’s building codes, zoning ordinances, subdivision ordinances, and Comprehensive Plan.

**Table 5.10-2
City of Lithonia: Legal and Regulatory Capability**

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit (Y/N)
• Building code	Y	N
• Zoning ordinance	Y	N
• Subdivision ordinance or regulations	Y	N
• Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	N
• Growth management ordinances (also called “smart growth” or anti-sprawl programs)	N	N
• Site plan review requirements	Y	N
• Comprehensive plan	Y	N
• A capital improvements plan	Y	N
• An economic development plan	Y	N
• An emergency response plan	Y	N
• A post-disaster recovery plan	N	N
• A post-disaster recovery ordinance	N	N
• Real estate disclosure requirements	Y	N

5.10.1.2 Fiscal Resources

Table 5.10-3 shows specific financial and budgetary tools available to Lithonia such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; the county collects fees for water, sewer, gas, or electric services; impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

**Table 5.10-3
City of Lithonia: Fiscal Capability**

Financial Resources	Accessible or Eligible to Use (Yes/No)
• Community Development Block Grants	Y
• Capital improvements project funding	Y
• Authority to levy taxes for specific purposes	N
• Fees for water, sewer, gas, or electric service	N
• Impact fees for homebuyers or developers for new developments/homes	N
• Incur debt through general obligation bonds	N (can, but have not)
• Incur debt through special tax and revenue bonds	Y
• Incur debt through private activity bonds	N
• Withhold spending in hazard-prone areas	N

5.10.2 Goals, Objectives and Actions

During the presentation of findings for the hazard identification and risk assessment and capabilities assessment, the LPG provided preliminary input and ideas for mitigation strategies. In addition, the City solidified its goals, which are discussed in more detail in sub-section 5.10.2.1, below.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction’s current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further development of these goals and objectives, the LPG compiled and reviewed current jurisdictional sources including the City’s planning documents, codes, and ordinances. In addition, City representatives met with consultant staff to specifically discuss these hazard-related goals, objectives and actions as they related to the overall Plan. Representatives of numerous City departments involved in hazard mitigation planning, including the Police Department, City Council and the Maintenance department participated in the Lithonia’s LPG. These members include:

- Tonya Peterson, Mayor
- Larry Williams, Sergeant
- Al Crace, Consultant
- Marcus Lloyd, Technical Expert

Once developed, City staff presented them to the City of Lithonia City Council for their approval.

Public meetings were held throughout the County to present these preliminary goals, objectives and actions to citizens and to receive public input. At these meetings, specific consideration was given to hazard identification/profiles and the vulnerability assessment results. The following sections present the hazard-related goals, objectives and actions as prepared by Lithonia’s LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens.

5.10.2.1 **Goals**

The City of Lithonia has developed the following Goals for their Hazard Mitigation Plan. Objectives for achieving each goal are discussed in the subsequent section.

- Goal 1. Build and support capacity and commitment to become less vulnerable to hazards.
- Goal 2. Identify and reduce the risk to existing infrastructure and structures within the City.

5.10.2.2 **Objectives**

The City of Lithonia developed the following broad list of objectives to assist in the achievement of each of its identified goals. For each of these objectives, specific actions were developed that would assist in their implementation. A discussion of the prioritization and implementation of the action items is provided in Section 5.10.2.3.

MITIGATION GOALS AND OBJECTIVES.
Goal 1: Build and support capacity and commitment to become less vulnerable to hazards.
<i>Objective 1A: Control and reduce flooding severity and frequency.</i>
<i>Objective 1B: Educate the population about risks encountered in the City.</i>
Goal 2: Identify and reduce the risk to existing infrastructure and structures within the City.
<i>Objective 2A: Identify and fix infrastructure vulnerabilities.</i>
<i>Objective 2B: Retrofit existing vulnerable structures.</i>

5.10.2.3 **Prioritization and Implementation of Mitigation Action Items**

Once the comprehensive list of jurisdictional goals and objectives listed above was developed, proposed mitigation actions were developed and prioritized. This step resulted in a list of acceptable and realistic actions that address the hazards identified in each jurisdiction. This prioritized list of action items was formed by the LPG as a result of weighing STAPLE/E criteria.

All of the strategies identified in the remainder of this section are summarized in a table entitled *Mitigation Implementation Strategy Tracking Table for Lithonia*.

The prioritized mitigation actions, as well as an implementation strategy for each, are numbered within their appropriate heading: GEN (General Mitigation), WIN (Wind), FLD (Flood), ICE (Winter Storm), DAM (Dam Breach) EQ (Earthquake), EH (Extreme Heat) and WDF (Wildfire).

As this is the first time that Lithonia is participating in the mitigation planning process, their actions are essentially “new” and no current status indicator will be included in the listing below. The proposed actions are listed and described below:

Action # FLD 1: Construct flood control structures which address the flooding problem at Max Cleland Blvd and the Railroad Tracks: During minor and major rain events the area underneath the bridge pools with water. This railroad crossing is vital to the city because it is an underpass rather than an at grade railroad crossing. If a train stops on the tracks it will split the city in half and the only unobstructed crossing will be this underpass.

Priority: High

Objective Addressed: 1A, 2A

Coordinating Individual/Organization: Maintenance department

Implementation Strategy: The City will assemble a sub-committee to explore the use of Hazard Mitigation Funds in conjunction with other grants to fund the project. Once funds are secured it will be the Maintenance department who oversees the construction and completion of the project. The actual construction will be completed by an entity other than the City.

Timeframe for Implementation: 3 years

Potential Funding Source: PDM, HMGP

Action # GEN 1: Increase public awareness about natural hazard risks, especially fire hazards: The City is located in the southeastern portion of DeKalb County which has been identified as the highest area of wildfire risk within the County. Also, although the City has no identified special flood hazard areas, it still is subject to localized flooding.

Priority: Low

Objective Addressed: 1B

Coordinating Individual/Organization: Mayor and Sub Committee

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Implementation Strategy: The City of Lithonia will educate the population about the natural hazards by directing residents to available information, such as placing reports and studies addressing the risk on Lithonia's website, amongst other strategies.

Timeframe for Implementation: 2 years

Potential Funding Source: TBD

Action # ICE 1: Improve drainage to prevent icing of roadways during winter events: Several roadways have been identified to consistently ice during the winter months. The problem appears to be lack of drainage in that area.

Priority: High

Objectives Addressed: 1A, 2A

Coordinating Individual/Organization: City of Lithonia Maintenance department

Implementation Strategy: In conjunction with Action 1, coordinate to prevent icing of roadway under the railroad bridge. Also, identify other areas and address them as necessary.

Timeframe for Implementation: 3 years

Potential Funding Source: PDM, HMGP

Action # WND 1: Retrofit Critical Facilities to protect first responders in a wind event: It has been identified that the structure which the police department operates from, amongst other critical facilities, are highly vulnerable to wind events. In order to respond to events and save lives the City needs to have a facility which will be operational immediately after the event.

Priority: High

Objectives Addressed: 1A, 1B

Coordinating Individual/Organization: City Council, outside contractor

Implementation Strategy: Installation of storm shutters, replacement of doors amongst other structural improvements.

Timeframe for Implementation: 2 years

Potential Funding Source: PDM, HMGP

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5.11 CITY OF PINE LAKE

The City of Pine Lake (Pine Lake) formed a Local Planning Group (LPG) to work with the DeKalb County Mitigation Advisory Committee. The LPG reviewed a set of jurisdictional-level hazard maps including detailed critical facility information and localized potential hazard exposure/loss estimates to help identify the top hazards threatening their jurisdiction. In addition, the LPG was supplied with exposure/loss estimates for Pine Lake. See Section 4.0 for additional details.

After reviewing the localized hazard maps and exposure/loss, **flooding and wildfire** were identified by the Pine Lake LPG as the top hazard.

5.11.1 Capabilities Assessment

The LPG identified current capabilities available for implementing hazard mitigation activities. The Capability Assessment (Assessment) portion of the jurisdictional mitigation plan identifies administrative, technical, legal and fiscal capabilities. This includes a summary of departments and their responsibilities associated with hazard mitigation planning as well as codes, ordinances, and plans already in place associated with hazard mitigation planning. The second part of the Assessment provides Pine Lake's fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

5.11.1.1 *Existing Institutions, Plans, Policies and Ordinances*

Form of Governance

The City of Pine Lake has a strong Mayor-Council form (consisting of 5 members plus the mayor) and an appointed City Manager. The five council members and the mayor are elected at large, which means that members represent the entire city rather than specific districts.

The City Council is Pine Lake's legislative body, setting policy, approving budgets, and setting tax rates. The mayor hires the City Manager, who is responsible for the day-to-day administration of the city. The elected officials for the most part serve as volunteers, however other positions that are appointed, including that of the City Manager, are full-time paid positions.

Other City Departments involved in activities related to Hazard Mitigation include:

City of Pine Lake Town Administrator

- Enforces Building Code.
- Inspects for building set-backs.
- Inspects for required site retention of stormwater runoff after installation of additional impervious surfaces.

City Council (Serves as Planning and Zoning Department)

- Develop and maintain city Comprehensive Plan, zoning ordinances and development standards.

- Primary mission is to help plan for commercial development along main thoroughfare.
- Hears appeals on zoning issues.
- Oversight of city development process assuring compliance with zoning and Comprehensive Plan, and including environmental impact reports, design review, historic preservation, landscape review, habitat conservation, floodway prohibitions and floodplain development standards.

Downtown Development Authority

- Has been activated for purposes of annexation and development planning
- Oversees the development of Rockbridge Road
- Collaborates on how to attract new businesses
- Coordinates the annexation of new areas.

City of Pine Lake Public Works Department

- Maintains city infrastructure (assets)
- Responds to city emergencies, includes EOC response in disasters and assisting police and fire departments with hazardous materials clean up, traffic and perimeter control efforts, traffic accident clean up and evacuation routing.
- Has oversight of solid waste management, including trash pick up.
- Trims grass.

City of Pine Lake Police Department

- Responds to safety concerns involving threats and/or damage to life or property. Acts as the enforcement entity for violations of State and local laws and ordinances.
- Primary emergency responders to acts of civil disobedience and public disorders and terrorism. Support personnel for emergency rescue and management.
- Investigative services for criminal acts that result in personal injury/death and the destruction of property.
- Primary responders to acts of terrorism, focusing on suspect intervention and facility and staff protection.

Guiding Community Documents

The city uses building codes, zoning ordinances, subdivision ordinances, and various planning strategies to address how and where development occurs. One of the essential ways the City guides its future is through policies laid out in the Comprehensive Plan.

The Comprehensive Plan

Pine Lake's Comprehensive Plan was completed in September 2003, and covers a planning period through 2023. The vision of the plan is to plan growth, maintain the environment, and improve services and quality for the life of the residents of Pine Lake. It includes sections on population, economic

development, natural and historic resources, community facilities, housing, land use, and government policy and structure. The Plan was updated in 2006 and is scheduled to be updated again in 2013.

Zoning Ordinances

The zoning ordinance for the City of Pine Lake is fairly general. Because the city is so small (about 1 square mile and only 800 people) not much detail is required. Essentially the main thoroughfare in the city is zoned commercial and business. The rest of the city consists of one subdivision, formerly all campsites, that is now made up of single family residential homes. That is also how the area is zoned. However there is a desire in the community to keep undeveloped those few lots in the city that have yet to be built upon. The desire is for the city to have the same stable residential area, as the infrastructure that the city owns cannot handle additional growth. In order to guide growth, a new zoning ordinance was passed May 11, 2009. Along with this ordinance a new zoning map was issued.

Building Codes

The City of Pine Lake has adopted the county's building code. Generally the city only deals with building setbacks from property lines and with stormwater runoff.

Floodplain Management Ordinance

The City's floodplain management ordinance meets the minimum standards of the NFIP. At least three structures are in the mapped floodplain, although it is quite possible that many more structures are in the actual floodplain, as the maps are believed to be outdated. The primary reason for the inaccuracy of the maps is thought to be recent development occurring upstream of the City, which may have increased the amount and depth of floodwaters.

The Stormwater Management Program

The City has passed a new stormwater utility ordinance. The City is responsible for establishing and collecting fees.

Emergency Management/Emergency Response Plan

The City currently uses and participates in the county's 911 and Emergency Management Response Plan. Included is a plan to use the court house/police station as a shelter if and when it becomes necessary.

Mitigation Activities

The City recently purchased and annexed 5 acres of floodplain upstream of the former City limits. The purpose of this annexation was both for flood control and park space. The City has also applied for disaster relief funding, and received public assistance recovery costs in post-disaster scenarios, but hasn't received grants for pre-disaster mitigation. A 319H Grant through the EPA was received for the stream feeding Pine Lake, as it is on the "impaired" list. The City attempted to receive a grant for the Livable Cities Initiative, but it was declined. The City continues to look for funding for floodplain mitigation through GFA SRF funds.

GIS, Computer, and Communication Technology

The City relies on the county's GIS capabilities for its needs. The City also maintains a website, www.pinelakega.com.

Financial Resources

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The city's anticipated revenue for 2010 is around \$900,000. The largest single source of revenue for the City is from property taxes but also supplemented by fines and court costs. The police department will use the greatest share of this money, with a budget of just over \$230,000. The small size of the city is what makes the budget so small. With only 1.1 square miles and approximately 800 residents, very little revenue is needed to keep the city running.

The following is a summary of existing departments in Pine Lake and their responsibilities related to hazard mitigation planning and implementation, as well as existing planning documents and regulations related to mitigation efforts within the community. The administrative and technical capabilities of Pine Lake, as shown in Table 5.11-1, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community. Pine Lake hires contractors which serve multiple purposes for the city.

**Table 5.11-1
City of Pine Lake: Administrative and Technical Capacity**

Staff/Personnel Resources	Y/N	Department/Agency and Position
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	N	
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	N	
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	N	
D. Floodplain manager	Y	City Administrator
E. Surveyors	N	
F. Staff with education or expertise to assess the community's vulnerability to hazards	N	
G. Personnel skilled in GIS and/or HAZUS	N	
H. Scientists familiar with the hazards of the community	N	
I. Emergency manager	N	
J. Grant writers	Y	City Administrator

The legal and regulatory capabilities of Pine Lake are shown in Table 5.11-2, which presents the existing ordinances and codes that affect the physical or built environment of Pine Lake. Examples of legal

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and/or regulatory capabilities can include: the City’s building codes, zoning ordinances, subdivision ordinances, special purpose ordinances, growth management ordinances, site plan review, Comprehensive Plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

**Table 5.11-2
City of Pine Lake: Legal and Regulatory Capability**

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit (Y/N)
A. Building code	Y	N
B. Zoning ordinance	Y	N
C. Subdivision ordinance or regulations	Y	N
D. Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances, wildfire ordinances, hazard setback requirements)	Y	N
E. Growth management ordinances (also called “smart growth” or anti-sprawl programs)	Y	N
F. Site plan review requirements	Y	N
G. General or comprehensive plan	Y	N
H. A capital improvements plan	Y	N
I. An economic development plan	N	N
J. An emergency response plan	N	N
K. A post-disaster recovery plan	N	N
L. A post-disaster recovery ordinance	N	N
M. Real estate disclosure requirements	N	N

5.11.1.2 Fiscal Resources

Table 5.11-3 shows specific financial and budgetary tools available to Pine Lake such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water, sewer, gas, or electric services; impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

**Table 5.11-3
City of Pine Lake: Fiscal Capability**

Financial Resources	Accessible or Eligible to Use (Yes/No)
A. Community Development Block Grants (CDBG)	Y
B. Capital improvements project funding	Y
C. Authority to levy taxes for specific purposes	Y
D. Fees for water, sewer, gas, or electric service	Y
E. Impact fees for homebuyers or developers for new developments/homes	N
F. Incur debt through general obligation bonds CASH AND CARRY	Y
G. Incur debt through special tax and revenue bonds	Y – Vote required
H. Incur debt through private activity bonds	N
I. Withhold spending in hazard-prone areas	N
J. Other Grants	Y

5.11.2 Goals, Objectives, and Actions

The LPG discussed the results of the hazard identification and risk assessments, reviewed mitigation goals and alternatives based on the priority areas and hazard types, and began developing the mitigation strategies. The City’s goals are discussed in more detail in sub-section 5.10.2.1, below.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction’s current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further development of these goals and objectives, the LPG compiled and reviewed current jurisdictional sources including the City’s planning documents, codes, and ordinances. In addition, City representatives met with consultant staff and/or OES to specifically discuss these hazard-related goals, objectives and actions as they related to the overall Plan. Representatives of various City departments participated in the Pine Lake LPG. These members include:

- Phil Howland, City Manager
- Matthew Pulsts, City Liaison with DEMA
- Greg Zarus, Mayor
- Kathie DeNobriga, Mayor Pro-Tem

- Officer Woods
- Mr. Paproski, DOT Engineer/Risk Assessor

Once developed, City staff presented them to the City of Pine Lake City Council for their approval.

Public meetings were held throughout the County to present these preliminary goals, objectives and actions to citizens and to receive public input. At these meetings, specific consideration was given to hazard identification/profiles and the vulnerability assessment results. The following sections present the hazard-related goals, objectives and actions as prepared by Pine Lake’s LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens.

5.11.2.1 **Goals**

The City of Pine Lake has developed the following Goal for their Hazard Mitigation Plan. Objectives for achieving this goal are discussed in the subsequent section.

Goal: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to flooding on Snapfinger Creek.

5.11.2.2 **Objectives**

The City of Pine Lake developed the following broad list of objectives to assist in the achievement of each of its 6 identified goals. For each of these objectives, specific actions were developed that would assist in their implementation. A discussion of the prioritization and implementation of the action items is provided in Section 5.11.2.3.

MITIGATION GOALS AND OBJECTIVES.
Goal 1: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to flooding, wind, wildfire or other hazards.
<i>Objective 1: Obtain more current flood hazard data in order to identify potential improvements for water quality and quantity issues.</i>
<i>Objective 2: Address flooding problems on flooding sources within Pine Lake by improving quality and health of the flooding sources and the watershed.</i>
<i>Objective 3: Address flooding problems on flooding sources within Pine Lake based on additional knowledge of existing conditions.</i>
<i>Objective 4: Identify potential risk to other hazards and educate the public on their risks.</i>

5.11.2.3 **Prioritization and Implementation of Mitigation Action Items**

Once the comprehensive list of jurisdictional goals and objectives listed above was developed, proposed mitigation actions were developed and prioritized. This step resulted in a list of acceptable and realistic

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actions that address the hazards identified in each jurisdiction. This prioritized list of action items was formed by the LPG as a result of weighing STAPLE/E criteria.

The prioritized mitigation actions, as well as an implementation strategy for each, are numbered within their appropriate heading: GEN (General Mitigation), WIN (Wind), FLD (Flood), ICE (Winter Storm), DAM (Dam Breach) EQ (Earthquake), EH (Extreme Heat) and WDF (Wildfire).

All of the strategies identified in the remainder of this section are summarized in a table entitled *Mitigation Implementation Strategy Tracking Table for Pine Lake*.

The proposed actions are listed and described below:

Action # FLD 1: Hydrology and Hydraulic Study: Snapfinger Creek runs into the City and feeds Pine Lake. Flooding on the creek has become worse in recent years, and although the cause of this increase is suspected to be upstream development, the full cause and nature of the flooding on the creek is not well known or understood.

Priority: Very High

Objective Addressed: 1

Coordinating Individual/Organization: Public Works Department

Implementation Strategy: Hire a consultant to analyze Snapfinger Creek and its watershed. Determine peak flows, and determine location of 100-year floodplain along the creek. Create some informal maps showing where this is expected to be. Possibly analyze other recurrence intervals in addition to the 100-year event.

Timeframe for Implementation: Within 12 months of plan adoption

Potential Funding Source: General Fund, Stormwater Utility

<p>Current Status: The project is in progress. Discussions have occurred with adjoining city stakeholders to reduce the amount of impervious surfaces in the watershed. The goal of these discussions was to educate the officials on how upstream development affects Pine Lake.</p>
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Action # FLD 2: Stream Restoration: The creek has severe siltation and other quality problems. Silting of the creek bed, and especially of the Lake, create flooding problems by eliminating volume for storage of floodwaters. By restoring the stream to healthier, more pristine conditions, siltation can be reduced and flooding problems mitigated.

Priority: High

Objective Addressed: 2

Coordinating Individual/Organization: Public Works Department

Implementation Strategy: The process of restoring the stream is an ongoing project, already being performed by the City of Pine Lake.

Timeframe for Implementation: ongoing

Potential Funding Source: To be determined.

Current Status: In progress with a June 2012 completion date. This date is dependent on funding.

Action # FLD 3: Land Acquisition for Detention: Based on results of the H&H Study completed as Action # FLD 1, explore options for bringing peak flows on Snapfinger Creek down to pre-development levels. It is anticipated that some upstream land may be needed for this, and that a detention facility may need to be installed.

Priority: High

Objective Addressed: 3

Coordinating Individual/Organization: Public Works Department

Implementation Strategy: Implement best solution proposed in H&H study (see previous Action # FLD 1)

Timeframe for Implementation: Within 2 years of adoption of plan, funding dependent

Potential Funding Source: PDM, HMGP, Stormwater Utility

2010 Status Update: Negotiations are ongoing with DeKalb County School Systems. A partnership will be formed to install detention/retention ponds on school property upstream of Pine Lake.
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Action # WDF 4: Hazard identification, building code changes, and public education in order to reduce the wildfire risk. There are concerns over the storage of hazardous materials, construction requirements and debris maintenance which if not addressed, could greatly increase the potential for a quick spreading wildfire. Also, limited access for certain sections of the City put some citizens at an even higher risk.

Priority: High

Objective Addressed: 4

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Coordinating Individual/Organization: City Council, Ad HOC committee with liaison to DEMA as chair.

Implementation Strategy: Education seminars and public meetings will be held. Also, building codes will be reviewed to determine if they adequately address risks within the City.

Timeframe for Implementation: Begin within 6 months of adoption of the plan update, with a basic goal of educating the public by December of 2011

Potential Funding Source: TBD

Current Status: This is a new action. Project deferred until funding is available.

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5.12 CITY OF STONE MOUNTAIN

The City of Stone Mountain (Stone Mountain) formed a Local Planning Group (LPG) to work with the DeKalb County Mitigation Advisory Committee. The LPG reviewed a set of jurisdictional-level hazard maps including detailed critical facility information and localized potential hazard exposure/loss estimates to help identify the top hazards threatening their jurisdiction. In addition, LPG was supplied with exposure/loss estimates for Stone Mountain. See Section 4.0 for additional details.

After reviewing the localized hazard maps and exposure/loss estimates, the Stone Mountain LPG identified flooding as their first priority.

5.12.1 Capabilities Assessment

The LPG identified current capabilities available for implementing hazard mitigation activities. The Capability Assessment (Assessment) portion of the jurisdictional mitigation plan identifies administrative, technical, legal and fiscal capabilities. This includes a summary of departments and their responsibilities associated to hazard mitigation planning as well as codes, ordinances, and plans already in place associated to hazard mitigation planning. The second part of the Assessment provides Stone Mountain's fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

5.12.1.1 Existing Institutions, Plans, Policies and Ordinances

Form of Governance

Since the 2005 Plan, the City of Stone Mountain has changed from a council-mayor form of local governance to a council-manager form. Stone Mountain has six council members elected at large, which means that members represent the entire city rather than specific districts. Below are descriptions for primary functions of the major departments that may participate in an aspect of mitigation:

- Administration: Functions like any standard Administration Department, including the start of the Building Application process.
- City of Stone Mountain Public Safety Department (includes Police Department)
 - Responds to safety concerns involving threats and/or damage to life or property. Acts as the enforcement entity for violations of State and local laws and ordinances.
 - Primary emergency responders to acts of civil disobedience and public disorders and terrorism. Support personnel for emergency rescue and management.
 - Investigative services for criminal acts that result in personal injury/death and the destruction of property.

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Capability Assessment / Mitigation Plans

- Develops and implements emergency response plans and policies, focusing on evacuation procedures and traffic control.
- Primary responders to acts of terrorism, focusing on suspect intervention and facility and staff protection.
- Emergency management assistance is provided through DeKalb County.
- City of Stone Mountain Public Works Department
 - Stormwater utility developed and administered by Public Works (this is often used as matching funds for grants)
 - Maintains city infrastructure (assets) ranging from streets to parks to buildings and vehicle fleet.
 - Responds to city emergencies, includes EOC response in disasters and assisting police and fire departments with hazardous materials clean up, traffic and perimeter control efforts, traffic accident clean up and evacuation routing.
 - In charge of clean up and recovery. Implements the Solid Waste Plan which addresses debris clean-up to a small degree.
- City of Stone Mountain Planning and Zoning Committee
 - The Planning and Zoning Committee consists entirely of volunteers: there is no official planning department or staff.
 - Handles variances, rezonings, major developments, and subdivision site plans.
 - Contracts out for the Comprehensive Plan: the last one was completed in 1996.

Guiding Community Documents

The City of Stone Mountain has a range of guidance documents and plans for each of its departments. These include a Comprehensive Plan, public works and public utilities plans, capital improvement plans, and emergency management plans. The city uses building codes, zoning ordinances, subdivision ordinances, and various planning strategies to address how and where development occurs. One of the essential ways the City guides its future is through policies laid out in the Comprehensive Plan.

The Comprehensive Plan

The Comprehensive Plan for the City of Stone Mountain was completed in 1996 and updated in 2006. It contains sections on population, economic development, natural and historic resources, community facilities and services, housing, and land use. It also lays out goals, objectives, and an implementation strategy for achieving those goals. The update covers a planning period from 2005-2025. Its purpose is to provide Stone Mountain officials with a tool to manage and guide the future growth and development of the City.

Zoning and Subdivision Ordinances

The City of Stone Mountain's zoning and subdivision ordinances can be found online at www.municode.com. The zoning ordinance is appendix A, and the subdivision ordinance is Chapter 26.

Building Codes

The City has adopted the State Building Code and the International Building Code. References for the building code can also be found at www.municode.com. The code is administered by the Administration Department, but is enforced through Code Enforcement, a subsection of the Economic Development Department. The code was developed by the City, for the City, but borrows portions of the county's building code.

Floodplain Management Ordinance

The City of Stone Mountain has an enforced floodplain ordinance that meets the minimum standards of the NFIP.

The Stormwater Utility Ordinance

The City's stormwater utility ordinance is online and is administered via Chapter 28 of the code of ordinances. It is used as a match for disaster funding when needed. The ordinance provides the means of funding a stormwater collection and disposal system throughout the City of Stone Mountain. This was previously the responsibility of the County, but is being taken over by many of the cities within the county, including Stone Mountain. The future usefulness of the existing stormwater systems owned and operated by the City and additions and improvements to it, rests on the ability of the city to effectively manage, protect, control, regulate, use and enhance stormwater systems and facilities in the city in concert with the management of other water resources. This requires funding, which the stormwater utility provides by assessing fees based on amount of stormwater produced.

Solid Waste Management Plan

The city's Solid Waste Management Plan was adopted in 1993. It was completed to fulfill the requirements of the Georgia Comprehensive Solid Waste Management act of 1990. It contains sections on population, quantity, collection, reduction and disposal of waste, land limitations, and education and public involvement. The plan also lays out goals and strategies for dealing with the City's solid waste. The purpose of the plan is provide City officials with a long-range blueprint for managing solid waste.

Mitigation Activities

In response to the flooding in 2009, the City has received approximately \$380,000 in Public Assistance funding. Prior to this event, post-disaster money had been granted to the city for clean up damage purposes, including just over \$2,000 in disaster relief from Hurricane Ivan in the fall of 2004.

GIS, Computer, and Communication Technology

The City of Stone Mountain does not have its own GIS capabilities; however it is able to rely on those capabilities of the county when needed. In addition, the county covers the City with both its 911 and reverse-911 systems.

Financial Resources

The 2005 proposed budget for the City of Stone Mountain includes expenses of nearly \$5.4 million. The largest expense for the City comes from the general fund, followed by Police, then public works and solid waste. After several years of increase, the years since 2000 have seen a steady decrease in the general fund expense. The majority of the city's revenue comes from property taxes.

SECTION FIVE

Capability Assessment / Mitigation Plans

The following is a summary of existing departments in Stone Mountain and their responsibilities related to hazard mitigation planning and implementation, as well as existing planning documents and regulations related to mitigation efforts within the community. It should be noted that the City has increased its capacity through recent hires that have more experience with engineering and disaster management. The administrative and technical capabilities of Stone Mountain, as shown in Table 5.12-1, provides an identification of the staff, personnel, and department resources available to implement the actions identified in the mitigation section of the Plan. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community.

**Table 5.12-1
City of Stone Mountain: Administrative and Technical Capacity**

Staff/Personnel Resources	Y/N	Department/Agency and Position
A. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	City Manager and the PW Director
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	City Manager is an Engineer
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	PW Director
D. Floodplain manager	Y	
E. Surveyors	N	
F. Staff with education or expertise to assess the community's vulnerability to hazards	Y	City Manager
G. Personnel skilled in GIS and/or HAZUS	N	
H. Scientists familiar with the hazards of the community	N	
I. Emergency manager	N	
J. Grant writers	Y	DDA Coordinator

The legal and regulatory capabilities of Stone Mountain are shown in Table 5.12-2, which presents the existing ordinances and codes that affect the physical or built environment of Stone Mountain. Examples of legal and/or regulatory capabilities can include: the City's building codes, zoning ordinances, subdivision ordinances, special purpose ordinances, growth management ordinances, site plan review, Comprehensive Plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

**Table 5.12-2
City of Stone Mountain: Legal and Regulatory Capability**

Regulatory Tools (ordinances, codes, plans)	Local Authority (Y/N)	Does State Prohibit (Y/N)
Building code	Y	N
Zoning ordinance	Y	N
Subdivision ordinance or regulations	Y	N
Special purpose ordinances	Y	N
Growth management ordinances (also called “smart growth” or anti-sprawl programs)	Y	N
Site plan review requirements	Y ¹	N
General or comprehensive plan	Y ²	N
A capital improvements plan	Y	N
An economic development plan	Y	N
An emergency response plan	N ³	N
A post-disaster recovery plan	N	N
A post-disaster recovery ordinance	N	N
Real estate disclosure requirements	N	N

1 This is not a formal requirement, but exists and is implemented.

2 Recently updated.

3 Emergency response is covered in the Code of Ordinances, Chapter 11, Article 2.

5.12.1.2 Fiscal Resources

Table 5.11-3 shows specific financial and budgetary tools available to Stone Mountain such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; impact fees for homebuyers or developers for new development; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

**Table 5.12-3
City of Stone Mountain: Fiscal Capability**

Financial Resources	Accessible or Eligible to Use (Yes/No)
Community Development Block Grants (CDBG)	Y
Capital improvements project funding	Y
Transportation Enhancement (TE)	Y
Authority to levy taxes for specific purposes	Y – Vote required
Stormwater Utility Fee	Y
Impact fees for homebuyers or developers for new developments/homes	N
Incur debt through general obligation bonds	Y – but never used
Incur debt through special tax and revenue bonds	Y – Vote required
Incur debt through private activity bonds	N
Withhold spending in hazard-prone areas	N

5.12.2 Goals, Objectives and Actions

After review of the hazard identification and risk assessment and capabilities assessment, the LPG discussed the results of the hazard identification and risk assessments, reviewed mitigation goals and alternatives based on the priority areas and hazard types, and began developing the mitigation strategy. In addition, the City solidified its goals, which are discussed in more detail in sub-section 5.12.2.1, below.

The goals and objectives were developed by considering the risk assessment findings, localized hazard identification and loss/exposure estimates, and an analysis of the jurisdiction’s current capabilities assessment. These preliminary goals, objectives and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help in further development of these goals and objectives, the LPG compiled and reviewed current jurisdictional sources including the City’s planning documents, codes, and ordinances. In addition, City representatives met with consultant staff to specifically discuss these hazard-related goals, objectives and actions as they related to the overall Plan. Representatives of various City departments participated in the Stone Mountain LPG. These members include:

- Barry Amos, City Manager
- Jim Tavenner, Director of Public Works
- Denise Hicks, City Clerk
- Chauncy Troutman, Chief of Police

Once developed, City staff presented them to the City of Stone Mountain City Council for their approval.

Public meetings were held throughout the County to present these preliminary goals, objectives and actions to citizens and to receive public input. At these meetings, specific consideration was given to hazard identification/profiles and the vulnerability assessment results. The following sections present the hazard-related goals, objectives and actions as prepared by Stone Mountain’s LPG in conjunction with the Hazard Mitigation Working Group, locally elected officials, and local citizens.

5.12.2.1 Goals

The City of Stone Mountain has developed the following Goal for their Hazard Mitigation Plan. Objectives for achieving this goal are discussed in the subsequent section.

Goal: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to floods.

5.12.2.2 Objectives

The City of Stone Mountain developed the following broad list of objectives to assist in the achievement of each of its 6 identified goals. For each of these objectives, specific actions were developed that would assist in their implementation. A discussion of the prioritization and implementation of the action items is provided in Section 5.12.2.3.

MITIGATION GOALS AND OBJECTIVES.
Goal: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to all hazards.
<i>Objective 1: Work towards minimizing flooding through better data and mapping.</i>
<i>Objective 2: Reduce potential for loss of life through improved warning system(s).</i>
<i>Objective 3: Implement programs that help protect people from hazards and that help protect property from damage.</i>

5.12.2.3 Prioritization and Implementation of Mitigation Action Items

Once the comprehensive list of jurisdictional goals and objectives listed above was developed, proposed mitigation actions were developed and prioritized. This step resulted in a list of acceptable and realistic actions that address the hazards identified in each jurisdiction. This prioritized list of action items was formed by the LPG as a result of weighing STAPLE/E criteria.

The prioritized mitigation actions, as well as an implementation strategy for each, are numbered within their appropriate heading: GEN (General Mitigation), WIN (Wind), FLD (Flood), ICE (Winter Storm), DAM (Dam Breach) EQ (Earthquake), EH (Extreme Heat) and WDF (Wildfire).

SECTION FIVE

Capability Assessment / Mitigation Plans

All of the strategies identified in the remainder of this section are summarized in a table entitled *Mitigation Implementation Strategy Tracking Table for Stone Mountain*.

The proposed actions are listed and described below:

Action # FLD 1: Map Modernization: The basis for a sound floodplain management program is the quality of the risk information upon which development decisions are made. The FEMA Firms are the best available depiction of overall flooding risk in the city. The current firms are outdated. FEMA is currently geo-referencing and completing a database for the digital flood maps as part of its overall map modernization initiative. It is not, however, updating the inundation studies. The digital maps FEMA is producing will provide a platform from which updated flood data (hydrologic, topographic and hydraulic analysis modeling) can be added at a fraction of the cost and time previously required.

Priority: High

Objective Addressed: 1

Coordinating Individual/Organization: Public Works Department

Implementation Strategy: Along with the upgrades to the flood plain mapping, the city will seek an increased role in the re-mapping of the cities stormwater systems.

Timeframe for Implementation: Within 2 years of plan adoption, funding dependent

Potential Funding Source: Federal, State grants and stormwater utility fees

Current Status: Ongoing through a Cooperating Technical Partnership between DeKalb County (including its municipalities) and FEMA
--

Action # FLD 2: Repetitive Loss Property Acquisition Program: City needs to update

Priority: High

Objective Addressed: 1

Coordinating Individual/Organization: Public Works Department

Implementation Strategy: Along with the upgrades to the flood plain mapping, the city will seek an increased role in the re-mapping of the cities stormwater systems.

Timeframe for Implementation: Within 2 years of plan adoption, funding dependent

Potential Funding Source: Federal, State grants and stormwater utility fees

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Status: Ongoing through a Cooperating Technical Partnership between DeKalb County (including its municipalities) and FEMA

Action # WIN 1: Outdoor Alert and Warning System Evaluation: There were outdoor warning sirens in operation in the 1980's. They were principally intended as a method of warning Stone Mountain citizens of an impending attack by a foreign enemy and for tornado warnings. In 1988 the county decommissioned them.

Priority: High

Objective Addressed: 2

Coordinating Individual/Organization: Public Works Department

Implementation Strategy: Reinstall two (2) outdoor warning sirens citywide for Tornado, Weather and Homeland security.

Timeframe for Implementation: Within 2 years of adoption of plan, funding dependent

Potential Funding Source: Federal or State grants

<p>Current Status: Ongoing. Funding has been an issue but intent is to tie the warning system into E911 as well.</p>

Action # WIN/ICE 2: Tree Pruning Program: The electric, phone, and cable utilities have tree pruning programs to protect their lines from ice storms and severe winds. During these events, tree branches (and in some cases whole trees) can come down and cause damages to power lines, structures, and can block roads and other thoroughfares, disrupting travel and commerce. The programs do not go far enough to provide adequate protection since they are focused specifically on lines.

Priority: High

Objective Addressed: 3

Coordinating Individual/Organization: Public Works Department

Implementation Strategy: The city will develop a program to supplement the utilities' programs in the vicinity of government owned property's similar programs in place.

Timeframe for Implementation: Within 2 years of plan adoption, funding dependent

Potential Funding Source: General Funds, explore state grants

<p>Current Status: Ongoing</p>

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SECTION 6 PLAN MAINTENANCE

A formal process is required to ensure that this plan will remain an active and relevant document. This section, Plan Maintenance, includes a schedule for monitoring and evaluating this plan annually, and for revising this plan every five years. It describes how the county and cities will receive public input throughout the process. Finally, this section explains how jurisdictions will transform the mitigation strategies outlined in this plan into existing planning mechanisms such as Comprehensive Plans, Capital Improvement Plans, development regulations and other documents.

6.1 MONITORING, EVALUATING AND UPDATING THE PLAN**6.1.1 Plan Monitoring**

The MAC participants and each Local Planning Group (LPG) will review those jurisdictional goals, objectives, and action items listed in the plan on a yearly basis. They shall be responsible for communicating any desired or necessary changes to DeKalb Emergency Management. The MAC will convene twice per year to review progress on implementation of the strategies identified in the plan. The LPGs will be invited to participate in those meetings. DeKalb County Emergency Management and Public Works Departments will be responsible for updating the plan accordingly, on a five year cycle, described below. A memorandum, describing needed changes, and progress on implementation will be provided annually to GEMA and FEMA Region IV.

6.1.2 Plan Evaluation

The MAC and each participating jurisdiction will perform a more comprehensive review of this plan every two years. The coordinating organizations responsible for the various action items will report on the status of their projects, the success of various implementation processes, difficulties encountered, and success of coordination efforts. They will then evaluate the content of this plan using the following questions:

- Are these programs effective?
- Have there been any changes in land development that affect our mitigation priorities?
- Do our goals, objectives, and action items meet STAPLE/E criteria?
- Are our goals, objectives, and action items relevant, given any changes in our jurisdiction?
- Are our goals, objectives, and action items relevant given any changes to State or Federal regulations and policy?
- Is there any new data that affects the risk assessment portion of this plan?

Any resulting updates or changes will be included in the Plan. Again, DeKalb Emergency Management and Public Works Departments will be responsible for making the changes and will provide the updates via a memorandum as described above and will keep files of changes needed for the five year re-submittal described below in Section 6.1.3.

6.1.3 Plan Updates

The DeKalb County Emergency Management and Public Works Departments are responsible for making updates to the Plan, but the MAC participants are responsible for the content of the updates. Local jurisdictions will provide jurisdictional-level updates to the Plan when necessary as described above. The Plan will be submitted for review to GEMA and FEMA every five years.

6.1.4 Implementation through Existing Programs

The multi-jurisdictional participants can use this plan as a baseline of information on the natural hazards that impact their jurisdictions. Section 5 should provide a useful reference to each jurisdiction's existing institutions, plans, policies and ordinances. This will make it easier for County and local jurisdictions to implement their action items through existing programs and procedures. Plans, ordinances, and programs which currently achieve mitigation results are discussed in the Capabilities Assessment portion of this plan, found in Section 5 (and separated by jurisdiction). Further details on how elements of this plan will be incorporated into existing programs and plans are outlined in the each community's Mitigation Strategies Section of this plan. DeKalb County's mitigation strategies can be found in Section 5.3.2. (The cities mitigation strategies are located in the subsequent sections of Section 5, i.e. 5.4.2 for Avondale Estates, 5.5.2 for Chamblee, etc.).

6.1.5 Continued Public Involvement

The public will be directly involved in reviewing and updating this plan. County Emergency Management and a representative from each participating jurisdiction will solicit feedback from the public during monitoring, evaluating, and updating this plan as described above. Both the County and the city jurisdictions are responsible for incorporating the public's input.

A maintained copy of the plan will reside on the County Public Works Department Website, on a homepage devoted to Hazard Mitigation. In addition, annual and biennial status memorandums will be posted on the site.

A copy of this plan will be publicized and available for review on the County Public Works website, and additional copies of the plan will be catalogued and kept at appropriate agencies in the county. The existence and location of these copies will also be posted on the county website. The site will contain contact information for members of the MAC to which the public can direct their comments and concerns. All public feedback will be forwarded to the appropriate jurisdiction for review, and to DeKalb Public Works for documentation. During the two year review and five year update cycles, the MAC will issue a press release requesting public comments either immediately after each evaluation, or prior to the evaluation, as appropriate. The press release will direct people to the updated version of this plan, both on the website and in hardcopy. During these two cycles there will be a public hearing to review progress on implementation of this plan. The County will be responsible for using county resources to publicize the press releases and maintain public involvement through public access channels, web pages, and newspapers. Each jurisdiction will be responsible for its own press release and public meeting(s) during these phases.

Appendix 1

The “US Census QuickFacts” reference sheets for each jurisdiction are provided in this appendix. The overall demographics for the entire county are listed first. Next, each jurisdiction’s demographics are included. Unincorporated areas are included in the County demographics, but are not shown separately anywhere. Each of these QuickFacts reference guides are taken from www.census.gov and refer to the latest demographic assessments available for each jurisdiction.

Information can be found by clicking on the hyperlinked bookmark below or scrolling through the document.

[DeKalb County](#)

[Avondale Estates](#)

[Chamblee](#)

[Clarkston](#)

[Decatur](#)

[Doraville](#)

[Dunwoody](#)

[Lithonia](#)

[Pine Lake](#)

[Stone Mountain](#)

DeKalb County QuickFacts**People QuickFacts**

	DeKalb County	Georgia
Population, 2009 estimate	747,274	9,829,211
Population, percent change, April 1, 2000 to July 1, 2009	12.20%	20.10%
Population estimates base (April 1) 2000	666,048	8,186,781
Persons under 5 years old, percent, 2009	7.50%	7.60%
Persons under 18 years old, percent, 2009	23.90%	26.30%
Persons 65 years old and over, percent, 2009	8.50%	10.30%
Female persons, percent, 2009	51.40%	50.80%
White persons, percent, 2009 (a)	40.20%	65.00%
Black persons, percent, 2009 (a)	53.70%	30.20%
American Indian and Alaska Native persons, percent, 2009 (a)	0.40%	0.40%
Asian persons, percent, 2009 (a)	4.20%	3.00%
Native Hawaiian and Other Pacific Islander, percent, 2009 (a)	0.10%	0.10%
Persons reporting two or more races, percent, 2009	1.40%	1.30%
Persons of Hispanic or Latino origin, percent, 2009 (b)	10.90%	8.30%
White persons not Hispanic, percent, 2009	30.50%	57.50%
Living in same house in 1995 and 2000, pct 5 yrs old & over	43.80%	49.20%
Foreign born persons, percent, 2000	15.20%	7.10%
Language other than English spoken at home, pct age 5+, 2000	17.40%	9.90%
High school graduates, percent of persons age 25+, 2000	85.10%	78.60%
Bachelor's degree or higher, pct of persons age 25+, 2000	36.30%	24.30%
Persons with a disability, age 5+, 2000	105,844	1,456,812
Mean travel time to work (minutes), workers age 16+, 2000	31.7	27.7
Housing units, 2009	313,602	4,062,400
Homeownership rate, 2000	58.50%	67.50%
Housing units in multi-unit structures, percent, 2000	36.30%	20.80%
Median value of owner-occupied housing units, 2000	\$135,100	\$111,200
Households, 2000	249,339	3,006,369
Persons per household, 2000	2.62	2.65
Median household income, 2008	\$54,708	\$50,834
Per capita money income, 1999	\$23,968	\$21,154
Persons below poverty level, percent, 2008	15.60%	14.70%
Business QuickFacts		
Private nonfarm establishments, 2007	17,233	2,318,101
Private nonfarm employment, 2007	282,045	36,484,181
Private nonfarm employment, percent change 2000-2007	-14.10%	4.7% ¹
Nonemployer establishments, 2007	60,730	738,158
Total number of firms, 2002	56,473	674,521
Black-owned firms, percent, 2002	34.40%	13.40%
American Indian and Alaska Native owned firms, percent, 2002	0.30%	0.70%

Asian-owned firms, percent, 2002	5.70%	4.00%
Native Hawaiian and Other Pacific Islander owned firms, percent, 2002	F	0.00%
Hispanic-owned firms, percent, 2002	3.40%	2.70%
Women-owned firms, percent, 2002	33.70%	29.10%
Manufacturers shipments, 2002 (\$1000)	8,956,667	126,156,636
Wholesale trade sales, 2002 (\$1000)	12,918,395	201,091,040
Retail sales, 2002 (\$1000)	6,218,730	90,098,578
Retail sales per capita, 2002	\$9,240	\$10,551
Accommodation and foodservices sales, 2002 (\$1000)	839,425	12,740,423
Building permits, 2009	323	18,228
Federal spending, 2008	3,964,576	741,646,421
Geography QuickFacts	DeKalb County	Georgia
Land area, 2000 (square miles)	268.21	57,906.14
Persons per square mile, 2000	2,484.60	141.4
FIPS Code	89	13
Metropolitan or Micropolitan Statistical Area	Atlanta-Sandy Springs-Marietta, GA Metro Area	

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Avondale Estates QuickFacts**General Characteristics**

	Number	Percent	U.S.
Total population	2,609		
Male	1,169	44.8	49.10%
Female	1,440	55.2	50.90%
Median age (years)	42.9	(X)	35.3
Under 5 years	160	6.1	6.80%
18 years and over	2,165	83	74.30%
65 years and over	517	19.8	12.40%
One race	2,579	98.9	97.60%
White	2,316	88.8	75.10%
Black or African American	225	8.6	12.30%
American Indian and Alaska Native	4	0.2	0.90%
Asian	27	1	3.60%
Native Hawaiian and Other Pacific Islander	0	0	0.10%
Some other race	7	0.3	5.50%
Two or more races	30	1.1	2.40%
Hispanic or Latino (of any race)	40	1.5	12.50%
Household population	2,590	99.3	97.20%
Group quarters population	19	0.7	2.80%
Average household size	2.11	(X)	2.59
Average family size	2.68	(X)	3.14
Total housing units	1,263		
Occupied housing units	1,226	97.1	91.00%
Owner-occupied housing units	1,132	92.3	66.20%
Renter-occupied housing units	94	7.7	33.80%
Vacant housing units	37	2.9	9.00%

Social Characteristics - show more >>

	Number	Percent	U.S.
Population 25 years and over	2,108		
High school graduate or higher	2,059	97.7	80.40%
Bachelor's degree or higher	1,413	67	24.40%
Civilian veterans (civilian population 18 years and over)	268	12.5	12.70%
Disability status (population 5 years and over)	305	12.7	19.30%
Foreign born	85	3.3	11.10%
Male, Now married, except separated (population 15 years and over)	618	63.6	56.70%
Female, Now married, except separated (population 15 years and over)	573	46.8	52.10%

Speak a language other than English at home (population 5 years and over)	142	5.9	17.90%
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Economic Characteristics - show more >>

	Number	Percent	U.S.
In labor force (population 16 years and over)	1,564	71.6	63.90%
Mean travel time to work in minutes (workers 16 years and over)	27.1	(X)	25.5
Median household income in 1999 (dollars)	70,625	(X)	41,994
Median family income in 1999 (dollars)	92,341	(X)	50,046
Per capita income in 1999 (dollars)	42,605	(X)	21,587
Families below poverty level	11	1.6	9.20%
Individuals below poverty level	70	2.7	12.40%

Housing Characteristics - show more >>

	Number	Percent	U.S.
Single-family owner-occupied homes	1,003		
Median value (dollars)	203,500	(X)	119,600
Median of selected monthly owner costs	(X)	(X)	
With a mortgage (dollars)	1,535	(X)	1,088
Not mortgaged (dollars)	362	(X)	295

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Chamblee QuickFacts**General Characteristics - Chamblee**

	Number	Percent	U.S.
Total population	9,552		
Male	5,897	61.7	49.10%
Female	3,655	38.3	50.90%
Median age (years)	28	(X)	35.3
Under 5 years	833	8.7	6.80%
18 years and over	7,333	76.8	74.30%
65 years and over	477	5	12.40%
One race	9,144	95.7	97.60%
White	4,333	45.4	75.10%
Black or African American	354	3.7	12.30%
American Indian and Alaska Native	87	0.9	0.90%
Asian	1,335	14	3.60%
Native Hawaiian and Other Pacific Islander	31	0.3	0.10%
Some other race	3,004	31.4	5.50%
Two or more races	408	4.3	2.40%
Hispanic or Latino (of any race)	5,384	56.4	12.50%
Household population	9,547	99.9	97.20%
Group quarters population	5	0.1	2.80%
Average household size	3.57	(X)	2.59
Average family size	3.65	(X)	3.14
Total housing units	2,730		
Occupied housing units	2,673	97.9	91.00%
Owner-occupied housing units	925	34.6	66.20%
Renter-occupied housing units	1,748	65.4	33.80%
Vacant housing units	57	2.1	9.00%

Social Characteristics - show more >>

	Number	Percent	U.S.
Population 25 years and over	5,794		
High school graduate or higher	3,167	54.7	80.40%
Bachelor's degree or higher	1,293	22.3	24.40%
Civilian veterans (civilian population 18 years and over)	409	5.4	12.70%
Disability status (population 5 years and over)	1,755	19.5	19.30%
Foreign born	6,315	64.2	11.10%
Male, Now married, except separated (population 15 years and over)	2,127	42.3	56.70%
Female, Now married, except separated (population 15 years and over)	1,458	50	52.10%

Speak a language other than English at home (population 5 years and over)	6,408	71.3	17.90%
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Economic Characteristics - show more >>

	Number	Percent	U.S.
In labor force (population 16 years and over)	5,686	72.3	63.90%
Mean travel time to work in minutes (workers 16 years and over)	28.2	(X)	25.5
Median household income in 1999 (dollars)	45,992	(X)	41,994
Median family income in 1999 (dollars)	38,125	(X)	50,046
Per capita income in 1999 (dollars)	15,492	(X)	21,587
Families below poverty level	304	15.8	9.20%
Individuals below poverty level	2,244	22.9	12.40%

Housing Characteristics - show more >>

	Number	Percent	U.S.
Single-family owner-occupied homes	894		
Median value (dollars)	184,900	(X)	119,600
Median of selected monthly owner costs	(X)	(X)	
With a mortgage (dollars)	1,113	(X)	1,088
Not mortgaged (dollars)	308	(X)	295

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Clarkston QuickFacts**General Characteristics - Clarkston**

	Number	Percent	U.S.
Total population	7,231		
Male	3,681	50.9	49.10%
Female	3,550	49.1	50.90%
Median age (years)	28.1	(X)	35.3
Under 5 years	656	9.1	6.80%
18 years and over	5,062	70	74.30%
65 years and over	270	3.7	12.40%
One race	6,536	90.4	97.60%
White	1,406	19.4	75.10%
Black or African American	4,025	55.7	12.30%
American Indian and Alaska Native	8	0.1	0.90%
Asian	909	12.6	3.60%
Native Hawaiian and Other Pacific Islander	3	0	0.10%
Some other race	185	2.6	5.50%
Two or more races	695	9.6	2.40%
Hispanic or Latino (of any race)	333	4.6	12.50%
Household population	7,218	99.8	97.20%
Group quarters population	13	0.2	2.80%
Average household size	2.92	(X)	2.59
Average family size	3.54	(X)	3.14
Total housing units	2,622		
Occupied housing units	2,469	94.2	91.00%
Owner-occupied housing units	603	24.4	66.20%
Renter-occupied housing units	1,866	75.6	33.80%
Vacant housing units	153	5.8	9.00%

Social Characteristics - show more >>

	Number	Percent	U.S.
Population 25 years and over	4,057		
High school graduate or higher	3,209	79.1	80.40%
Bachelor's degree or higher	877	21.6	24.40%
Civilian veterans (civilian population 18 years and over)	376	7.9	12.70%
Disability status (population 5 years and over)	1,220	19.6	19.30%
Foreign born	2,301	33.7	11.10%
Male, Now married, except separated (population 15 years and over)	1,005	38.2	56.70%
Female, Now married, except separated (population 15 years and over)	925	37	52.10%

Speak a language other than English at home (population 5 years and over)	2,560	41	17.90%
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Economic Characteristics - show more >>

	Number	Percent	U.S.
In labor force (population 16 years and over)	3,775	75.4	63.90%
Mean travel time to work in minutes (workers 16 years and over)	31.4	(X)	25.5
Median household income in 1999 (dollars)	37,436	(X)	41,994
Median family income in 1999 (dollars)	38,056	(X)	50,046
Per capita income in 1999 (dollars)	14,304	(X)	21,587
Families below poverty level	289	19.5	9.20%
Individuals below poverty level	1,310	19.3	12.40%

Housing Characteristics - show more >>

	Number	Percent	U.S.
Single-family owner-occupied homes	437		
Median value (dollars)	97,800	(X)	119,600
Median of selected monthly owner costs	(X)	(X)	
With a mortgage (dollars)	951	(X)	1,088
Not mortgaged (dollars)	235	(X)	295

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Decatur QuickFacts**General Characteristics - Decatur**

	Number	Percent	U.S.
Total population	18,147		
Male	7,694	42.4	49.10%
Female	10,453	57.6	50.90%
Median age (years)	36	(X)	35.3
Under 5 years	1,053	5.8	6.80%
18 years and over	14,519	80	74.30%
65 years and over	2,421	13.3	12.40%
One race	17,886	98.6	97.60%
White	11,906	65.6	75.10%
Black or African American	5,532	30.5	12.30%
American Indian and Alaska Native	29	0.2	0.90%
Asian	298	1.6	3.60%
Native Hawaiian and Other Pacific Islander	6	0	0.10%
Some other race	115	0.6	5.50%
Two or more races	261	1.4	2.40%
Hispanic or Latino (of any race)	304	1.7	12.50%
Household population	17,158	94.6	97.20%
Group quarters population	989	5.4	2.80%
Average household size	2.13	(X)	2.59
Average family size	2.96	(X)	3.14
Total housing units	8,497		
Occupied housing units	8,051	94.8	91.00%
Owner-occupied housing units	4,706	58.5	66.20%
Renter-occupied housing units	3,345	41.5	33.80%
Vacant housing units	446	5.2	9.00%

Social Characteristics - show more >>

	Number	Percent	U.S.
Population 25 years and over	12,980		
High school graduate or higher	11,396	87.8	80.40%
Bachelor's degree or higher	7,266	56	24.40%
Civilian veterans (civilian population 18 years and over)	1,215	8.4	12.70%
Disability status (population 5 years and over)	3,039	18	19.30%
Foreign born	1,190	6.5	11.10%
Male, Now married, except separated (population 15 years and over)	2,968	48.3	56.70%
Female, Now married, except separated (population 15 years and over)	3,302	36.9	52.10%

Speak a language other than English at home (population 5 years and over)	1,358	7.9	17.90%
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Economic Characteristics - show more >>

	Number	Percent	U.S.
In labor force (population 16 years and over)	10,523	70.6	63.90%
Mean travel time to work in minutes (workers 16 years and over)	26.2	(X)	25.5
Median household income in 1999 (dollars)	47,395	(X)	41,994
Median family income in 1999 (dollars)	65,064	(X)	50,046
Per capita income in 1999 (dollars)	29,363	(X)	21,587
Families below poverty level	273	7	9.20%
Individuals below poverty level	2,041	11.7	12.40%

Housing Characteristics - show more >>

	Number	Percent	U.S.
Single-family owner-occupied homes	4,218		
Median value (dollars)	220,400	(X)	119,600
Median of selected monthly owner costs	(X)	(X)	
With a mortgage (dollars)	1,325	(X)	1,088
Not mortgaged (dollars)	384	(X)	295

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Doraville QuickFacts**General Characteristics - Doraville**

	Number	Percent	U.S.
Total population	9,862		
Male	5,530	56.1	49.10%
Female	4,332	43.9	50.90%
Median age (years)	29.9	(X)	35.3
Under 5 years	753	7.6	6.80%
18 years and over	7,534	76.4	74.30%
65 years and over	630	6.4	12.40%
One race	9,454	95.9	97.60%
White	4,571	46.3	75.10%
Black or African American	1,457	14.8	12.30%
American Indian and Alaska Native	126	1.3	0.90%
Asian	1,250	12.7	3.60%
Native Hawaiian and Other Pacific Islander	16	0.2	0.10%
Some other race	2,034	20.6	5.50%
Two or more races	408	4.1	2.40%
Hispanic or Latino (of any race)	4,284	43.4	12.50%
Household population	9,722	98.6	97.20%
Group quarters population	140	1.4	2.80%
Average household size	3.24	(X)	2.59
Average family size	3.62	(X)	3.14
Total housing units	3,102		
Occupied housing units	2,998	96.6	91.00%
Owner-occupied housing units	1,472	49.1	66.20%
Renter-occupied housing units	1,526	50.9	33.80%
Vacant housing units	104	3.4	9.00%

Social Characteristics - show more >>

	Number	Percent	U.S.
Population 25 years and over	6,182		
High school graduate or higher	3,777	61.1	80.40%
Bachelor's degree or higher	791	12.8	24.40%
Civilian veterans (civilian population 18 years and over)	525	6.8	12.70%
Disability status (population 5 years and over)	2,301	24.4	19.30%
Foreign born	4,725	46.6	11.10%
Male, Now married, except separated (population 15 years and over)	2,011	43.4	56.70%
Female, Now married, except separated (population 15 years and over)	1,653	47.6	52.10%

Speak a language other than English at home (population 5 years and over)	5,345	56.7	17.90%
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Economic Characteristics - show more >>

	Number	Percent	U.S.
In labor force (population 16 years and over)	5,647	70.5	63.90%
Mean travel time to work in minutes (workers 16 years and over)	29	(X)	25.5
Median household income in 1999 (dollars)	40,641	(X)	41,994
Median family income in 1999 (dollars)	41,903	(X)	50,046
Per capita income in 1999 (dollars)	15,048	(X)	21,587
Families below poverty level	195	9.6	9.20%
Individuals below poverty level	1,537	15.3	12.40%

Housing Characteristics - show more >>

	Number	Percent	U.S.
Single-family owner-occupied homes	1,478		
Median value (dollars)	112,000	(X)	119,600
Median of selected monthly owner costs	(X)	(X)	
With a mortgage (dollars)	905	(X)	1,088
Not mortgaged (dollars)	223	(X)	295

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Dunwoody QuickFacts**General Characteristics - Dunwoody**

	Number	Percent	U.S.
Total population	32,808		
Male	16,001	48.8	49.10%
Female	16,807	51.2	50.90%
Median age (years)	38.4	(X)	35.3
Under 5 years	2,108	6.4	6.80%
18 years and over	26,370	80.4	74.30%
65 years and over	4,115	12.5	12.40%
One race	32,381	98.7	97.60%
White	27,893	85	75.10%
Black or African American	1,452	4.4	12.30%
American Indian and Alaska Native	39	0.1	0.90%
Asian	2,552	7.8	3.60%
Native Hawaiian and Other Pacific Islander	4	0	0.10%
Some other race	441	1.3	5.50%
Two or more races	427	1.3	2.40%
Hispanic or Latino (of any race)	1,514	4.6	12.50%
Household population	32,304	98.5	97.20%
Group quarters population	504	1.5	2.80%
Average household size	2.35	(X)	2.59
Average family size	2.86	(X)	3.14
Total housing units	14,599		
Occupied housing units	13,746	94.2	91.00%
Owner-occupied housing units	9,213	67	66.20%
Renter-occupied housing units	4,533	33	33.80%
Vacant housing units	853	5.8	9.00%

Social Characteristics - show more >>

	Number	Percent	U.S.
Population 25 years and over	24,177		
High school graduate or higher	23,227	96.1	80.40%
Bachelor's degree or higher	15,828	65.5	24.40%
Civilian veterans (civilian population 18 years and over)	3,163	12	12.70%
Disability status (population 5 years and over)	3,779	12.4	19.30%
Foreign born	4,893	14.9	11.10%
Male, Now married, except separated (population 15 years and over)	8,508	64.8	56.70%
Female, Now married, except separated (population 15 years and over)	8,568	60.6	52.10%

Speak a language other than English at home (population 5 years and over)	5,257	17.2	17.90%
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Economic Characteristics - show more >>

	Number	Percent	U.S.
In labor force (population 16 years and over)	18,694	69.2	63.90%
Mean travel time to work in minutes (workers 16 years and over)	24.2	(X)	25.5
Median household income in 1999 (dollars)	82,838	(X)	41,994
Median family income in 1999 (dollars)	100,796	(X)	50,046
Per capita income in 1999 (dollars)	43,523	(X)	21,587
Families below poverty level	136	1.5	9.20%
Individuals below poverty level	1,179	3.6	12.40%

Housing Characteristics - show more >>

	Number	Percent	U.S.
Single-family owner-occupied homes	8,637		
Median value (dollars)	277,400	(X)	119,600
Median of selected monthly owner costs	(X)	(X)	
With a mortgage (dollars)	1,709	(X)	1,088
Not mortgaged (dollars)	412	(X)	295

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Lithonia QuickFacts**General Characteristics - Lithonia**

	Number	Percent	U.S.
Total population	2,187		
Male	949	43.4	49.10%
Female	1,238	56.6	50.90%
Median age (years)	29.6	(X)	35.3
Under 5 years	218	10	6.80%
18 years and over	1,435	65.6	74.30%
65 years and over	259	11.8	12.40%
One race	2,141	97.9	97.60%
White	364	16.6	75.10%
Black or African American	1,741	79.6	12.30%
American Indian and Alaska Native	2	0.1	0.90%
Asian	2	0.1	3.60%
Native Hawaiian and Other Pacific Islander	1	0	0.10%
Some other race	31	1.4	5.50%
Two or more races	46	2.1	2.40%
Hispanic or Latino (of any race)	63	2.9	12.50%
Household population	2,155	98.5	97.20%
Group quarters population	32	1.5	2.80%
Average household size	2.7	(X)	2.59
Average family size	3.25	(X)	3.14
Total housing units	892		
Occupied housing units	799	89.6	91.00%
Owner-occupied housing units	268	33.5	66.20%
Renter-occupied housing units	531	66.5	33.80%
Vacant housing units	93	10.4	9.00%

Social Characteristics - show more >>

	Number	Percent	U.S.
Population 25 years and over	1,219		
High school graduate or higher	811	66.5	80.40%
Bachelor's degree or higher	92	7.5	24.40%
Civilian veterans (civilian population 18 years and over)	127	8.8	12.70%
Disability status (population 5 years and over)	519	26.1	19.30%
Foreign born	116	5.2	11.10%
Male, Now married, except separated (population 15 years and over)	214	37	56.70%
Female, Now married, except separated (population 15 years and over)	284	29.1	52.10%

Speak a language other than English at home (population 5 years and over)	109	5.4	17.90%
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Economic Characteristics - show more >>

	Number	Percent	U.S.
In labor force (population 16 years and over)	847	55.8	63.90%
Mean travel time to work in minutes (workers 16 years and over)	39.2	(X)	25.5
Median household income in 1999 (dollars)	23,397	(X)	41,994
Median family income in 1999 (dollars)	24,792	(X)	50,046
Per capita income in 1999 (dollars)	10,605	(X)	21,587
Families below poverty level	127	22.6	9.20%
Individuals below poverty level	570	25.9	12.40%

Housing Characteristics - show more >>

	Number	Percent	U.S.
Single-family owner-occupied homes	235		
Median value (dollars)	81,900	(X)	119,600
Median of selected monthly owner costs	(X)	(X)	
With a mortgage (dollars)	793	(X)	1,088
Not mortgaged (dollars)	248	(X)	295

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Pine Lake QuickFacts

General Characteristics - Pine Lake	Number	Percent	U.S.
Total population	621		
Male	297	47.8	49.10%
Female	324	52.2	50.90%
Median age (years)	37.6	(X)	35.3
Under 5 years	27	4.3	6.80%
18 years and over	524	84.4	74.30%
65 years and over	44	7.1	12.40%
One race	597	96.1	97.60%
White	464	74.7	75.10%
Black or African American	109	17.6	12.30%
American Indian and Alaska Native	1	0.2	0.90%
Asian	0	0	3.60%
Native Hawaiian and Other Pacific Islander	1	0.2	0.10%
Some other race	22	3.5	5.50%
Two or more races	24	3.9	2.40%
Hispanic or Latino (of any race)	42	6.8	12.50%
Household population	621	100	97.20%
Group quarters population	0	0	2.80%
Average household size	1.93	(X)	2.59
Average family size	2.58	(X)	3.14
Total housing units	349		
Occupied housing units	321	92	91.00%
Owner-occupied housing units	210	65.4	66.20%
Renter-occupied housing units	111	34.6	33.80%
Vacant housing units	28	8	9.00%
Social Characteristics - show more >>	Number	Percent	U.S.
Population 25 years and over	429		
High school graduate or higher	377	87.9	80.40%
Bachelor's degree or higher	159	37.1	24.40%
Civilian veterans (civilian population 18 years and over)	51	11.1	12.70%
Disability status (population 5 years and over)	89	16.9	19.30%
Foreign born	58	10.3	11.10%
Male, Now married, except separated (population 15 years and over)	96	43.2	56.70%
Female, Now married, except separated (population 15 years and over)	93	36.8	52.10%

Speak a language other than English at home (population 5 years and over)	50	9.5	17.90%
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Economic Characteristics - show more >>

	Number	Percent	U.S.
In labor force (population 16 years and over)	355	75.1	63.90%
Mean travel time to work in minutes (workers 16 years and over)	28.4	(X)	25.5
Median household income in 1999 (dollars)	41,029	(X)	41,994
Median family income in 1999 (dollars)	35,313	(X)	50,046
Per capita income in 1999 (dollars)	21,529	(X)	21,587
Families below poverty level	14	11.4	9.20%
Individuals below poverty level	87	15.5	12.40%

Housing Characteristics - show more >>

	Number	Percent	U.S.
Single-family owner-occupied homes	157		
Median value (dollars)	102,000	(X)	119,600
Median of selected monthly owner costs	(X)	(X)	
With a mortgage (dollars)	764	(X)	1,088
Not mortgaged (dollars)	255	(X)	295

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Stone Mountain QuickFacts**General Characteristics - Stone Mountain**

	Number	Percent	U.S.
Total population	7,145		
Male	3,322	46.5	49.10%
Female	3,823	53.5	50.90%
Median age (years)	30	(X)	35.3
Under 5 years	600	8.4	6.80%
18 years and over	4,842	67.8	74.30%
65 years and over	398	5.6	12.40%
One race	6,963	97.5	97.60%
White	1,750	24.5	75.10%
Black or African American	4,945	69.2	12.30%
American Indian and Alaska Native	15	0.2	0.90%
Asian	140	2	3.60%
Native Hawaiian and Other Pacific Islander	3	0	0.10%
Some other race	110	1.5	5.50%
Two or more races	182	2.5	2.40%
Hispanic or Latino (of any race)	292	4.1	12.50%
Household population	7,103	99.4	97.20%
Group quarters population	42	0.6	2.80%
Average household size	2.84	(X)	2.59
Average family size	3.36	(X)	3.14
Total housing units	2,638		
Occupied housing units	2,499	94.7	91.00%
Owner-occupied housing units	1,397	55.9	66.20%
Renter-occupied housing units	1,102	44.1	33.80%
Vacant housing units	139	5.3	9.00%

Social Characteristics - show more >>

	Number	Percent	U.S.
Population 25 years and over	4,083		
High school graduate or higher	3,270	80.1	80.40%
Bachelor's degree or higher	871	21.3	24.40%
Civilian veterans (civilian population 18 years and over)	547	11.5	12.70%
Disability status (population 5 years and over)	1,276	20.5	19.30%
Foreign born	803	11.8	11.10%
Male, Now married, except separated (population 15 years and over)	1,100	47.2	56.70%
Female, Now married, except separated (population 15 years and over)	1,086	39.4	52.10%

Speak a language other than English at home (population 5 years and over)	716	11.5	17.90%
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Economic Characteristics - show more >>

	Number	Percent	U.S.
In labor force (population 16 years and over)	3,585	72.3	63.90%
Mean travel time to work in minutes (workers 16 years and over)	36.4	(X)	25.5
Median household income in 1999 (dollars)	38,603	(X)	41,994
Median family income in 1999 (dollars)	40,888	(X)	50,046
Per capita income in 1999 (dollars)	16,130	(X)	21,587
Families below poverty level	166	9.3	9.20%
Individuals below poverty level	783	11.5	12.40%

Housing Characteristics - show more >>

	Number	Percent	U.S.
Single-family owner-occupied homes	1,254		
Median value (dollars)	95,400	(X)	119,600
Median of selected monthly owner costs	(X)	(X)	
With a mortgage (dollars)	935	(X)	1,088
Not mortgaged (dollars)	247	(X)	295

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Appendix 2

The Mitigation Advisory Committee (MAC) met multiple times as a full group but most of their other communications were directly with individual jurisdictions as not all members could always attend the group meetings. In addition, DeKalb County provides overlapping services for some of the smaller jurisdictions so informal meetings were held to clarify previously discussed items (data received from jurisdictions, planning documents to be considered, etc). Meeting minutes from some of the local jurisdiction meetings are also included in this appendix. Where available, the attendees, and relevant comments made during the meetings are included.

**DeKalb HMP Update
DeKalb County, GA – March 10, 2010**

Meeting Start: 1pm EST

- 1) Craig Medlin, DEMA – Provided the group with an overview of objectives for the meeting and stated the purpose of the plan.
 - Overview of Process
 - Delivery Date
- 2) William Z. Miller, DeKalb County Government - Introductory remarks were stated.
 - Flooding Event of September 2009 caused no human loss of life
 - Minimized damage to buildings and infrastructure
 - Redirected focus toward future events
- 3) Introductions of meeting participants.
- 4) Kelly Keefe, GEMA – Opening statements.
 - Introduction to Hazard Mitigation Plan
 - Explained the update cycle
 - Posed the question – What do the cities want?
 - Explained that the Hazard Mitigation Plan is multi – jurisdictional.
 - Explained the documentation process
 - Stressed that the analysis is only as good as the input of information
 - Communicated the need to involve the public
 - Explained the implementation method for the plan
 - Explained the plan was used in the past
 - Briefed the group on some of the successes in the past
- 5) Chris Zambito, Dewberry – Addressed the group with remarks.
 - Stressed pro activeness is the key to a successful plan
 - Explained Dewberry’s responsibilities and goals
 - Explained the differences between Mitigation and other phases of emergency management
 - Explained how the Hazard Mitigation Plan can tie many other plans together
 - Explained the process by which projects are identified
 - Explained the basic components to a Hazard Mitigation Plan
 - Spoke about the data collection process
 - Explained the Hazard Identification and Risk Assessment schedule

- Posed the question – What are some strategies that we can implement?
- Spoke on who will need to review the plan before official adoption
- Identified issues from the previous crosswalk that need to be addressed
- Briefed the group about some weakness of the current plan
- Spoke about the planning process
- Explained Dewberry’s role in the planning process
- Stressed the goal is to mitigate from future losses
- Posed the question – Do we have all the right people to address potential impacts?

6) Scott Choquette, Dewberry – Addressed the group with remarks.

- Spoke about collecting thoughts and ideas together for discussion
- Explained the structure of the Hazard Mitigation Plan
- Stated a goal for the meeting – To determine who would sit on the Advisory Committee.
- Described the Work Plan Details and associated tasks
- Identified milestones and goals
- Identified examples of information needed
- Described the importance of the capabilities section
- Explained that local data is the best data
- Explained the purpose of a Sharepoint site and how it improves communication
- Stressed a balance of experienced experts within the group is ideal
- Identified stakeholders:
 - A. Center for disease control
 - B. Georgia Perimeter College
 - C. LEPC (Local Emergency Planning Committee)
 - D. SARP (Southeast Aquatic Resources Partnership)
 - E. EOC Staff
 - F. Nonprofits
 - G. Red Cross
 - H. Home Owners Association – A database of over 500 Civic Associations exists
 - I. Neighbor of Empowerment
 - J. Planning Department
 - K. Airports
 - L. Communication Stations
 - M. USGS
 - N. Federal Agencies
 - O. Army Corp of Engineers
 - P. DNR
- Stressed that any local GIS data would be necessary for an accurate analysis
- Posed the question – Is there a business continuity group?

- Group answered – The Chamber of Commerce, and the Atlanta Regional Commission
- 7) Chris Zambito, Dewberry – Continued with Remarks.
- Explained to the group the need to address future development
 - Explained that the capability section is important because it allows jurisdictions to identify what they want to do and analyze if they have the means to implement it.
 - Explained that it is required to review the state Hazard Mitigation Plan for comparison purposes
 - Explained the Benefit – Cost Analysis and how it affects proposed mitigation actions.
 - Discussed the previously identified hazards
- 8) Scott Choquette and Chris Zambito, Dewberry – Addressed the group requesting input on potential hazards to be profiled in the update of the Hazard Mitigation Plan. During this process all hazards were addressed and prioritized. The prioritized list of hazards was then compared to the list completed from the original hazard mitigation plan. All hazards stayed the same except for the potential hazard from a dam failure. The following reasons were stated by the group for increasing the severity of this hazard:
- Flood events of September stressed the current infrastructure
 - Lack of maintenance
 - The primary impact assessment was raised due to the assumption that many dams would cause loss of life
 - The secondary impact assessment was raised due to the fact that economic activity has significantly increased since the previous hazard mitigation plan
 - There has been a least one dam failure in the last year
- 9) Scott Choquette, Dewberry – Addressed other potential hazards including human caused hazards. An effort was made to focus the group on profiling hazards that would be eligible under mitigation grant funds. These specific hazards were discussed within the group:
- Urban building fires were discussed. It was addressed and decided that profiling this type of hazard in detail would be very difficult due to the variety of events that cause urban fires. It was proposed that stats and charts could be presented in the mitigation plan update which showcase empirical data pertain to urban fires, if this information was readily available. No one was able to provide the location of this data at this meeting.
 - Abandoned houses were briefly discussed. The rise in abandoned houses within the jurisdiction has become an increasing problem. This problem causes economic loss and blight to spread within the jurisdiction. The question was posed – Who owns the loss? No consensus was achieved that this type of hazard was appropriate to profile in the hazard mitigation plan update.

- Infectious disease outbreaks were proposed as a hazard. It was addressed that the outbreak of infectious disease was a Public Health issue. If the hazard mitigation plan was duplicating efforts currently undertaken by public health officials, profiling this hazard in detail would be an unwise and possibly conflicting use of resources. No one denied that the public health officials were focusing resources to protect and improve public health.
- Hazmat issues were proposed as a hazard. The justification was because of the CDC and the type of cargo transported by rail through the county a natural hazard could cause a secondary impact such as a railroad accident. It was decided that these secondary impacts could be acknowledged and agreed that the goals of the mitigation actions are to prevent these secondary impacts from occurring.

10) Scott Choquette, Dewberry - Continued the discussion and restated that an assessment of the state hazard mitigation plan would be needed. The discussion then proceeded to the GIS data needed. The following GIS layers were identified as being essential to a successful plan:

- Building Stock
- Parcels
- Tax Assessors information
- Infrastructure data
- Critical facility data
- Medical Facilities list

It was also stated that any missing information or incomplete information could be addressed in the plan update as a gap issue. GIS data could be distributed through many different means but that putting it on the Sharepoint site would be the best distribution method.

- 11) Scott Choquette, Dewberry - Briefed the group on the approach for the Hazard Identification and Risk Assessment update. The group discussed that the flood risk assessment should be profiled in detail again and that dam failures should also be profiled in detail. It was suggested that Lori Chase and Craig Medlin might have the GIS information pertaining to potentially hazardous dams.
- 12) Chris Zambito, Dewberry - Closed the meeting by stating the mission, goals, and how to prioritize mitigation actions and mitigation projects. A review of the existing mitigation goals from the original hazard mitigation plan was conducted. The process by which each goal was prioritized was displayed. No objections were made to the use of the STAPLE/E review and selection process for the hazard mitigation update. The project schedule and timeline were then displayed. The meeting was concluded by displaying contact information.

DeKalb HMP Update

Local Jurisdiction Meeting—City of Decatur

April 20, 2010

Meeting Attendees—

Name	Affiliation	Title	Phone	Email
John Madajewski	City of Decatur	Senior Engineer	648-553-6530	john.madajewski@decaturga.com
Julie Gyuricza	City of Decatur	Stormwater Management Engineer	678-553-6529	julie.gyuricza@decaturga.com
David Junger	City of Decatur	Assistant City Manager – Public Works	678-553-6522	david.junger@decaturga.com
Tony Parker	City of Decatur	Assistant City Manager – Emergency Services	678-553-6570 678-614-9267 cell	tony.parker@decaturga.com
Meredith Roark	City of Decatur	Assistant to the City Manager	678-553-6565	meredith.roark@decaturga.com
Amanda Thompson	City of Decatur	Planning Director	678-553-6513	amanda.thompson@decaturga.com
Jason Brown	Dewberry	Geographer	678-530-0022 x224	jfbrown@dewberry.com
Lauren Hand	Dewberry	Geographer	678-530-0022 x229	lhand@dewberry.com

Meeting Start: 1:30 pm EST

1. Welcome/Introductions
 - Julie Gyuricza participated in the meeting via conference call
2. Overview of Agenda and Meeting Objectives
3. Explanation of Hazard Mitigation Plan
 - Walked through current HMP and explained the structure of the document.
 - Discussed how the study would be updated and what the City's involvement would entail.
 - Study schedule was presented
4. Discussion of Jurisdictional Specific Hazards and Mitigation Actions

- Discussed several known hazards within the City of Decatur
 - Flooding
 - Wind
 - Wildfire
- Flooding Issues—
 - The City experiences the most flooding situations during short, intense rainfall events as opposed to multiple days of steady rain.
 - Most of the City is at significant elevation to avoid damage
 - The City has a Stormwater Management Plan that will be shared with Dewberry for the HMP update
 - An updated LOMAR was recently completed that was funded by the City
 - The Housing Authority performed the surveys
 - Can be viewed and downloaded from the City website
 - Less than \$1,000 in damage reported from September 2009 floods
 - Structures that are known to exist within the floodplain experience the most damage
 - Several areas within the City are within floodplain boundaries
 - 6-7 major culvert issues were identified along the Piedmont Creek and tributaries
 - Police and fire stations have been impacted in the past
 - The City has been successful in its Repetitive Loss claims
 - The properties that have been acquired thus far were demolished and converted to green space
 - Currently, there are 6 repetitive loss properties outstanding
 - 4 of 6 will be possible for acquisition
 - A major goal for the City is to improve its stormwater infrastructure
- Dam Failure—
 - One earth dam was identified in the City.
 - No dam failure issues were reported at this location
 - There is a low risk for damage in area surrounding dam (near cemetery)
- Wind Hazards—
 - The City has an extensive tree maintenance program to prevent downed tree limbs and power lines in strong wind events.
 - Have arborists on staff
 - Annual budget of \$55,000 to keep the program running
 - Would be interested in a benefit-cost analysis for this service
 - Recently, the City of Clarkston passed an ordinance for buried power lines for new development.
 - The City would be interested in knowing if the action (buried power lines) would be supported by FEMA as a mitigation action?

- After the Atlanta tornado, the City received HMGP funds to install a siren network
 - Final installation was just recently completed
 - Wildfire Hazards—
 - Wildfires were considered a minimal hazard by City officials
 - No record of wildfire occurrences in Decatur
 - 2-4 minute response time is typical for the Fire Department
 - The City has an interconnected roadway network and very few subdivisions and cul-de-sacs
5. Data Collection
- Decatur has a good GIS capability in house. Julie Gyuricza would be the best POC for obtaining any available data.
 - Additional staff members have some GIS training and could assist if necessary.
6. Survey Completion
- Walked through and completed online Mitigation Plan Survey
7. Next Steps
- Follow up with Julie to obtain a digital copy of the Stormwater Management Plan for the City of Decatur and a summary of recent stormwater mitigation activities.
 - Create an outline of data resources to assist the City in compiling GIS data. Provide this list to Julie.
 - Follow up with Tony for additional committee members recommendations.
 - Send current HMP plan in Word format to Tony for updates.
 - Follow up with Meredith for updates to community profile.

Meeting Completion: 3:00 pm EST

DeKalb HMP Update

Local Jurisdiction Meeting—City of Clarkston

April, 21, 2010

Meeting Attendees—

Name	Affiliation	Title	Phone	Email
Mike Shipman	City of Clarkston	Director of Public Works	404-296-6489	ckpublicworks@gmail.com
Emanuel Ransom	City of Clarkston	Vice-Mayor	404-296-6489	ERansom@cityofclarkston.com
Jason Brown	Dewberry	Geographer	678-530-0022 x224	jfbrown@dewberry.com
Lauren Hand	Dewberry	Geographer	678-530-0022 x229	lhand@dewberry.com

Meeting Start: 3:15 pm EST

1. Welcome/Introductions

- Mike Shipman will serve as main POC.
- A recommendation was made to involve the Vice-Mayor and Chief of Police in future correspondence.
- Dewberry was provided with the names of several other individuals who could offer support to the HMP update process. Their specific contact information can be obtained on the City of Clarkston's website.
- City of Clarkston is a very culturally diverse community with a population of approximately 8,000.

2. Overview of Agenda and Meeting Objectives

3. Explanation of Hazard Mitigation Plan

- Walked through current HMP and explained the structure of the document
- Discussed how the study would be updated and what the City's involvement would entail

4. Discussion of Jurisdictional Specific Hazards and Mitigation Actions

- Discussed several known hazards within the City of Clarkston
 - Flooding
 - Wind
 - Wildfire
 - Train
- There are several areas of the county that were identified as flood hazard areas.
 - Lake
 - Repetitive floods occur at the lake
 - There is a very small spillway at the dam that often cannot handle the flows during heavy rains
 - The dam at the South end of the lake often overtops and enters the surrounding park area
 - Repetitive floods have weakened the infrastructure of the surrounding road network
 - The County is scheduled to initiate lake improvement project. The lake will be dredged to support larger capacity loads
 - Reports of past flooding events in this location are available from the County
 - College Avenue at Forty Oaks
 - Areas along College Ave. heading towards Forty Oaks often experiences flooding
 - Structures within existing floodplain
 - One residential structure (single-family home) was identified as a severe repetitive loss structure. The home has been damaged by floods 6-7 times in the past 10 years. Would like to consider for acquisition.
 - City Buildings (Critical Facility)
 - Major drainage issues are experienced outside of City building during heavy rains
 - Flooded areas occur in front and rear access areas and impede parking and police access
 - First responders vehicles may be compromised
- Relatively minimal impacts from the September 2009 Floods were reported
 - Few homeowners experienced flood damage
 - No damage to City buildings
 - Experienced overflow on surface streets as drainage system was severely strained
 - Lake and park area flooding created large amounts of debris
 - City estimates that debris removal costs were approximately \$6,000.
- Vulnerability to high winds was identified

- Local tree trimming efforts are arranged and enacted by Georgia Power and local subcontractors.
- Trimming procedures generally occur in late winter/early spring throughout the City.
- Wildfires were considered a minimal hazard by City officials
 - Fire Station #23 operates for City of Clarkston and response times are quick
 - Year-round outdoor burn ban is in place
 - The fire department has easy access to City through multiple routes although it is officially located in DeKalb unincorporated
- Ground settling caused train derailment approximately 7 years ago. No major impacts other than rail car damage were reported as a result.
 - All City vehicles contain State Hazmat guidebooks to identify materials on rail cars

5. Data Collection

- GIS capability at the City level is minimal. The City does not have a specific GIS position on staff or the necessary GIS software/applications.
- GIS data for the City of Clarkston is primarily housed at the County level.
- Any necessary spatial data on critical facilities and infrastructure should be obtained from the County. The City's geospatial needs are fulfilled by DeKalb County.

6. Survey Completion

- Walked through and completed online Mitigation Plan Survey

7. Next Steps

- Follow up with Public Works Director, Mike Shipman, on hours and cost of debris removal projects
- Make sure the following items are available:
 - Train ordinances
 - Digital copy of the kickoff meeting presentation
 - Sharepoint site access information
 - Send sample resolution
 - Link to GeoPDF tutorial videos

Meeting Completion: 5:00 pm EST

DeKalb HMP Update

Local Jurisdiction Meeting—Avondale Estates

April 29, 2010

Meeting Attendees—

Name	Affiliation	Title	Phone	Email
R. Clai Brown	City of Avondale Estates	City Manager	404-294-5400	rcbrown@avondaleestates.org
Bryan Armstead	City of Avondale Estates	Director of Public Works	404-391-7331	barmstead@avondaleestates.org
Oscar Griffin	City of Avondale Estates	Geographer	(404) 508-4531	ogriffin@avondaleestates.org
Sam Fleming	Dewberry	Geographer	678-530-0022 x210	sfleming@Dewberry.com
Jason Brown	Dewberry	Geographer	678-530-0022 x224	jfbrown@dewberry.com
Lauren Hand	Dewberry	Geographer	678-530-0022 x229	lhand@dewberry.com

Meeting Start: 11:00 am EST

1. Welcome/Introductions
2. Overview of Agenda and Meeting Objectives
 - Welcome/ List the Name of Attendees
 - Overview of Agenda/ Meeting Objectives
 - Explanation of HMP
 - Discussion of JSH
 - Mitigation Actions Past, Current, Future
 - Data Collection
 - Survey
3. Explanation of Updates and Last Version
 - Discussed Population Update and new information presented on City Website
 - Discussed how the study would be updated and past actions recommend by last version

- This included storm water infrastructure updates and also a HIRA update.
4. Discussion of Post-flood Studies and Affected Areas
- Discussed what Hydrology studies were completed including Storm Water Conveyances
 - EPD review of storm water man. plan
 - Acknowledged 6.01.2010 Revised Plan and distribution of copies after its acceptance.
 - Brief Discussion of Affected Areas
 - Included Kensington Road
 - Affected structures were mainly private residences
5. Hazard Discussion- Avondale Lake Dam
- Road Dam in existence for 80 years
 - Dam failure would ultimately lead to destruction of roadway
 - Heavy residential damage on Berkley Road would be expected
 - Discussion of visible erosion in close relation to Dam
 - In recent years the creation of an exposed hole has been seen
 - Recommendation for Mitigation Action was discussed
 - Cobbs Creek feeds water to the lake/dam
 - Along with several direct conveyances
 - Dam has four catch basins and an overflow pipe on both sides
6. Discussion of recent Assessments, Improvements, and Documents
- Mentioned Capabilities Assessment within the City
 - CERM- Storm Water Improvement conducted between November/October of 2009
 - All inventory
 - Catch Basin was added and a map/inventory stored on CD was provided
 - Discussion of ongoing study in the Kensington Area
 - Purpose was to investigate the excess flooding experienced in the area
 - Report on the resulting information is expected to be completed shortly
 - Current Road Widening being conducted by the State
 - Discussed possible increased runoff do to greater impervious surfaces
 - Addressing this concern will be included to the ongoing study
 - Documentation Costs of Flooding
 - County is responsible for the maintenance and upkeep of roads
 - No major Winter Hazards are present

- Wind/ Downburst
- Discussion involving the lack of Shelter Advertisements along with a Generator for City Hall
- Jurisdiction has had several minor Ice Events
 - Leading to mainly power outages lasting upwards of a week
 - Discussion of mitigation actions that are available
 - Incurred costs from Buried Power lines were high
 - City had previously investigated alternatives to correct the problem but monetary issues created setbacks

7. Conclusion and Special Considerations

- Dam is located on Private Property
 - Discussion regarding how this will affect future mitigation projects
- Discussion on the possibility of dredging the Five Acre Lake
- Checklist to be reviewed and submitted within the following week

** Oscar Griffin- Parks and Recreation Supervisor

DeKalb HMP Update

Local Jurisdiction Meeting—City of Lithonia

May 20, 2010

Meeting Attendees—

Name	Affiliation	Title	Phone	Email
Tonya Peterson	City of Lithonia	Mayor	770-482-8136	tonya.peterson@lithoniacity.org
Al Crace	Al Crace and Associates, Inc.	President	678-795-9323	Al.Crace04@gmail.com
Larry Williams	City of Lithonia			
Sam Fleming	Dewberry	Geographer	678-530-0022 x210	sfleming@Dewberry.com
Jason Brown	Dewberry	Geographer	678-530-0022 x224	jfbrown@dewberry.com
Lauren Hand	Dewberry	Geographer	678-530-0022 x229	lhand@dewberry.com

Meeting Start: 10:00 am EST

1. Welcome/Introductions
2. Overview of Agenda and Meeting Objectives
 - Welcome/ List the Name of Attendees
 - Overview of Agenda/ Meeting Objectives
 - Explanation of HMP
 - Discussion of JSH
 - Mitigation Actions Past, Current, Future
 - Data Collection
 - Survey
3. Explanation of Basic Information and Current City Standing
 - Discussed Population of City and the lack of city GIS available
 - Data is available however through DeKalb County

- Discussed current Storm Water maintenance being conducted by the County and their responsible for the day to day upkeep of the system
- Noted the Mayor position is of Part-Time status
- Superintendent of Maintenance does hold responsibility for the upkeep of grounds, parks and streets
- Discussed map production and annexes conducted with the help of Denise Finley(GIS Director DeKalb County)
- Noted that a 24.3 acre plot of land had been purchased and is requesting annexation into the city
 - Property is located on Hwy 124
- Noted that Pine Mountain Creek is the closest flood hazard source to the City of Lithonia
- Informed Attendees of online Questionnaire to be sent Post-meeting

4. Discussion of Community Hazard Profile

- Discussed New City Boundary that is available through DeKalb County resources
- Brief Discussion of Affected Roads during Flooding
 - Swift, Council, Main, and Borne Street
 - Mechanic and Furniture store received damage
- Active lawsuit claiming that repetitive flooding of Main Street has deteriorated floors of local businesses
- Streetscape project is cited as being a main contributor to the flooding
 - New street paving, sidewalks and landscaping
 - Have not seen major flooding since Streetscaping
 - Seems like a major mitigation stand point care to elaborate?
- Reoccurring risk on Swift Street- 100% Impervious
- City sits on a rock base with shallow soil levels
- Also a shallow drainage system appears to be functioning less efficiently
 - A proposed increase in the depth of the drainage system is a costly project
- Johnson and Main Street saw localized flooding
- Cleveland and Swift Street is the drainage location
 - Experienced frozen roadways here during the Winter Season
- City of Lithonia has a total of Four Rail Road Crossings
 - Only one is an overpass at Cleveland and Swift
 - Fatalities on record within City Limits on Main Street
 - CSX was petitioned for crossing arms more than once but no action was taken

- Discussion on requests for any flood damage estimates to properties
- City of Lithonia has no Dam, Lake, or Pond hazards
- It is located towards the top of water shed and has a high elevation
- Winter Storm Events produced downed trees and obstructed roadways

5. Hazard Discussion- Shelter Facilities and Fire/Wind Hazards

- Bruce and Walker Street houses the DeKalb Police Precinct, Parks and Recreation Services, and the Senior Center
- Discussion of Additional Shelter Areas
 - Lithonia Methodist Church
 - County Middle School
- No current City Facilities are available as Shelters
- No current Siren/Warning system in the City
- Discussed reverse 911 Capabilities
 - Current system routed through DeKalb EMS Dispatch
- Wildfire Risk lies between Bruce Street Park and McDaniels Street
 - Area is in close proximity to Public Housing
 - Covington Highway also a concern
 - New Annexes are heavily wooded
- Fire Station Located outside of City
- Wind Hazard is a concern for the majority of structures are of wood construction
- City adopted Georgia State Building codes in 2008
- Discussed Enforcement of Building codes and lack of automated adoption for revisions

6. Discussion of Future Steps and Help Requested by City

- City requires assistance in the entire process for obtaining HMGP funding and grants
- Problems include limited staff knowledge and size
 - Staff consist only of Sergeant and Mayor
- City requested help with the Planning and Engineering side
 - Also with proper Construction implementation
- No Utility Facilities are owned by the City
- Discussed funding sources to cost share the Storm Water Utility fees
- Encouraged the completion of Questionnaire and sharing of Emergency Plans
- Requested the resending of the Share Point Access Site

** Lithonia Police Department Emergency Operation Plan and Disaster Management was received and is with hand written notes.

Meeting Completion: 11:00 am EST

**DeKalb HMP Update
DeKalb County, GA – July 22, 2010**

Meeting Start: 1pm EST

- 1) Chris Zambito, Dewberry – Introduced the group and stated the agenda and objectives of the meeting.
- 2) Terrence Simpkins, DeKalb County – Made remarks about the effort to involve the public.
 - Announced that there will be an August 5th public meeting
 - A public survey will be placed on the DeKalb County website
- 3) Chris Zambito, Dewberry – Made remarks about the public outreach and presented the HIRA draft.
 - Explained the purpose of the online survey and sharepoint site
 - Asked the group to think not only about what type of hazards occur but when they occur and how the population could be affected.
 - Restated from the first meeting that the Dam Failure hazard has been elevated. Reasons include:
 - Damage from September flooding
 - Lack of maintenance
 - Proceeded to present the updates to the Hazard Identification portion of the HIRA.
 - Discussed the hazard events affecting each community in the past 5 years.
 - Discussed the FEMA defined natural hazards and how they applied to this update
 - Stated that this is an update from the 2005 plan for all jurisdictions except for Dunwoody.
 - Dunwoody was identified as an incorporated town in 2009 and will be participating in the planning process so as to adopt the plan.
 - Continued to present the HIRA and the recent flooding events.
 - Showed that there were 3 disaster declarations related to flooding since 2005.
 - Explained most data has been extracted from FEMA's HAZUS software.
 - Asked for questions about HAZUS.
- 4) Scott Choquette, Dewberry – Addressed the group about HAZUS
 - Mentioned that HAZUS displays relative risk
 - Actual numbers can vary in accuracy depending on the level of analysis.
 - Explained the approach for conducting the risk assessments was similar to a level one analysis.

- 5) Kelly Keefe, GEMA – Addressed group about HMA programs
 - Mentioned Acquisition is the best practice compared to relocation of structures.
 - Complimented DeKalb County on being proactive with acquisition.
 - Stated that the application process goes through the State to FEMA Region 4.

- 6) Chris Zambito, Dewberry – Continued presenting the results of the HIRA
 - Asked the group if there was any issues with combining hurricane, tornado and other high winds hazards into one section call wind hazard
 - Presented the updated hazard identification section including new maps and graphics to be incorporated into the updated plan.
 - Discussed the winter storm hazard and the events that have happened in the past 5 years.
 - Displayed the updated vulnerability graphics and opened the tables and graphics up to questions or comments.
 - Stated the data is taken from different national datasets and not every event is represented in each database which is why multiple sources need to be addressed.
 - Discussed that the threshold for certain hazards to appear in the datasets varies depending on the effects.
 - Stated that social vulnerability is dependent upon many factors including income, age, education and more.
 - In order to get the most accurate social vulnerability need to capture data at a refined level such as block group.
 - Stated that the data is from the 2000 census and does represent the 2010 census information which will not be available by the time the study is done.

- 7) Kelly Keefe, GEMA – Added to the HIRA update discussion.
 - Stated that wildfire risk is present.
 - No wildfire risk assessment information is readily available in DeKalb
 - There is work in progress to develop wildfire protection plans for all of Georgia.

- 8) Chris Zambito, Dewberry – Final remarks about HIRA and discussion of Plan Maintenance section.
 - Asked the group to discuss what has happened during the last 5 years in terms of maintaining the plan.
 - Asked the group if any changes needed to be made which can make the maintenance of the plan more effective, no comments were made.
 - Suggested that it should be looked on at least a yearly basis.
 - Suggested that the group should meet twice a year.
 - Stated the plan is most effective when the group monitors, evaluates and updates it regularly.

- 9) Scott Choquette, Dewberry – Presented the Goals and Objectives section of the plan
- Stated that if you have identified a hazard you need to have a goal or goals in place to address the hazard.
 - Suggested that the goals be as specific as necessary.
 - Explained that goals and objectives are different than CIPs.
 - Stated that the goals and objectives can be tweaked to better address the hazards at hand.
 - FEMA does not have anything currently in place to see how the goals and objectives are being addressed.
 - Each goal and objective was then discussed with the group. It was decided that all of the goals were acceptable as previously written. The stated goals allowed the community to apply for many different types of mitigation measures. It was identified that there were existing intergovernmental partnerships between the local governments and the county.
 - If an application is submitted that solves a problem not identified in the HMP then either the plan needs to be amended or the application is not eligible.
 - Projects can be prioritized using the STAPLE/E criteria
 - The projects are also known as actions.
 - Each action was discussed and evaluated
 - Specific actions such as the Drew Valley Subdivision were implemented projects that saved several homes from being flooded during the 2009 flood event.
 - RiskMAP was explained as the next phase for FEMA from Map Modernization. It goes beyond identifying the hazards and comes with a suite of products that can help a community identify their risk.
- 10) Chris Zambito, Dewberry – Organized the group into several smaller sub groups which discussed the mitigation strategy as it applied to them. Each group made edits and changes to the mitigation strategy as well as identified what which projects were successful. After the each community addressed their mitigation strategy the meeting concluded.

Meeting completion: 4pm EST

DeKalb County Public Participation

This appendix presents the opportunities the public was given to participate in the hazard mitigation planning process. Since no members of the public attended the formal night meeting scheduled by the Mitigation Advisory Committee (MAC) for August 5th, 2010, DeKalb County decided to use their website to further advertise the mitigation planning that was occurring. The website advertises an online survey (survey and results included within this appendix) as well as fact sheets and drafts of the mitigation plan for comment. Documentation of those activities is shown through various screen captures and graphics within this appendix.



Below is the survey that was available online for the residents to complete. Following the survey are the results of those that participated with the online survey.



[Exit this survey](#)

2010 DeKalb County Hazard Mitigation Plan Survey

DeKalb County and its municipalities are currently updating the 2010 DeKalb County Multi-Hazard Mitigation Plan and welcome your input. Your thoughts on natural hazard risk and mitigation are a critical component in developing an effective countywide mitigation strategy. With your input, DeKalb County and its municipalities will continue to build upon and improve the hazard mitigation strategy and keep the municipalities qualified for FEMA Hazard Mitigation Assistance funding. We know you are busy and respectfully request a few moments of your time to respond to the brief survey below.

*** 1. Please provide the ZIP code of your home.**

2. Please rate each of the following hazards on a scale of 1 (no concern) to 3 (high concern) indicating the level of threat each presents to your neighborhood or home. (leave rating blank for hazards that are not applicable)

	1. Low Threat	2. Moderate Threat	3. High Threat
Floods	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wind Storms	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Epidemic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Winter Storms	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Drought	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hazardous Materials	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tornadoes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Extreme Heat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nuclear Event	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wildfires	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Expansive Soils	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ground Transportation Incident	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Landslide and Mudflow	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Summer Storms	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	1. Low Threat	2. Moderate Threat	3. High Threat
Aviation Incident	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Earthquake	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wildland Interface Fire	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Railway Incident	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hail	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Urban Fire	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Motor Vehicle Incident	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Thunder Storms	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Utility Mishap	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mass Casualty Incident	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please list any additional hazards that present a threat to your neighborhood or home.

3. If you are a homeowner, do you have adequate basic homeowners insurance to cover the hazards that could impact your home?

- Yes, my insurance coverage should be adequate
- No, I don't believe my insurance coverage would be adequate for a major disaster
- Unsure
- I do not have an insurance policy
- Not applicable, I rent my current residence

4. Do you have any other insurance? (flood, sinkhole, etc.)

5. Did you know that most standard homeowner's insurance policies do not cover rising water (flooding) or minor subsidence (sinkhole)?

- Yes
- No

6. If you are a homeowner and a disaster substantially damaged your home, which of the following would be the most likely option you would pursue?

- Repair/rebuild in the same location to current building code standards

- Sell my home/property and relocate
- Not sure
- Not applicable, I rent my current residence

7. Are you aware that you would have to comply with current local/state codes, ordinances, and laws that would affect rebuilding and recovery in the wake of a disaster?

- Yes
- No

8. What are you doing to reduce risk of damage from natural and human-caused hazards? (choose all that apply)

- Defensible space landscaping (clear vegetation around house to reduce wildfire risk)
- Enhanced homeowner insurance coverage (sinkhole, additional wind coverage)
- Optional flood insurance
- Installed backflow prevention device(s)
- Roof retrofit (fire resistant shingles, hurricane brackets, etc)
- Strengthened openings (Doors, windows, and/or garage door to reduce high-hazard wind risk)

Other (please specify)

9. Do you work in DeKalb County?

- Yes
- No

If yes, please provide your workplace zip code. If no, please skip to #13.

10. Is your place of work in a hazardous location? (select all that apply)

- High-risk flood zone
- Wind-borne debris zone
- Evacuation zone
- I don't know

Other (please specify)

11. Does your employer have a plan for disaster recovery in place?

- Yes
- No

12. Does your employer have a means of getting in touch with you following a disaster?

- Yes
- No

13. Please list any studies you are aware of conducted within your community or the county regarding natural or manmade hazards.

14. What recommendations do you have for DeKalb County to improve identification, prioritization, and implementation of hazard mitigation actions (i.e., retrofit infrastructure, upgrade building codes)?

15. Please recommend any companies or local associations that should be involved in the DeKalb County hazard mitigation planning process.

#1 Company/Association Name:	<input type="text"/>
Contact Name:	<input type="text"/>
Contact Email:	<input type="text"/>
Contact Phone Number:	<input type="text"/>
#2 Company/Association Name:	<input type="text"/>
Contact Name:	<input type="text"/>
Contact Email:	<input type="text"/>
Contact Phone Number:	<input type="text"/>

16. Would you like to attend a DeKalb County Mitigation Strategy Meeting?

- Yes
- No

If yes, please provide your name, email address, and phone number.

17. Please provide us with any additional comments/suggestions that you have regarding hazard risk and the DeKalb County Hazard Mitigation Plan.

Thank you for taking the time to complete this survey. If you have any questions regarding this survey you may contact Chris Zambito at czambito@dewberry.com

Done

2. Please rate each of the following hazards on a scale of 1 (no concern) to 3 (high concern) indicating the level of threat each presents to your neighborhood or home. (leave rating blank for hazards that are not applicable) [Create Chart](#) [Download](#)

Tornadoes	6.5% (2)	61.3% (19)	32.3% (10)	2.26	31
Extreme Heat	10.0% (3)	40.0% (12)	50.0% (15)	2.40	30
Nuclear Event	65.4% (17)	23.1% (6)	11.5% (3)	1.46	26
Wildfires	77.8% (21)	11.1% (3)	11.1% (3)	1.33	27
Expansive Soils	68.2% (15)	22.7% (5)	9.1% (2)	1.41	22
Ground Transportation Incident	29.6% (8)	29.6% (8)	40.7% (11)	2.11	27
Landslide and Mudflow	85.2% (23)	7.4% (2)	7.4% (2)	1.22	27
Summer Storms	3.2% (1)	45.2% (14)	51.6% (16)	2.48	31
Aviation Incident	34.5% (10)	48.3% (14)	17.2% (5)	1.83	29
Earthquake	80.8% (21)	15.4% (4)	3.8% (1)	1.23	26
Wildland Interface Fire	88.0% (22)	8.0% (2)	4.0% (1)	1.16	25
Railway Incident	42.3% (11)	19.2% (5)	38.5% (10)	1.96	26
Hail	10.0% (3)	63.3% (19)	26.7% (8)	2.17	30
Urban Fire	30.8% (8)	46.2% (12)	23.1% (6)	1.92	26
Motor Vehicle Incident	26.7% (8)	23.3% (7)	50.0% (15)	2.23	30
Thunder Storms	3.2% (1)	32.3% (10)	64.5% (20)	2.61	31
Utility Mishap	20.7% (6)	44.8% (13)	34.5% (10)	2.14	29
Mass Casualty Incident	44.4% (12)	29.6% (8)	25.9% (7)	1.81	27

[Show replies](#) Please list any additional hazards that present a threat to your neighborhood or home. 12

answered question 33
skipped question 0

3. If you are a homeowner, do you have adequate basic homeowners insurance to cover the hazards that could impact your home?

[Create Chart](#) [Download](#)

		Response Percent	Response Count
Yes, my insurance coverage should be adequate		63.6%	21
No, I don't believe my insurance coverage would be adequate for a major disaster		18.2%	6
Unsure		9.1%	3
I do not have an insurance policy		0.0%	0
Not applicable, I rent my current residence		9.1%	3
		answered question	33
		skipped question	0

4. Do you have any other insurance? (flood, sinkhole, etc.)

[Download](#)

	Response Count
	24
	24
	9
Show replies	
answered question	
skipped question	



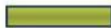

5. Did you know that most standard homeowner's insurance policies do not cover rising water (flooding) or minor subsidence (sinkhole)?

[Create Chart](#) [Download](#)

		Response Percent	Response Count
Yes		90.9%	30
No		9.1%	3
		answered question	33
		skipped question	0


6. If you are a homeowner and a disaster substantially damaged your home, which of the following would be the most likely option you would pursue?

[Create Chart](#) [Download](#)

		Response Percent	Response Count
Repair/rebuild in the same location to current building code standards		54.5%	18
Sell my home/property and relocate		18.2%	6
Not sure		21.2%	7
Not applicable, I rent my current residence		6.1%	2
		answered question	33
		skipped question	0


7. Are you aware that you would have to comply with current local/state codes, ordinances, and laws that would affect rebuilding and recovery in the wake of a disaster?

[Create Chart](#) [Download](#)

		Response Percent	Response Count
Yes		87.9%	29
No		12.1%	4
		answered question	33
		skipped question	0






8. What are you doing to reduce risk of damage from natural and human-caused hazards? (choose all that apply)

[Create Chart](#) [Download](#)

		Response Percent	Response Count
Defensible space landscaping (clear vegetation around house to reduce wildfire risk)		50.0%	12
		answered question	24
		skipped question	9

8. What are you doing to reduce risk of damage from natural and human-caused hazards? (choose all that apply)

[Create Chart](#) [Download](#)



		Response Percent	Response Count
Enhanced homeowner insurance coverage (sinkhole, additional wind coverage)		20.8%	5
Optional flood insurance		33.3%	8
Installed backflow prevention device(s)		29.2%	7
Roof retrofit (fire resistant shingles, hurricane brackets, etc)		25.0%	6
Strengthened openings (Doors, windows, and/or garage door to reduce high-hazard wind risk)		41.7%	10

[Show replies](#) Other (please specify) 10

answered question 24
skipped question 9

9. Do you work in DeKalb County?

[Create Chart](#) [Download](#)


		Response Percent	Response Count
Yes		58.1%	18
No		41.9%	13

[Show replies](#) If yes, please provide your workplace zip code. If no, please skip to #13. 16

answered question 31
skipped question 2

10. Is your place of work in a hazardous location? (select all that apply)




[Create Chart](#) [Download](#)

		Response Percent	Response Count
High-risk flood zone		11.1%	2

answered question 18
skipped question 15



10. Is your place of work in a hazardous location? (select all that apply)

[Create Chart](#) [Download](#)

Evacuation zone		11.1%	2
Wind-borne debris zone		22.2%	4
I don't know		77.8%	14
			Show replies Other (please specify) 4
			answered question 18
			skipped question 15


11. Does your employer have a plan for disaster recovery in place?

[Create Chart](#) [Download](#)

		Response Percent	Response Count
Yes		83.3%	15
No		16.7%	3
			answered question 18
			skipped question 15

12. Does your employer have a means of getting in touch with you following a disaster?

[Create Chart](#) [Download](#)

		Response Percent	Response Count
Yes		100.0%	20
No		0.0%	0
			answered question 20
			skipped question 13

13. Please list any studies you are aware of conducted within your community or the county regarding natural or manmade hazards. [Download](#)

	Response Count
Show replies	10
answered question	10
skipped question	23

14. What recommendations do you have for DeKalb County to improve identification, prioritization, and implementation of hazard mitigation actions (i.e., retrofit infrastructure, upgrade building codes)? [Download](#)

	Response Count
Show replies	15
answered question	15
skipped question	18

15. Please recommend any companies or local associations that should be involved in the DeKalb County hazard mitigation planning process. [Download](#)

		Response Percent	Response Count
Show replies	#1		
	Company/Association Name:	100.0%	8
Show replies	Contact Name:	62.5%	5
Show replies	Contact Email:	62.5%	5
Show replies	Contact Phone Number:	50.0%	4
Show replies	#2		
	Company/Association Name:	37.5%	3
Show replies	Contact Name:	37.5%	3
	answered question		8
	skipped question		25

15. Please recommend any companies or local associations that should be involved in the DeKalb County hazard mitigation planning process. [Download](#)

Show replies	Contact Email:		37.5%	3
Show replies	Contact Phone Number:		37.5%	3
			answered question	8
			skipped question	25

16. Would you like to attend a DeKalb County Mitigation Strategy Meeting? [Create Chart](#) [Download](#)

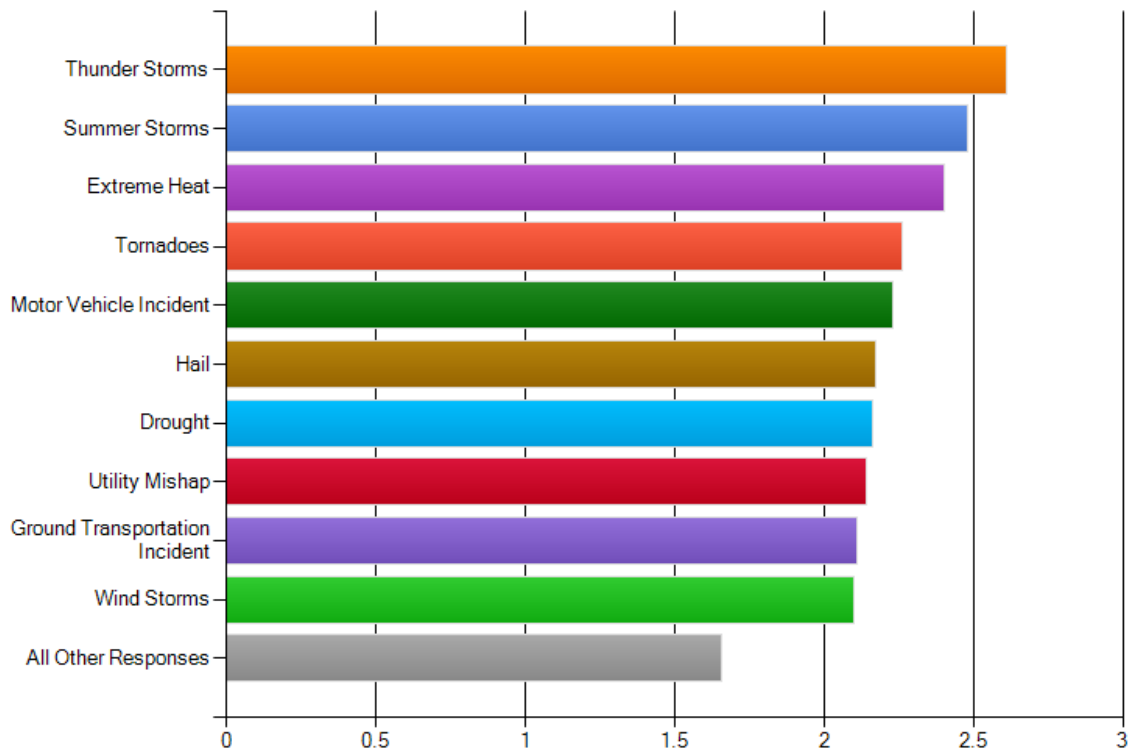
		Response Percent	Response Count	
Yes		59.3%	16	
No		40.7%	11	
Show replies	If yes, please provide your name, email address, and phone number.		15	
			answered question	27
			skipped question	6

17. Please provide us with any additional comments/suggestions that you have regarding hazard risk and the DeKalb County Hazard Mitigation Plan. [Download](#)

	Response Count	
Show replies	12	
answered question		12
skipped question		21

To further illustrate the concerns of the citizens, the first question was also chartered (shown below) to help officials better understand what hazards future outreach and education should focus on.

Please rate each of the following hazards on a scale of 1 (no concern) to 3 (high concern) indicating the level of threat each presents to your neighborhood or home. (leave rating blank for hazards that are not applicable)



The respondents provided other helpful information such as what types of insurance they carry and insights into how emergency information is communicated by their employers. The MAC is considering the use of other online surveys for future mitigation planning efforts they engage in.

As mentioned in the beginning of this appendix, the County advertised for a night meeting that would better accommodate residents' schedules. Unfortunately, there were no attendees at the meeting beyond members of the MAC. The County has since looked into other DeKalb program efforts that have more visibility (such as capital improvement planning workshops) to piggy-back onto for the mitigation message. Below is the presentation that was to be presented to residents in hopes of beginning further mitigation planning dialogue with the public.

Hazard Identification, Risk Assessment, and Mitigation Strategies

Public Outreach

Meeting 1

August 5, 2010



DeKalb County, GA

Tonight's Mission

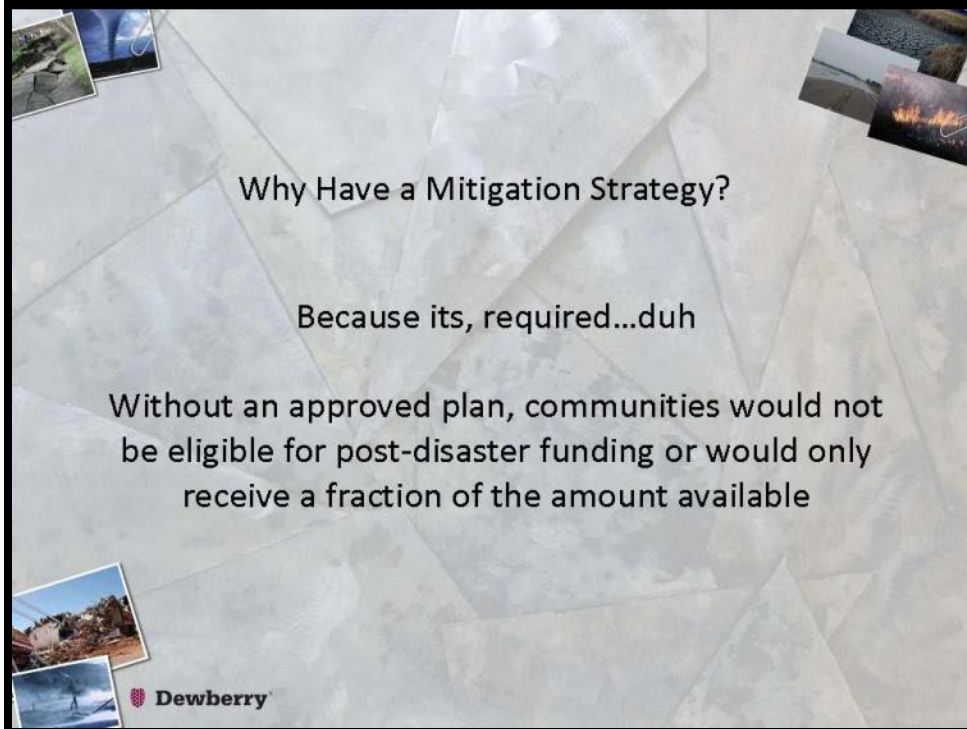
- 1) Introductions
- 2) What is a Mitigation Plan and Why Have It?
- 3) Overview of Risks and Vulnerabilities
- 4) Public Survey
- 5) Goals
- 6) Next Steps



What is a Natural Hazards Mitigation Plan?

- A look at natural hazards impacting the County and its' cities
- An assessment of risks and exposures to those hazards
- A presentation of the consequences of the exposure to the hazards
- A collaborative strategy to reduce the impacts of those hazards

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Why Have a Mitigation Strategy?

Because its, required...duh

Without an approved plan, communities would not be eligible for post-disaster funding or would only receive a fraction of the amount available

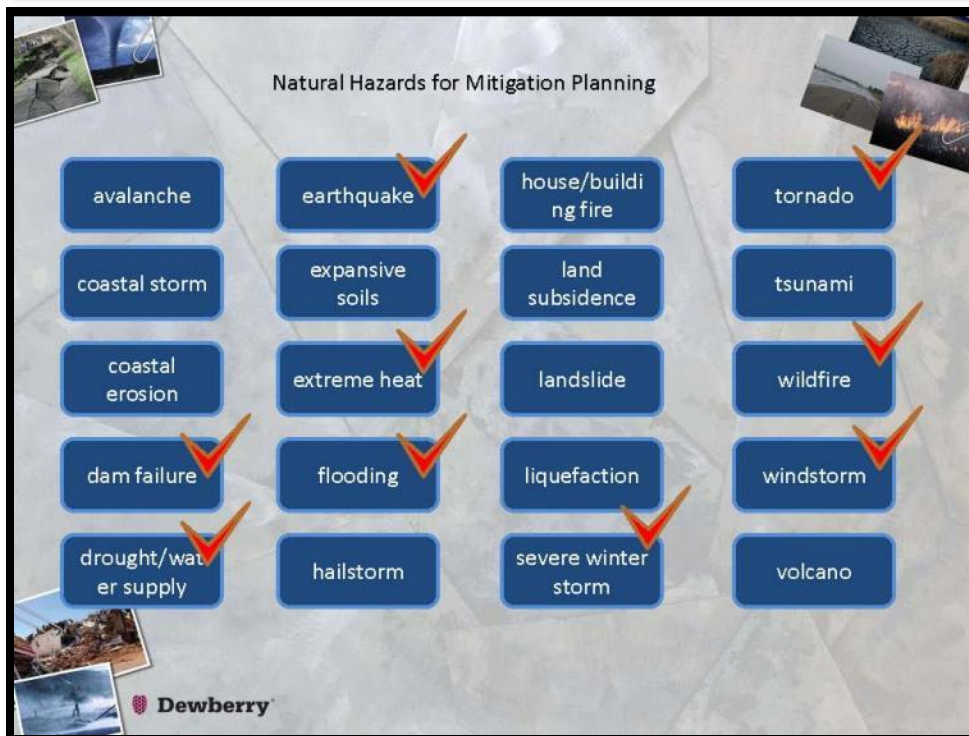
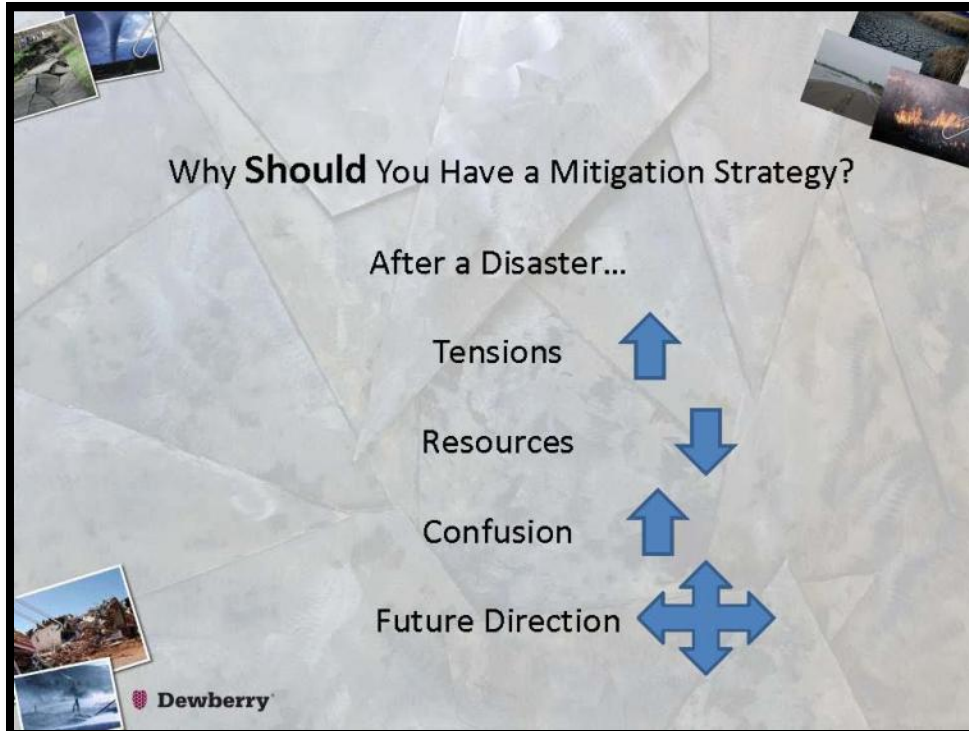


Why **Should** You Have a Mitigation Strategy?

Because...Disasters are not fun

Pre-Disaster Planning allows for “Blue-Sky” Planning





Ranking by Mitigation Advisory Committee

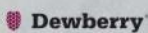
Hazard Type	Ranking		Planning Consideration Based on Hazard Level	
	2005 Plan	2010 Plan	2005 Plan	2010 Plan
Flooding (52) (52)	1	1	Significant	Significant
Wind (49) (49)	2	2	Significant	Significant
Hurricane (39) (39)	3	3	Moderate	Moderate
Tornado (35) (35)	4	4	Moderate	Moderate
Winter Storm (32) (32)	5	5	Moderate	Moderate
Drought (29) (29)	6	6	Limited	Limited
Wildfire (26) (26)	7	7	Limited	Limited
Extreme Heat (25) (25)	8	8	Limited	Limited
Thunderstorm/Lightning (22) (22)	9	9	Limited (Include w/ Wind and Wildfire)	Limited (Include w/ Wind and Wildfire)
Earthquake (7) (7)	10	11	None	None
Dam Failure (6) (16)	11	10	None (Include with Flood)	Limited (Include with Flood)



Ranking by Mitigation Advisory Committee


Summary of Hazard Ranking by MAC at March 2010 Meeting

- MAC reviewed each hazard individually and decided to **keep all rankings the same** with the exception of **Dam Failure** which increased in importance to the community
- Dam Failure concerns centered mainly on who is responsible for maintaining dams and property protection measures around private lakes. Specifically, **those areas where property has been abandoned or foreclosed.**
- MAC sited that they would like to include manmade hazards in future mitigation strategies, particularly for the following:
 - **Rail Incidents**
 - **Hazardous Material Incidents**
 - **CDC and Public Health Concerns**
- The **Buffer Zone Protection Plan** was also noted as an area to better integrate into future planning efforts



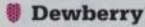
Hazard ID Sources

- United States Geological Survey (USGS)
- Federal Emergency Management Agency (FEMA) HAZUS-MH
- FEMA Flood Insurance Rate Maps (FIRM)
- Georgia Emergency Management Agency (GEMA)
- National Oceanographic and Atmospheric Administration (NOAA)
- National Climatic Data Center (NCDC)
- University of South Carolina, Hazards Research Lab – Spatial Hazards Events and Losses Database for the United States (USC – SHELDUS)
- National Weather Service
- American Red Cross
- US Forestry Service
- Georgia Forestry Commission
- Georgia Department of Natural Resources
- DeKalb County Planning Department
- DeKalb County Public Works
- DeKalb County GIS
- Dewberry & Davis Flood and Project Studies



World's Largest Archive of Climate Data
National Climatic Data Center
 Protecting the Past, Revealing the Future

Satellite
 Upper Air
 Marine
 Land Based
 Paleoclimatology
 Weather/Climate, Events, Information & Assessments

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Recent Flooding Events

August 12, 2006 – Heavy rain in a very short time period causing localized flooding. Several homes and vehicles were inundated.

July 12, 2009 – Persistent rain associated with strong storms caused flash flooding in several parts of the county and metropolitan Atlanta.

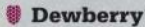
August 28, 2009 – The South Fork Branch of Peachtree Creek rose above flood stage causing minor debris cleanup and no reported property damage.

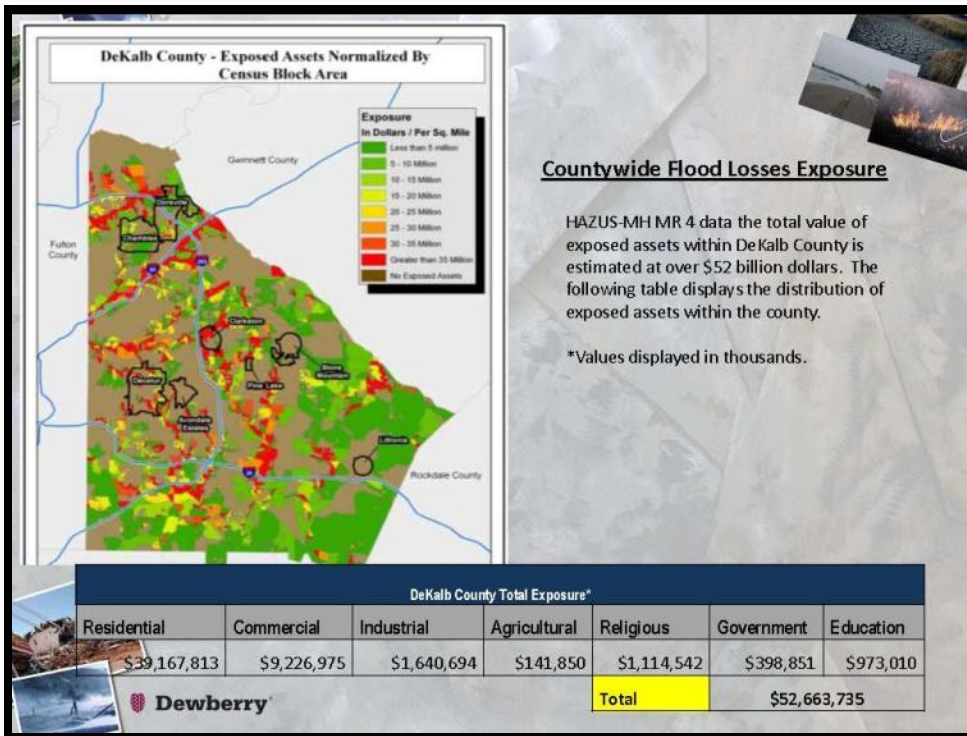
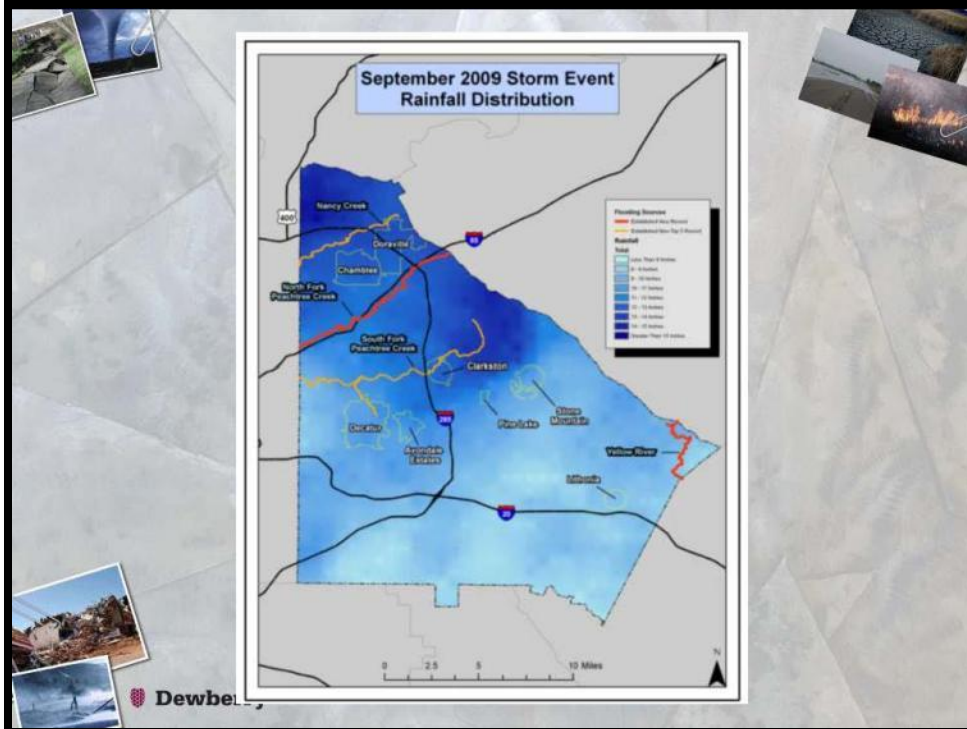
January 24, 2010 – The South and North Fork Branches of Peachtree Creek showed minor flooding was occurring. No property damage or injuries were reported.

2009 9/24 Severe Storms and Flooding Disaster Number [1858](#)

2009 04/23 Severe Storms, Flooding, Tornadoes, and Straight-line Winds Disaster Number [1833](#)

2008 05/23 Severe Storms and Flooding [1761](#)

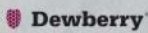
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Exposure and Potential Loss Estimates from 100-year Flood by Jurisdiction

Structure Type Vulnerability by Jurisdiction

Jurisdiction	Residential	Commercial	Industrial	Agriculture	Religious	Government	Education
DeKalb County, unincorporated	\$427,868,280	\$136,842,830	\$20,289,510	\$1,381,380	\$11,921,100	\$4,221,210	\$11,039,280
City of Avondale Estates	\$0	\$0	\$0	\$0	\$0	\$0	\$0
City of Chamblee	\$3,659,460	\$2,135,800	\$320,960	\$64,680	\$45,570	\$83,790	\$98,700
City of Clarkston	\$6,049,680	\$739,565	\$117,705	\$6,720	\$13,440	\$27,090	\$0
City of Decatur	\$12,074,790	\$1,794,190	\$284,675	\$31,710	\$623,700	\$582,540	\$211,890
City of Doraville	\$3,131,520	\$2,393,335	\$379,665	\$3,990	\$57,750	\$630	\$370,860
City of Lithonia	\$0	\$0	\$0	\$0	\$0	\$0	\$0
City of Pine Lake	\$587,790	\$11,210	\$12,390	\$0	\$0	\$0	\$0
City of Stone Mountain	\$432,810	\$30,680	\$5,900	\$6,930	\$0	\$0	\$0
Total	\$453,804,330	\$143,947,610	\$21,410,805	\$1,495,410	\$12,061,560	\$4,915,260	\$11,720,730

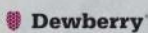
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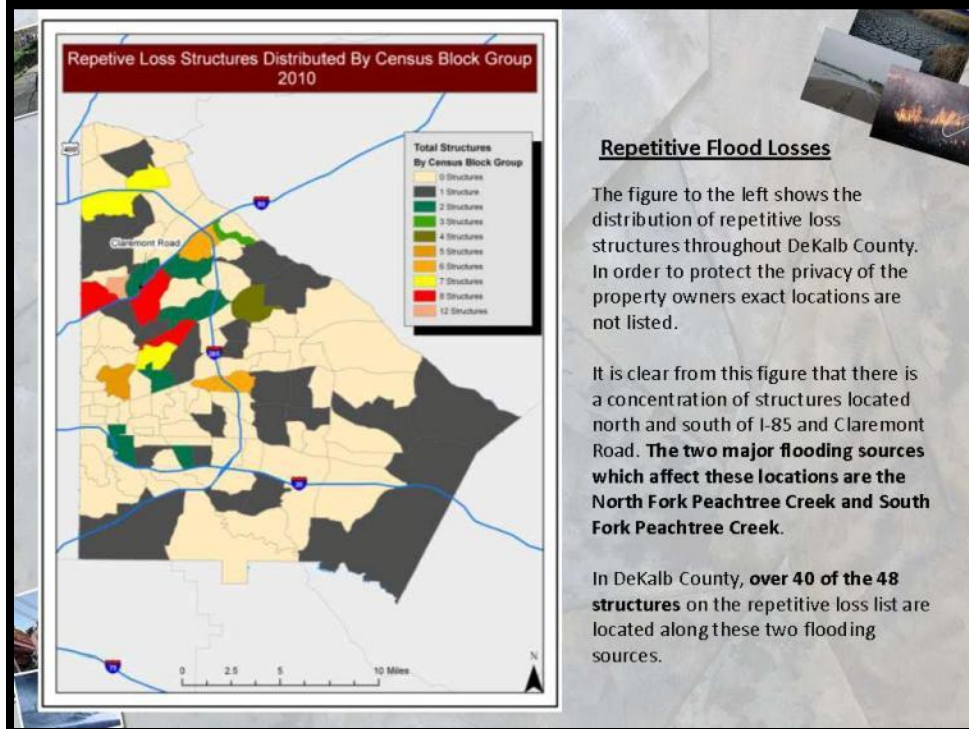
Population Exposure and Potential Loss Estimates from 100-year Flood by Jurisdiction

* Avondale Estates and Lithonia have no mapped 100 year flood hazard areas. This table is not intended to imply that there is no population exposed to flooding risks

Population Exposure and Potential Loss Estimates from 100-Year Flood by Jurisdiction

Jurisdiction	Exposed Population	Estimated Building and Contents Loss
DeKalb County, unincorporated	36,772	\$972,010,954
City of Avondale Estates*	0	\$0
City of Chamblee	588	\$10,442,328
City of Clarkston	819	\$10,448,083
City of Decatur	855	\$24,287,237
City of Doraville	350	\$10,738,230
City of Lithonia*	0	\$0
City of Pine Lake	54	\$902,919
City of Stone Mountain	47	\$707,139
Total	39,485	\$1,029,536,889

 Dewberry



Repetitive Flood Losses

The figure to the left shows the distribution of repetitive loss structures throughout DeKalb County. In order to protect the privacy of the property owners exact locations are not listed.

It is clear from this figure that there is a concentration of structures located north and south of I-85 and Claremont Road. **The two major flooding sources which affect these locations are the North Fork Peachtree Creek and South Fork Peachtree Creek.**

In DeKalb County, **over 40 of the 48 structures** on the repetitive loss list are located along these two flooding sources.

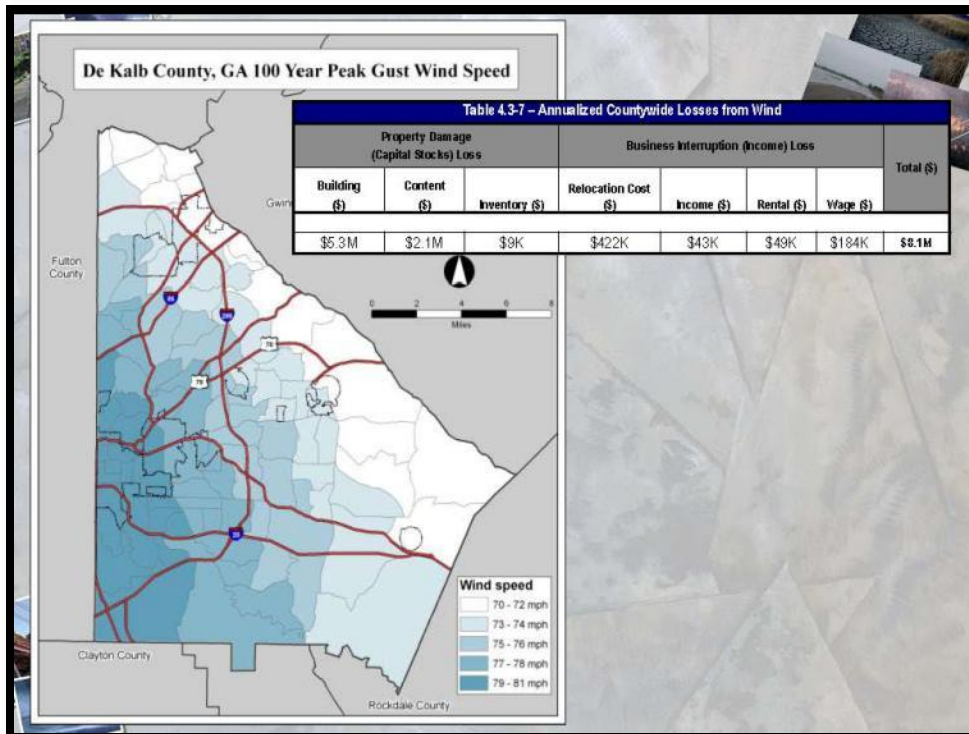
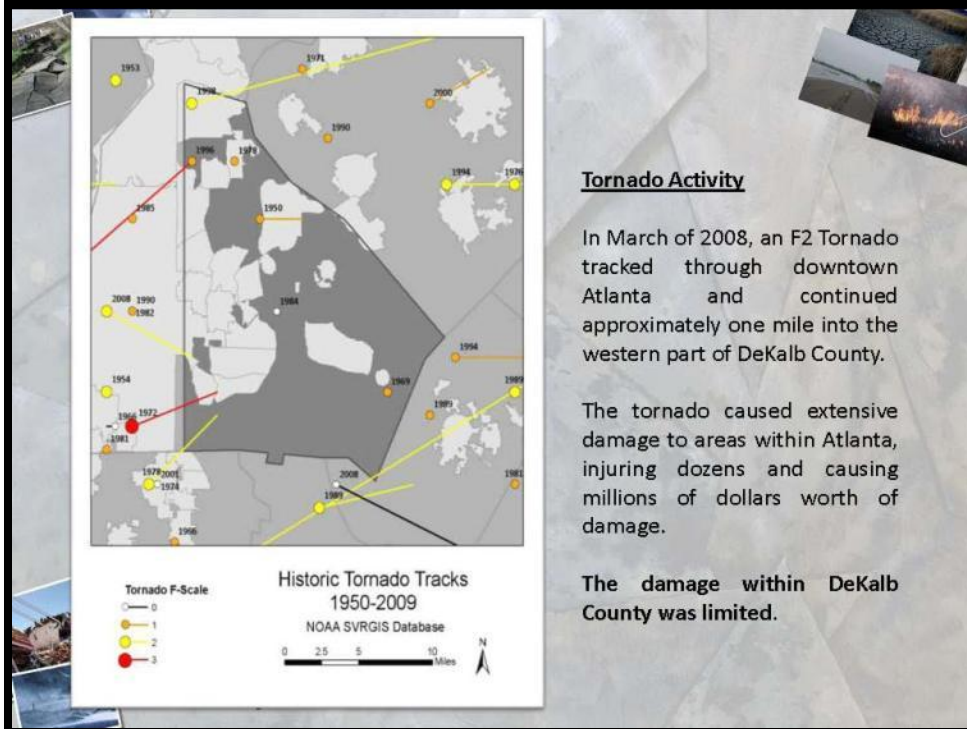


Table 4.3-7 – Annualized Countywide Losses from Wind

Property Damage (Capital Stocks) Loss			Business Interruption (Income) Loss				Total (\$)
Building (\$)	Content (\$)	Inventory (\$)	Relocation Cost (\$)	Income (\$)	Rental (\$)	Wage (\$)	
\$5.3M	\$2.1M	\$9K	\$422K	\$43K	\$49K	\$184K	\$8.1M

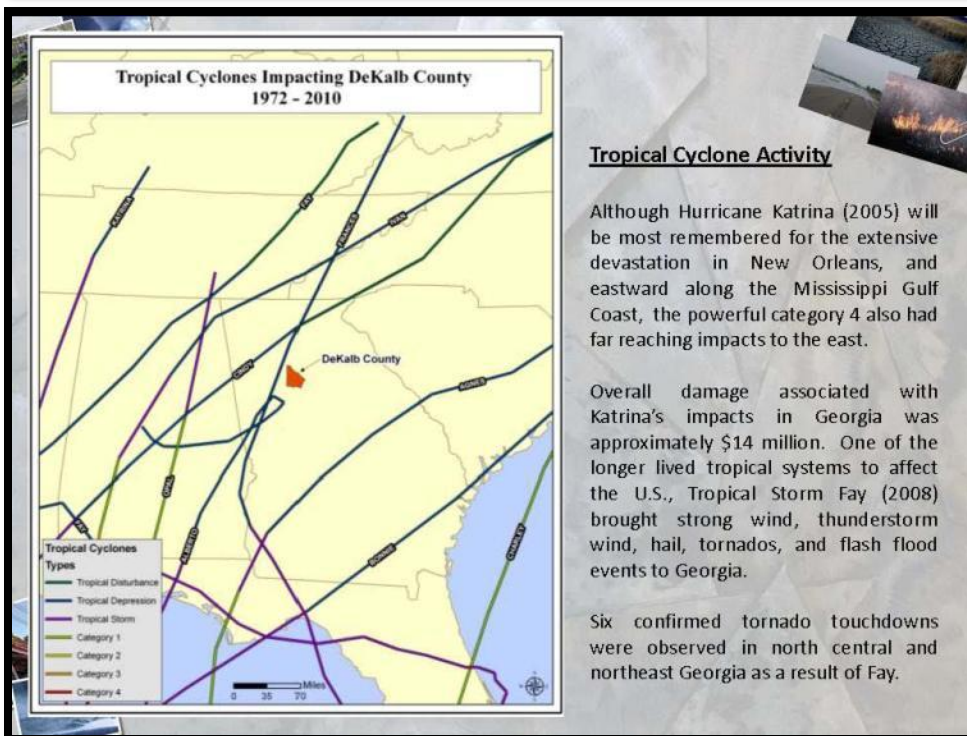


Tornado Activity

In March of 2008, an F2 Tornado tracked through downtown Atlanta and continued approximately one mile into the western part of DeKalb County.

The tornado caused extensive damage to areas within Atlanta, injuring dozens and causing millions of dollars worth of damage.

The damage within DeKalb County was limited.



Tropical Cyclone Activity

Although Hurricane Katrina (2005) will be most remembered for the extensive devastation in New Orleans, and eastward along the Mississippi Gulf Coast, the powerful category 4 also had far reaching impacts to the east.

Overall damage associated with Katrina's impacts in Georgia was approximately \$14 million. One of the longer lived tropical systems to affect the U.S., Tropical Storm Fay (2008) brought strong wind, thunderstorm wind, hail, tornados, and flash flood events to Georgia.

Six confirmed tornado touchdowns were observed in north central and northeast Georgia as a result of Fay.

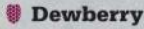
Severe Winter Storm Activity

Winter Weather Events in DeKalb County from NCDC Database

Event	Property Damage	Crop Damage	Fatalities	Injuries
Frost	\$0.00	\$1,864,868.30	0	0
Heavy Snow	\$1,785.71	\$0.00	0	0
Ice Storm	\$1,349,253.27	\$0.00	0	2
Snow	\$0.00	\$0.00	0	0
Winter Weather	\$110,642.71	\$0.00	0	0
Total	\$1,461,681.70	\$1,864,868.30	0	2

March 2009 - A rare late season heavy snow storm occurred in parts of north and central Georgia. The water content of the snow was high, which resulted in extensive downed trees, power lines, and telephone cables. Widespread power outages to thousands of people were observed in areas of northeast Georgia. Many residents were left without power for two to three days. Accumulation of 1.5-2.5 inches were reported in DeKalb County.

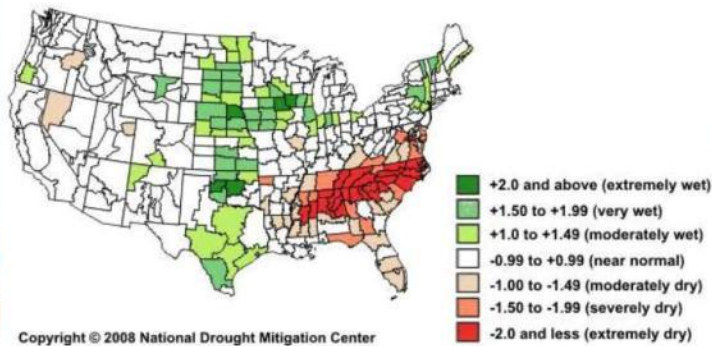
February 2010 – In mid-February, very cold air aloft and cold Arctic surface air mass combined with the overrunning Gulf moisture and upper dynamics to produce the most widespread snow observed across north and central Georgia in several years. All 96 counties within the NWS Peachtree City forecast area observed measurable snow. Average snowfall for DeKalb County was four inches.



Drought Activity

Between January 2007 and January 2008 DeKalb County was experiencing a severe drought according to the SPI Index. During this time period the NCDC database listed 5 different drought events. These events can be better understood as one extremely large event. Lake levels fell to record or near record low levels. Lake Lanier in northeast Georgia, the main water supply for the Atlanta metropolitan area, dropped to its lowest level in history on December 28, 2007 with a reading of 1050.75 feet. Significant water conservation measures were being implemented in many cities. The figure below shows the extent of the drought according to the Standard Precipitation Index (SPI) Index.

12-month SPI through the end of January 2008

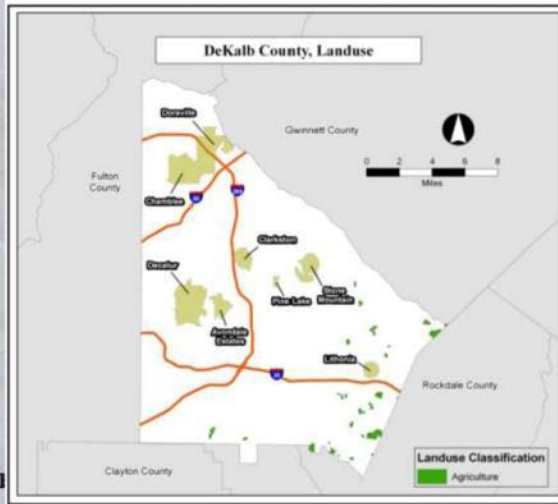


Copyright © 2008 National Drought Mitigation Center

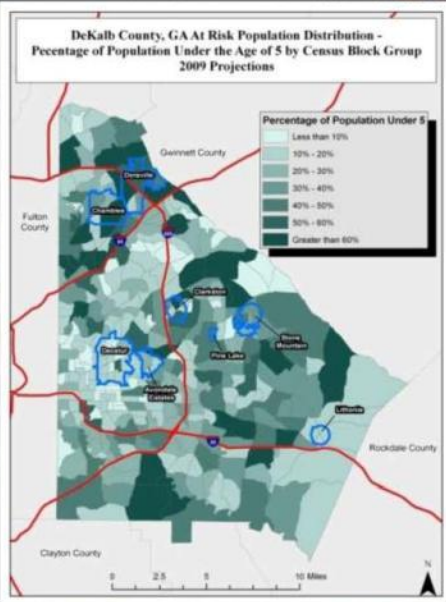
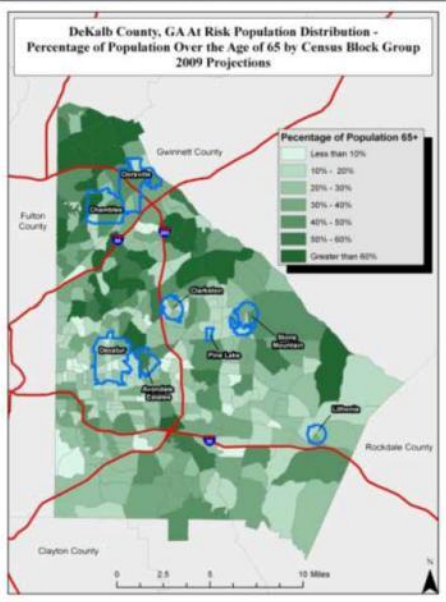


Drought Activity

Agricultural land comprises approximately 2 square miles of land within DeKalb County. This accounts for less than 1% of all land within DeKalb County. Most of the agricultural land is located in the southeast of the county. During a drought event DeKalb can expect to experience crop losses in the agricultural areas shown below



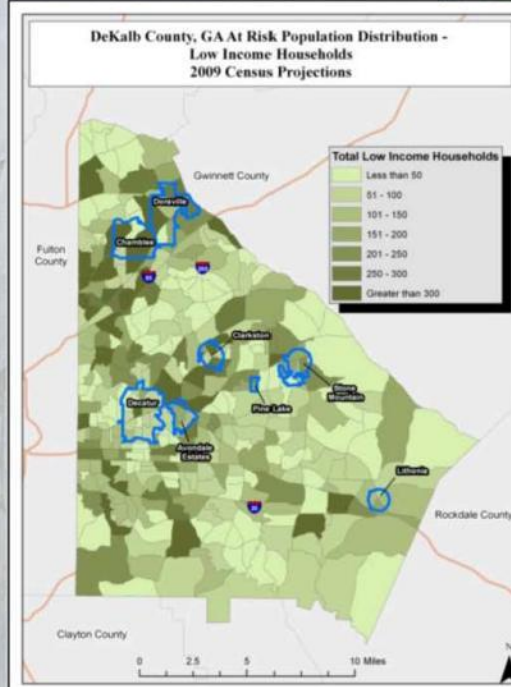
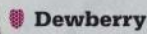
At-Risk Populations



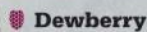
At-Risk Populations

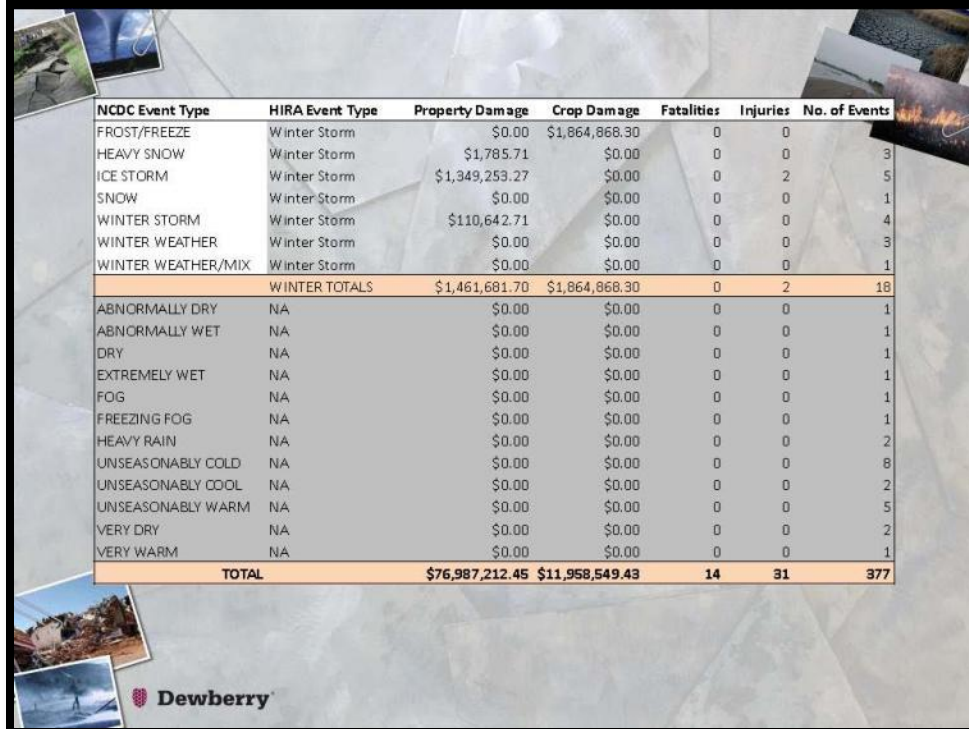
Whether due to constraints associated with age, income, or general mobility, at-risk populations should be considered when the community addresses mitigation alternatives and assesses risk to the community. These groups may need more assistance in preparation and recovery activities and the affects of disasters may be amplified on these populations.

Future planning efforts may want to address newer mitigation planning practices that consider social vulnerability and environmental justice



NCDL Event Type	HIRA Event Type	Property Damage	Crop Damage	Fatalities	Injuries	No. of Events
LIGHTNING	Lightning	\$1,026,461.22	\$0.00	1	10	16
DROUGHT	Drought	\$0.00	\$8,363,257.80	0	0	17
EXTREME COLD	Extreme Cold	\$0.00	\$0.00	0	0	3
EXCESSIVE HEAT	Extreme Heat	\$0.00	\$0.00	2	0	3
HAIL	Hail	\$15,768,304.06	\$0.00	0	0	99
TORNADO	Tornado	\$46,771,341.27	\$0.00	1	3	10
FLASH FLOOD	Flood	\$7,742,966.75	\$0.00	0	0	20
FLOOD	Flood	\$589,786.04	\$0.00	0	0	4
URBAN/SML STREAM						
FLD	Flood	\$0.00	\$0.00	0	0	4
FLOOD TOTALS		\$8,332,752.79	\$0.00	0	0	28
STRONG WIND	High Wind	\$70,525.10	\$0.00	1	2	11
HIGH WIND	High Wind	\$944,631.41	\$537,437.66	0	3	4
HIGH WINDS	High Wind	\$11,599.10	\$0.00	1	2	1
THUNDERSTORM WIND	High Wind	\$69,702.94	\$0.00	0	0	11
THUNDERSTORM WINDS	High Wind	\$1,940,595.02	\$1,192,985.68	8	7	8
TSTM WIND	High Wind	\$564,507.88	\$0.00	0	2	109
TSTM WIND/HAIL	High Wind	\$1,211.39	\$0.00	0	0	1
HIGH WIND TOTALS		\$3,602,772.85	\$1,730,423.33	10	16	145
HURRICANE	Hurricane	\$0.00	\$0.00	0	0	1
HURRICANE/TYPHOON	Hurricane	\$0.00	\$0.00	0	0	2
TROPICAL DEPRESSION	Hurricane	\$0.00	\$0.00	0	0	1
TROPICAL STORM	Hurricane	\$21,898.56	\$0.00	0	0	8
HURRICANE TOTALS		\$21,898.56	\$0.00	0	0	12

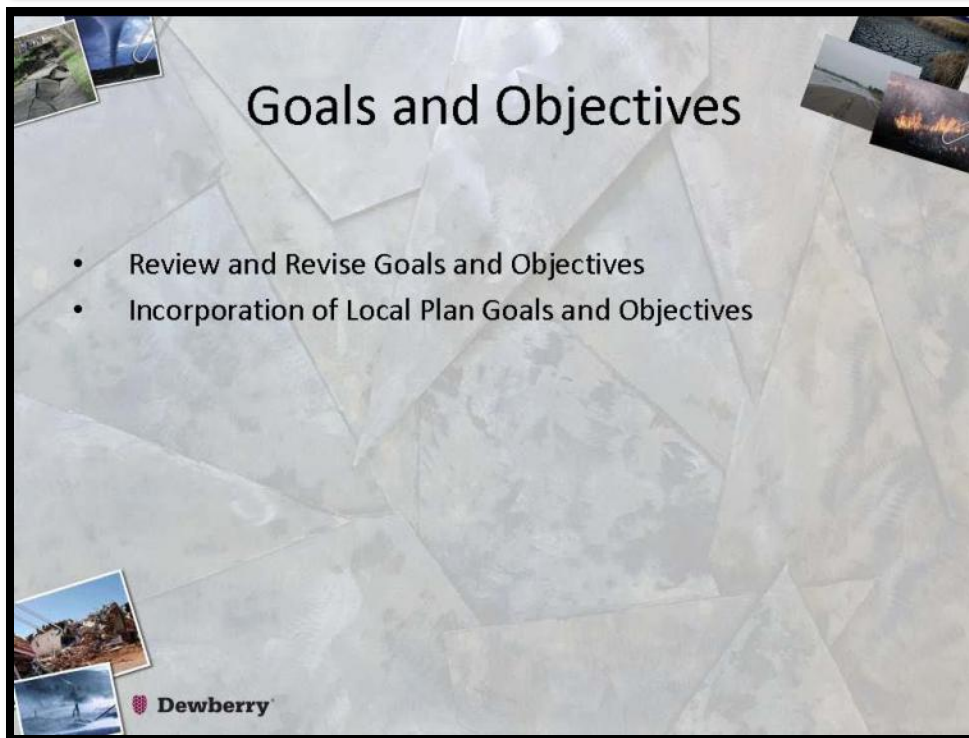
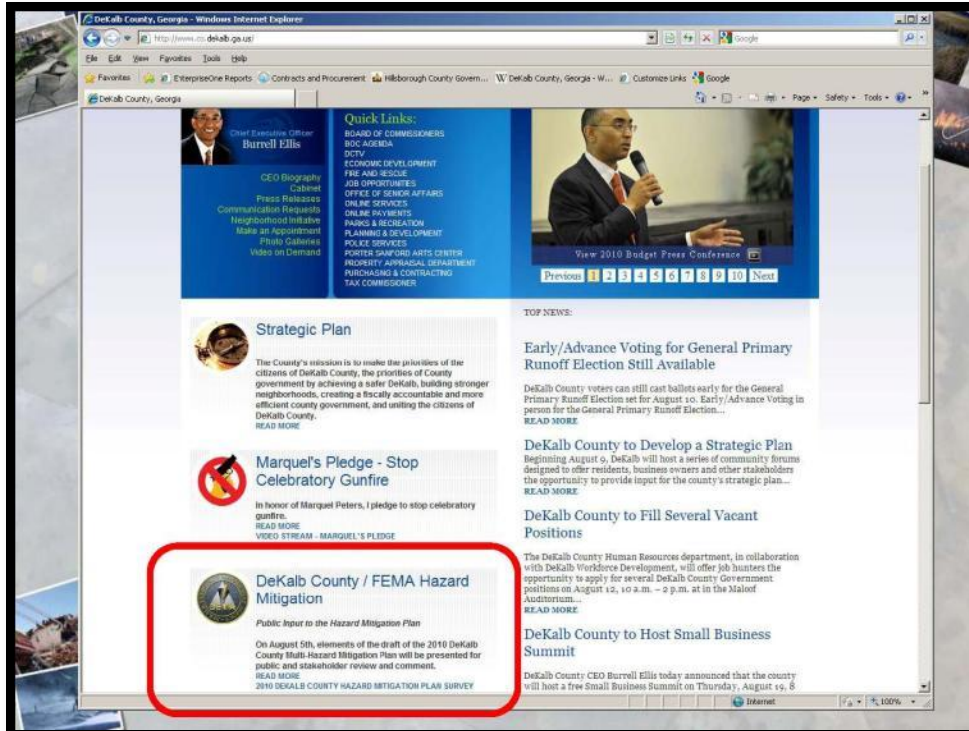




NCDC Event Type	HIRA Event Type	Property Damage	Crop Damage	Fatalities	Injuries	No. of Events
FROST/FREEZE	Winter Storm	\$0.00	\$1,864,868.30	0	0	
HEAVY SNOW	Winter Storm	\$1,785.71	\$0.00	0	0	3
ICE STORM	Winter Storm	\$1,349,253.27	\$0.00	0	2	5
SNOW	Winter Storm	\$0.00	\$0.00	0	0	1
WINTER STORM	Winter Storm	\$110,642.71	\$0.00	0	0	4
WINTER WEATHER	Winter Storm	\$0.00	\$0.00	0	0	3
WINTER WEATHER/MIX	Winter Storm	\$0.00	\$0.00	0	0	1
	WINTER TOTALS	\$1,461,681.70	\$1,864,868.30	0	2	18
ABNORMALLY DRY	NA	\$0.00	\$0.00	0	0	1
ABNORMALLY WET	NA	\$0.00	\$0.00	0	0	1
DRY	NA	\$0.00	\$0.00	0	0	1
EXTREMELY WET	NA	\$0.00	\$0.00	0	0	1
FOG	NA	\$0.00	\$0.00	0	0	1
FREEZING FOG	NA	\$0.00	\$0.00	0	0	1
HEAVY RAIN	NA	\$0.00	\$0.00	0	0	2
UNSEASONABLY COLD	NA	\$0.00	\$0.00	0	0	8
UNSEASONABLY COOL	NA	\$0.00	\$0.00	0	0	2
UNSEASONABLY WARM	NA	\$0.00	\$0.00	0	0	5
VERY DRY	NA	\$0.00	\$0.00	0	0	2
VERY WARM	NA	\$0.00	\$0.00	0	0	1
	TOTAL	\$76,987,212.45	\$11,958,549.43	14	31	377

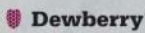
Survey Items

Public Outreach
Meeting 1



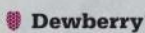
Existing Goals

MITIGATION GOALS AND OBJECTIVES.
Goal 1: Promote disaster resistant future development
Objective 1.A: Facilitate the development or updating of the Comprehensive Plan and zoning ordinances to limit (or ensure safe) development in hazard areas.
Objective 1.B: Facilitate the adoption of building codes that protect existing assets and restrict new development in hazard areas.
Objective 1.C: Facilitate consistent enforcement of the Comprehensive Plan, zoning ordinances, and building code.
Goal 2: Increase public understanding and support for effective hazard mitigation.
Objective 2.A: Educate the public to increase awareness of hazards and opportunities for mitigation activities.
Objective 2.B: Increase public understanding, support and demand for hazard mitigation for new developments.
Objective 2.C: Promote hazard mitigation in the business community.
Objective 2.D: Monitor and publicize the effectiveness of mitigation actions implemented countywide.



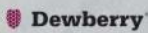
Existing Goals

MITIGATION GOALS AND OBJECTIVES.
Goal 3: Build and support capacity and commitment to become less vulnerable to hazards.
Objective 3.A: Increase awareness and knowledge of hazard mitigation principles and practice among County Department officials.
Objective 3.B: Provide technical assistance to city jurisdictions to implement their mitigation plans.
Objective 3.C: Address identified data limitations regarding the lack of information about new development and build-out potential in hazard areas.
Objective 3.D: Address data limitations identified in Hazard Profiling and Risk Assessment.



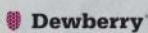
Existing Goals

MITIGATION GOALS AND OBJECTIVES.
Goal 4: Enhance hazard mitigation coordination and communication with federal, state, and local governments.
Objective 4.A: Participate in initiatives that have mutual hazard mitigation benefits for the county, cities, state, and federal governments.
Objective 4.B: Encourage other organizations to incorporate hazard mitigation activities into their existing programs and plans.
Objective 4.C: Continue partnerships between the state and local governments to identify, prioritize, and implement mitigation actions.
Objective 4.D: Continuously improve the County's capability and efficiency at administering pre- and post-disaster mitigation.
Objective 4.F: Provide technical support to cities in administering pre- and post-disaster mitigation programs.
Objective 4.G: Coordinate recovery activities while restoring and maintaining public services.



Existing Goals

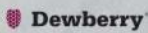
MITIGATION GOALS AND OBJECTIVES.
Goal 5: Reduce the possibility of damage and losses to existing assets, including people, critical facilities/infrastructure, and public facilities due to all hazards found in .
Objective 5.A: Educate local residents and businesses on the range of flooding that could affect the County and the potential impact.
Objective 5.B: Participate in initiatives that result in better risk communication and the evaluation of threats.
Objective 5.C: Decrease the vulnerability of public infrastructure including facilities, roadways, and utilities.
Objective 5.E: Record, collect, and maintain a comprehensive list of hazard related data.
Objective 5.F: Minimize repetitive losses caused by flooding.
Objective 5.G: Protect existing assets with the highest relative vulnerability to the effects of floods within the 100-year floodplain.



Prioritizing Projects

TABLE 5.1-1 STAPLE/E REVIEW AND SELECTION CRITERIA FOR ALTERNATIVES

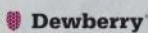
SOCIAL
<ul style="list-style-type: none"> • Is the proposed action socially acceptable to the community? • Are there equity issues involved that would result in any segment of the community being treated unfairly? • Will the action cause social disruption?
TECHNICAL
<ul style="list-style-type: none"> • Will the proposed action work? • Will it create more problems than it solves? • Does it solve a problem or only a symptom? • Is it the most useful action in light of other community goals?
ADMINISTRATIVE
<ul style="list-style-type: none"> • Can the community implement the action? • Is there someone to coordinate and lead the effort? • Is there sufficient funding, staff, and technical support available? • Are there ongoing administrative requirements that need to be met?
POLITICAL
<ul style="list-style-type: none"> • Is the action politically acceptable? • Is there public support both to implement and to maintain the project?

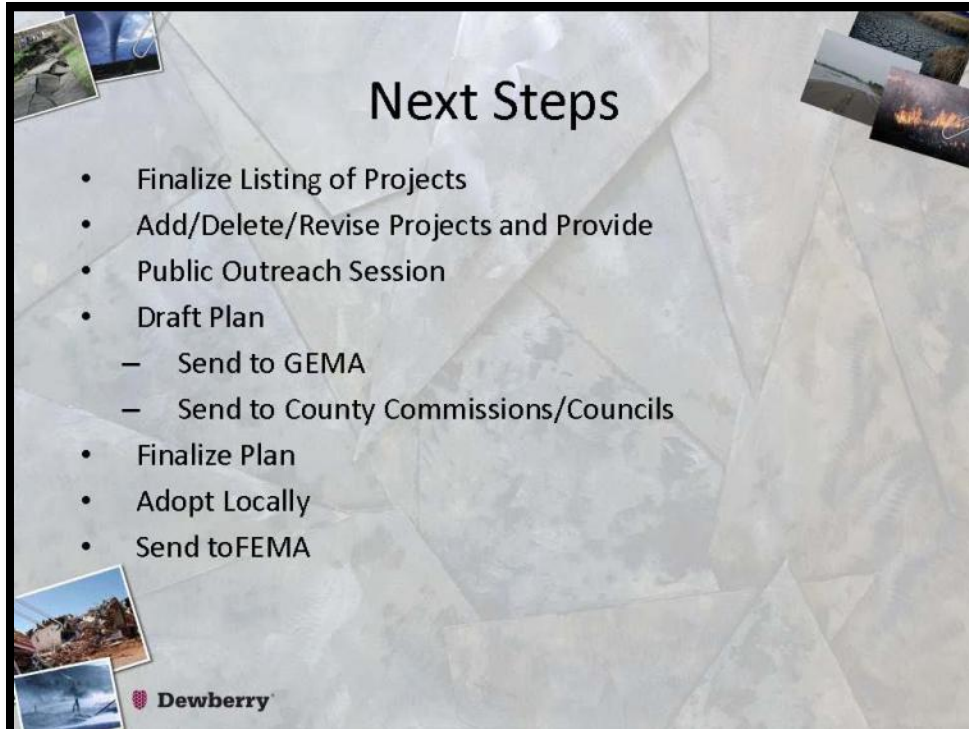
 Dewberry

Prioritizing Projects

TABLE 5.1-1 STAPLE/E REVIEW AND SELECTION CRITERIA FOR ALTERNATIVES

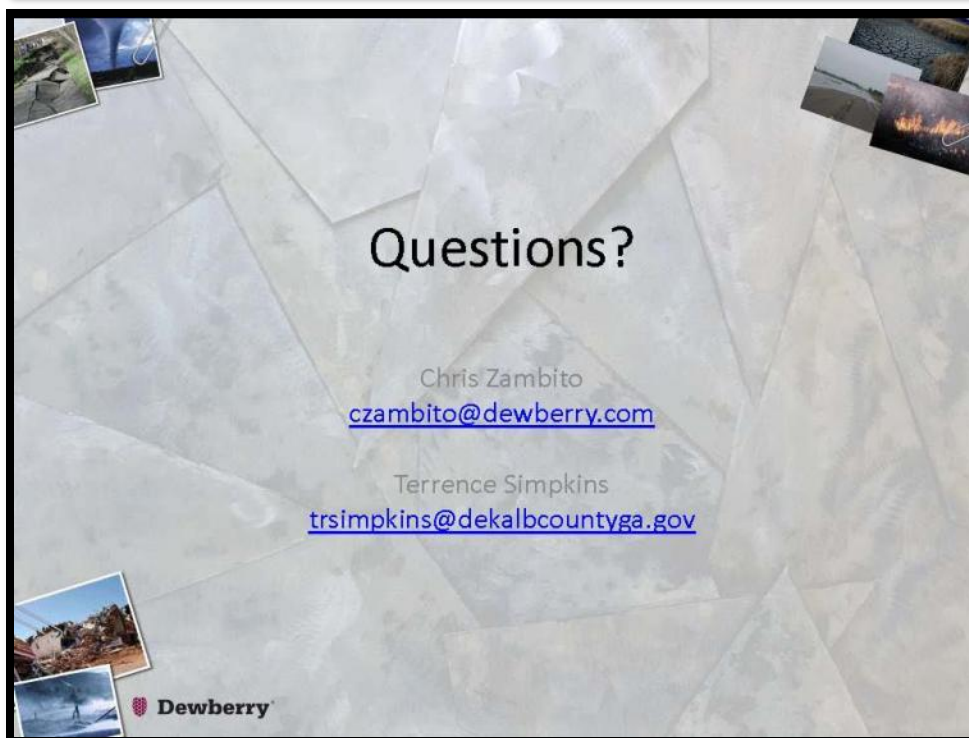
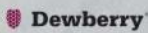
LEGAL
<ul style="list-style-type: none"> • Is the community authorized to implement the proposed action? Is there a clear legal basis or precedent for this activity? • Are there legal side effects? Could the activity be construed as a taking? • Is the proposed action allowed by the general plan, or must the general plan be amended to allow the proposed action? • Will the community be liable for action or lack of action? • Will the activity be challenged?
ECONOMIC
<ul style="list-style-type: none"> • What are the costs and benefits of this action? • Do the benefits exceed the costs? • Are initial, maintenance, and administrative costs taken into account? • Has funding been secured for the proposed action? If not, what are the potential sources (public, non-profit, and private)? • How will this action affect the fiscal capability of the community? • What burden will this action place on the tax base or local economy? • What are the budget and revenue effects of this activity? • Does the action contribute to other community goals, such as capital improvements or economic development? • What benefits will the action provide?
ENVIRONMENTAL
<ul style="list-style-type: none"> • How will the action affect the environment? • Will the action need environmental regulatory approvals? • Will it meet local and state regulatory requirements? • Are endangered or threatened species likely to be affected?

 Dewberry



Next Steps

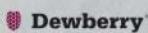
- Finalize Listing of Projects
- Add/Delete/Revise Projects and Provide
- Public Outreach Session
- Draft Plan
 - Send to GEMA
 - Send to County Commissions/Councils
- Finalize Plan
- Adopt Locally
- Send to FEMA



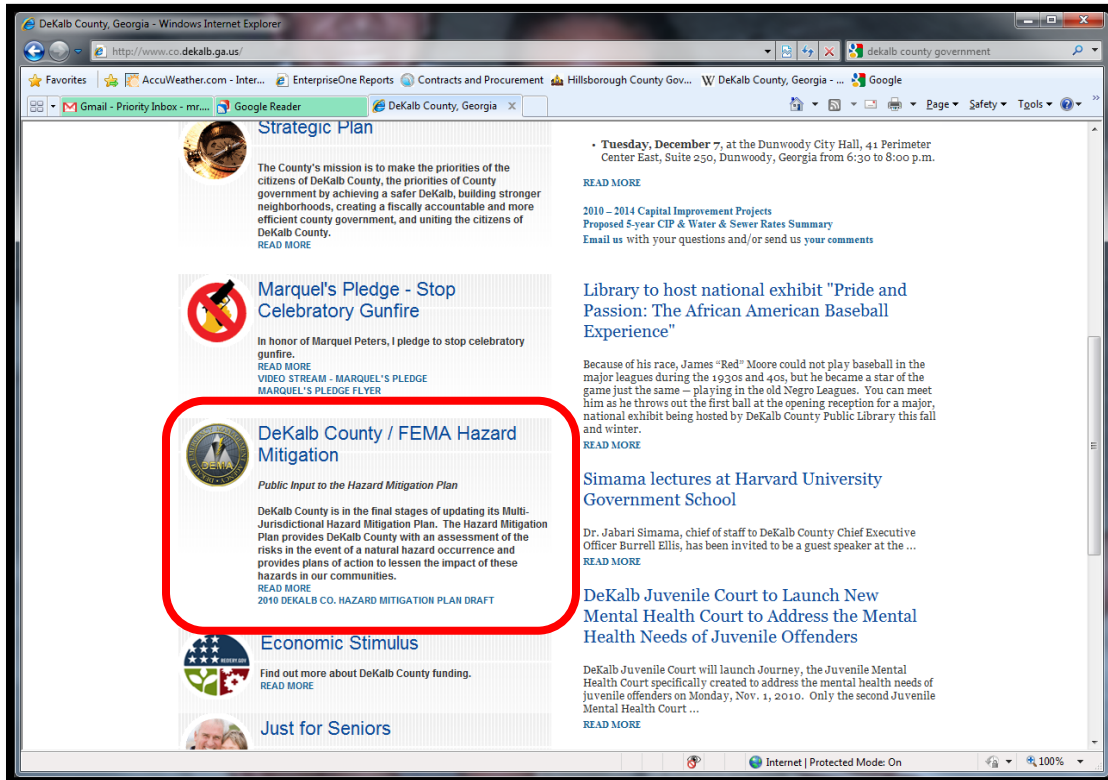
Questions?

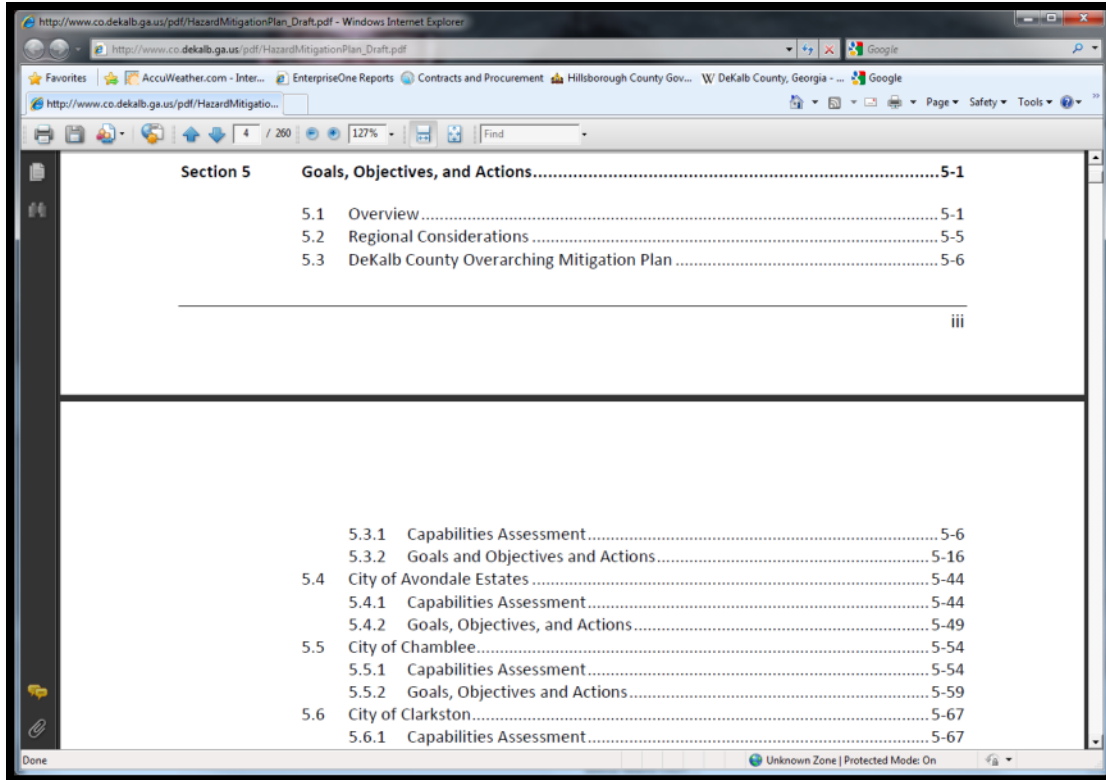
Chris Zambito
czambito@dewberry.com

Terrence Simpkins
trsimpkins@dekalbcountyga.gov



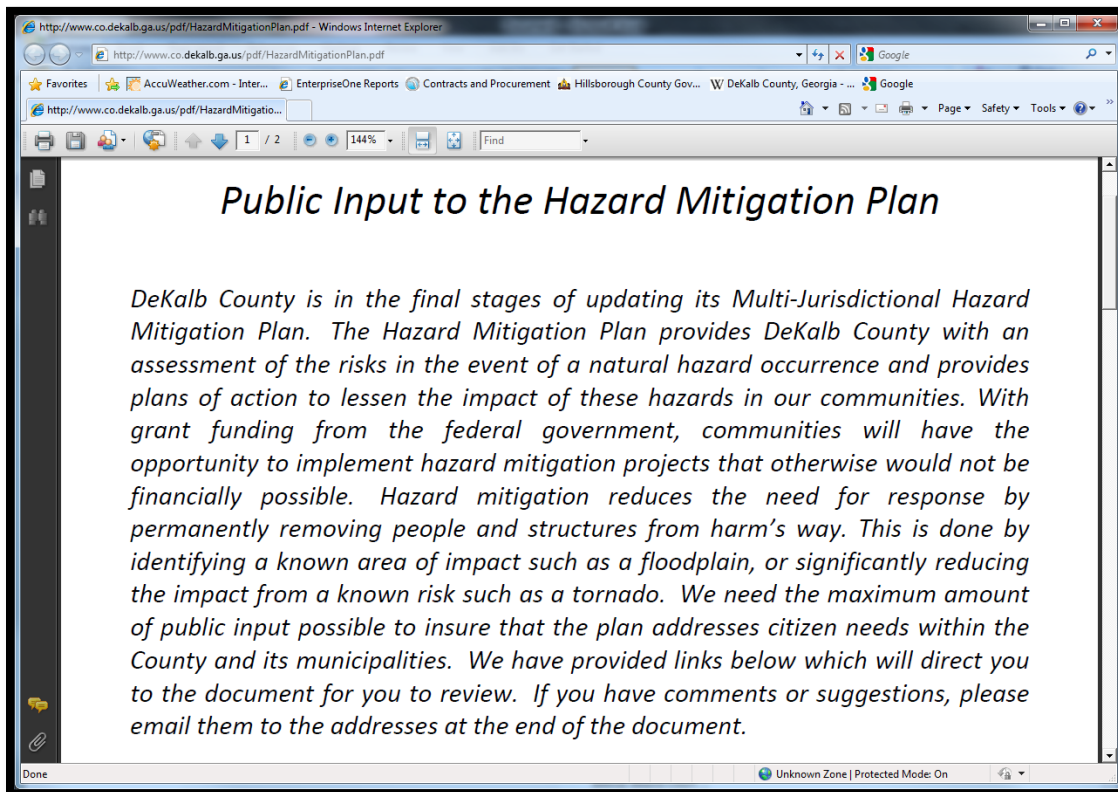
Just recently, late November and early December of 2010, more items were placed on the DeKalb County website to help keep the mitigation planning message in front of the public and attempt to solicit more feedback. This further invitation to the public is another effort by the MAC and local government officials to try and involve the public in the mitigation planning process.





The screenshot shows a PDF document titled "Section 5 Goals, Objectives, and Actions" with a table of contents. The document is viewed in a Windows Internet Explorer browser window. The table of contents lists various sub-sections and their corresponding page numbers.

Section 5	Goals, Objectives, and Actions.....	5-1
5.1	Overview	5-1
5.2	Regional Considerations	5-5
5.3	DeKalb County Overarching Mitigation Plan	5-6
		iii
5.3.1	Capabilities Assessment	5-6
5.3.2	Goals and Objectives and Actions.....	5-16
5.4	City of Avondale Estates	5-44
5.4.1	Capabilities Assessment.....	5-44
5.4.2	Goals, Objectives, and Actions	5-49
5.5	City of Chamblee.....	5-54
5.5.1	Capabilities Assessment.....	5-54
5.5.2	Goals, Objectives and Actions.....	5-59
5.6	City of Clarkston.....	5-67
5.6.1	Capabilities Assessment.....	5-67



The screenshot shows a PDF document titled "Public Input to the Hazard Mitigation Plan". The document is viewed in a Windows Internet Explorer browser window. The text discusses the final stages of updating the Multi-Jurisdictional Hazard Mitigation Plan and the importance of public input.

Public Input to the Hazard Mitigation Plan

DeKalb County is in the final stages of updating its Multi-Jurisdictional Hazard Mitigation Plan. The Hazard Mitigation Plan provides DeKalb County with an assessment of the risks in the event of a natural hazard occurrence and provides plans of action to lessen the impact of these hazards in our communities. With grant funding from the federal government, communities will have the opportunity to implement hazard mitigation projects that otherwise would not be financially possible. Hazard mitigation reduces the need for response by permanently removing people and structures from harm's way. This is done by identifying a known area of impact such as a floodplain, or significantly reducing the impact from a known risk such as a tornado. We need the maximum amount of public input possible to insure that the plan addresses citizen needs within the County and its municipalities. We have provided links below which will direct you to the document for you to review. If you have comments or suggestions, please email them to the addresses at the end of the document.

HAZARD RANKING WORKSHEET - DEKALB COUNTY

Hazard Type	Probability	Impact			Total Score	Hazard Planning Consideration
		Affected Area	Primary Impact	Secondary Impacts		
DAM FAILURE	3	0.8	2.4	2	16	Limited
DROUGHT	6	3.2	0.7	1	29	Limited
EARTHQUAKE	2	2.4	0.7	0.5	7	None
EXTREME HEAT	6	2.4	0.7	1	25	Limited
FLOODING	8	2.4	2.1	2	52	Significant
HURRICANE	6	2.4	2.1	2	39	Moderate
THUNDERSTORMS/LIGHTNING	8	0.8	1.4	0.5	22	Limited
TORNADO	8	0.8	2.1	1.5	35	Moderate
WILDFIRE	4	1.6	2.8	2	26	Limited
WINTER STORM	6	3.2	0.7	1.5	32	Moderate
WIND (STRAIGHTLINE)	8	3.2	1.4	1.5	49	Significant
Rail incidents						
Hazardous Materials Incidents						
CDC items of concern						
Buffer Zone Protection Plan						

The probability of each hazard is determined by assigning a level, from 1 to 4, based on the likelihood of occurrence from historical data. The total impact value includes the affected area, primary impact and secondary impact levels of each hazard. These levels are then multiplied by an importance factor to obtain a score for each category. The probability score is multiplied by the sum of the three impact categories to determine the total score for the hazard. Based on this total score, the hazards will be separated into four categories based on the hazard level they pose to the communities: unlikely, possible, critical and highly likely.

Probability
Based on estimated likelihood of occurrence from historical data

Importance

Level	Probability	Score
1	Unlikely	2
2	Somewhat Likely	4
3	Likely	6
4	Highly Likely	8

Affected Area
Based on size of geographical area of community affected by hazard

Importance

Level	Affected Area	Score
1	Isolated	0.8
2	Small	1.6
3	Medium	2.4
4	Large	3.2

Primary Impact
Based on Percentage of Damage to a typical facility in the affected area

Importance

Level	Impact	Score
1	Negligible - less than 10% damage	0.7
2	Limited - between 10% and 25% damage	1.4
3	Critical - between 25% and 50% damage	2.1
4	Catastrophic - more than 50% damage	2.8

Secondary Impacts
Based on estimated secondary impacts to community at large

Importance

Level	Impact	Score
1	Negligible - no loss of function, downtime, and/or evacuations	0.5
2	Limited - minimal loss of function, downtime, and/or evacuations	1
3	Moderate - some loss of function, downtime, and/or evacuations	1.5
4	High - major loss of function, downtime, and/or evacuations	2

Total Score = Probability x Impact, where:
 Probability = (Probability Score x Importance)
 Impact = (Affected Area + Primary Impact + Secondary Impacts), where:
 Affected Area = Affected Area Score x Importance
 Primary Impact = Primary Impact Score x Importance
 Secondary Impacts = Secondary Impacts Score x Importance

Hazard Level		Distribution	Hazard Level
Total Score	(Range)		
0.0	12.0	1	None
12.1	32.0	5	Limited
32.1	39.6	3	Moderate
39.7	64.0	2	Significant

Community Hazard Identification Ranking Worksheet

Natural Hazards Identified	Countywide	Avondale Estates	Chamblee	Clarkston	Decatur	Doraville	Dunwoody	Lithonia	Pine Lake	Stone Mountain
Floods	S	S	S	S	S	S	S	S	S	S
Hurricane	M	M	M	M	M	S	M	M	M	M
Tornado	M	M	M	M	M	S	M	M	M	M
Wind	S	M	M	M	M	S	M	M	M	M
Thunderstorm/Lightning	L	M	M	M	M	S	M	M	M	M
Winter Storm	M	L	M	M	M	M	M	M	M	M
Drought	L	M	L	L	L	L	L	L	M	L
Wildfire	L	L	L	M	L	L	M	M	M	L
Extreme Heat	L	M	M	L	M	M	L	M	M	M
Earthquake	L	L	L	L	L	L	L	L	L	L
Dam Failure	L	M	L	L	L	L	L	L	L	L

Key

S = Significant Risk; Major Damage Potential

M = Moderate Risk; Moderate Damage Potential

L = Low Risk; Little Damage Potential

Estimated Losses for 100 - Year Riverine Flood Event - DeKalb County, GA											
Jurisdiction	Structure Type	Total Exposure	Average Riverine Depth Above Grade	Assumed Building Type	% Building Damage	Estimated Building Total Damage	Contents Value as Percent of Building Value	Total Contents Value	Contents Damaged	Estimated Contents Damage	Total Buildings and Content Damage per Jurisdiction
Chamblee	Residential	\$17,426,000	4.5	2 w/o	21.0%	\$3,659,460	30%	\$5,227,800	31.5%	\$1,646,757	\$10,442,328
	Commercial	\$7,240,000	4.5	1 w/o	29.5%	\$2,135,800	50%	\$3,620,000	44.3%	\$1,603,660	
	Industrial	\$1,088,000	4.5	1 w/0	29.5%	\$320,960	100%	\$1,088,000	44.3%	\$481,984	
	Agriculture	\$308,000	4.5	2 w/o	21.0%	\$64,680	40%	\$123,200	31.5%	\$38,808	
	Religious	\$217,000	4.5	2 w/o	21.0%	\$45,570	75%	\$162,750	31.5%	\$51,266	
	Government	\$399,000	4.5	2 w/o	21.0%	\$83,790	50%	\$199,500	31.5%	\$62,843	
	Education	\$470,000	4.5	2 w/o	21.0%	\$98,700	100%	\$470,000	31.5%	\$148,050	
						\$6,408,960			\$4,033,368		
Clarkston	Residential	\$28,808,000	4.5	2 w/o	21.0%	\$6,049,680	30%	\$8,642,400	31.5%	\$2,722,356	\$10,448,083
	Commercial	\$2,507,000	4.5	1 w/o	29.5%	\$739,565	50%	\$1,253,500	44.3%	\$555,301	
	Industrial	\$399,000	4.5	1 w/0	29.5%	\$117,705	100%	\$399,000	44.3%	\$176,757	
	Agriculture	\$32,000	4.5	2 w/o	21.0%	\$6,720	40%	\$12,800	31.5%	\$4,032	
	Religious	\$64,000	4.5	2 w/o	21.0%	\$13,440	75%	\$48,000	31.5%	\$15,120	
	Government	\$129,000	4.5	2 w/o	21.0%	\$27,090	50%	\$64,500	31.5%	\$20,318	
						\$6,954,200			\$3,493,883		
Decatur	Residential	\$57,499,000	4.5	2 w/o	21.0%	\$12,074,790	30%	\$17,249,700	31.5%	\$5,433,656	\$24,287,237
	Commercial	\$6,082,000	4.5	1 w/o	29.5%	\$1,794,190	50%	\$3,041,000	44.3%	\$1,347,163	
	Industrial	\$965,000	4.5	1 w/0	29.5%	\$284,675	100%	\$965,000	44.3%	\$427,495	
	Agriculture	\$151,000	4.5	2 w/o	21.0%	\$31,710	40%	\$60,400	31.5%	\$19,026	
	Religious	\$2,970,000	4.5	2 w/o	21.0%	\$623,700	75%	\$2,227,500	31.5%	\$701,663	
	Government	\$2,774,000	4.5	2 w/o	21.0%	\$582,540	50%	\$1,387,000	31.5%	\$436,905	
	Education	\$1,009,000	4.5	2 w/o	21.0%	\$211,890	100%	\$1,009,000	31.5%	\$317,835	
						\$15,603,495			\$8,683,742		
Doraville	Residential	\$14,912,000	4.5	2 w/o	21.0%	\$3,131,520	30%	\$4,473,600	31.5%	\$1,409,184	\$10,738,230
	Commercial	\$8,113,000	4.5	1 w/o	29.5%	\$2,393,335	50%	\$4,056,500	44.3%	\$1,797,030	
	Industrial	\$1,287,000	4.5	1 w/0	29.5%	\$379,665	100%	\$1,287,000	44.3%	\$570,141	
	Agriculture	\$19,000	4.5	2 w/o	21.0%	\$3,990	40%	\$7,600	31.5%	\$2,394	
	Religious	\$275,000	4.5	2 w/o	21.0%	\$57,750	75%	\$206,250	31.5%	\$64,969	
	Government	\$3,000	4.5	2 w/o	21.0%	\$630	50%	\$1,500	31.5%	\$473	
	Education	\$1,766,000	4.5	2 w/o	21.0%	\$370,860	100%	\$1,766,000	31.5%	\$556,290	
						\$6,337,750			\$4,400,480		
Dunwoody	Residential	\$96,365,000	4.5	2 w/o	21.0%	\$20,236,650	30%	\$28,909,500	31.5%	\$9,106,493	\$54,369,173
	Commercial	\$34,482,000	4.5	1 w/o	29.5%	\$10,172,190	50%	\$17,241,000	44.3%	\$7,637,763	

	Industrial	\$4,443,000	4.5	1 w/o	29.5%	\$1,310,685	100%	\$4,443,000	44.3%	\$1,968,249	
	Agriculture	\$98,000	4.5	2 w/o	21.0%	\$20,580	40%	\$39,200	31.5%	\$12,348	
	Religious	\$6,284,000	4.5	2 w/o	21.0%	\$1,319,640	75%	\$4,713,000	31.5%	\$1,484,595	
	Government	\$46,000	4.5	2 w/o	21.0%	\$9,660	50%	\$23,000	31.5%	\$7,245	
	Education	\$2,063,000	4.5	2 w/o	21.0%	\$433,230	100%	\$2,063,000	31.5%	\$649,845	
						\$33,502,635			\$20,866,538		
Pine Lake	Residential	\$2,799,000	4.5	2 w/o	21.0%	\$587,790	30%	\$839,700	31.5%	\$264,506	\$902,919
	Commercial	\$38,000	4.5	1 w/o	29.5%	\$11,210	50%	\$19,000	44.3%	\$8,417	
	Industrial	\$42,000	4.5	1 w/o	29.5%	\$12,390	100%	\$42,000	44.3%	\$18,606	
						\$611,390			\$291,529		
Stone Mountain	Residential	\$2,061,000	4.5	2 w/o	21.0%	\$432,810	30%	\$618,300	31.5%	\$194,765	\$707,139
	Commercial	\$104,000	4.5	1 w/o	29.5%	\$30,680	50%	\$52,000	44.3%	\$23,036	
	Industrial	\$20,000	4.5	1 w/o	29.5%	\$5,900	100%	\$20,000	44.3%	\$8,860	
	Agriculture	\$33,000	4.5	2 w/o	21.0%	\$6,930	40%	\$13,200	31.5%	\$4,158	
						\$476,320			\$230,819		
Unincorporated	Residential	\$1,969,748,000	4.5	2 w/o	21.0%	\$413,647,080	30%	\$590,924,400	31.5%	\$186,141,186	\$939,166,818
	Commercial	\$449,589,000	4.5	1 w/o	29.5%	\$132,628,755	50%	\$224,794,500	44.3%	\$99,583,964	
	Industrial	\$67,308,000	4.5	1 w/o	29.5%	\$19,855,860	100%	\$67,308,000	44.3%	\$29,817,444	
	Agriculture	\$6,537,000	4.5	2 w/o	21.0%	\$1,372,770	40%	\$2,614,800	31.5%	\$823,662	
	Religious	\$47,872,000	4.5	2 w/o	21.0%	\$10,053,120	75%	\$35,904,000	31.5%	\$11,309,760	
	Government	\$20,091,000	4.5	2 w/o	21.0%	\$4,219,110	50%	\$10,045,500	31.5%	\$3,164,333	
	Education	\$50,571,000	4.5	2 w/o	21.0%	\$10,619,910	100%	\$50,571,000	31.5%	\$15,929,865	
						\$592,396,605			\$346,770,213		
										Total Damages	\$1,051,061,925

Name	Address	City	Zip	Students	Cost
Northwoods Montessori School	3340 Chestnut Drive	Atlanta	30340	174	\$1,651,399
Woodward Elementary School	3034 Curtis Drive NE	Atlanta	30319	776	\$7,364,861
Dresden Elementary School	2449 Dresden Drive	Chamblee	30341	785	\$7,450,278

The table above represents critical infrastructure within the effective special flood hazard area. The three schools represent the only essential facilities (as provided within the HAZUS-MR4 database) that show as being affected under this frequency storm event (the 100-yr flood). DeKalb County is currently in the process of having revised modeling performed for their flood studies so better information will be available for the next mitigation plan update. The MAC would also like to have their essential facilities updated in time for the next plan update for a more thorough review of critical infrastructure at risk from flooding and other events. The other hazards (wind, wildfire, etc) are not readily available in a granular enough geographic resolution to assess quantitative impacts from structure to structure.

HAZUS-MH: Earthquake Event Report

Region Name DeKalb

Earthquake Scenario: DeKalb_Mag5

Print Date: February 13, 2011

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

Disclaimer:

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

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General Description of the Region

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

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

Georgia

Note:

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

The geographical size of the region is 270.93 square miles and contains 115 census tracts. There are over 249 thousand households in the region and has a total population of 665,865 people (2000 Census Bureau data). The distribution of population by State and County is provided in Appendix B.

There are an estimated 209 thousand buildings in the region with a total building replacement value (excluding contents) of 52,663 (millions of dollars). Approximately 91.00 % of the buildings (and 74.00% of the building value) are associated with residential housing.

The replacement value of the transportation and utility lifeline systems is estimated to be 2,942 and 603 (millions of dollars) , respectively.

Building and Lifeline Inventory

Building Inventory

HAZUS estimates that there are 209 thousand buildings in the region which have an aggregate total replacement value of 52,663 (millions of dollars) . Appendix B provides a general distribution of the building value by State and County.

In terms of building construction types found in the region, wood frame construction makes up 82% of the building inventory. The remaining percentage is distributed between the other general building types.

Critical Facility Inventory

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

For essential facilities, there are 10 hospitals in the region with a total bed capacity of 2,346 beds. There are 236 schools, 3 fire stations, 19 police stations and 1 emergency operation facilities. With respect to HPL facilities, there are 42 dams identified within the region. Of these, 6 of the dams are classified as 'high hazard'. The inventory also includes 118 hazardous material sites, 0 military installations and 0 nuclear power plants.

Transportation and Utility Lifeline Inventory

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

The total value of the lifeline inventory is over 3,545.00 (millions of dollars). This inventory includes over 224 kilometers of highways, 245 bridges, 8,454 kilometers of pipes.

Table 1: Transportation System Lifeline Inventory

System	Component	# locations/ # Segments	Replacement value (millions of dollars)
Highway	Bridges	245	502.80
	Segments	147	2,127.40
	Tunnels	0	0.00
	Subtotal		2,630.30
Railways	Bridges	28	2.40
	Facilities	3	8.00
	Segments	37	86.70
	Tunnels	1	0.10
	Subtotal		97.30
Light Rail	Bridges	15	1.40
	Facilities	10	26.60
	Segments	11	20.30
	Tunnels	0	0.00
	Subtotal		48.30
Bus	Facilities	4	3.80
	Subtotal		3.80
Ferry	Facilities	0	0.00
	Subtotal		0.00
Port	Facilities	0	0.00
	Subtotal		0.00
Airport	Facilities	1	10.70
	Runways	4	151.90
	Subtotal		162.50
		Total	2,942.20

Table 2: Utility System Lifeline Inventory

System	Component	# Locations / Segments	Replacement value (millions of dollars)
Potable Water	Distribution Lines	NA	84.50
	Facilities	0	0.00
	Pipelines	0	0.00
		Subtotal	84.50
Waste Water	Distribution Lines	NA	50.70
	Facilities	2	117.20
	Pipelines	0	0.00
		Subtotal	167.90
Natural Gas	Distribution Lines	NA	33.80
	Facilities	0	0.00
	Pipelines	0	0.00
		Subtotal	33.80
Oil Systems	Facilities	2	0.20
	Pipelines	0	0.00
		Subtotal	0.20
Electrical Power	Facilities	5	484.00
		Subtotal	484.00
Communication	Facilities	21	1.80
		Subtotal	1.80
		Total	772.30

Earthquake Scenario

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

Scenario Name	DeKalb_Mag5
Type of Earthquake	Arbitrary
Fault Name	NA
Historical Epicenter ID #	NA
Probabilistic Return Period	NA
Longitude of Epicenter	-84.24
Latitude of Epicenter	33.79
Earthquake Magnitude	5.00
Depth (Km)	10.00
Rupture Length (Km)	NA
Rupture Orientation (degrees)	NA
Attenuation Function	CEUS Event

Building Damage

Building Damage

HAZUS estimates that about 6,792 buildings will be at least moderately damaged. This is over 3.00 % of the total number of buildings in the region. There are an estimated 93 buildings that will be damaged beyond repair. The definition of the 'damage states' is provided in Volume 1: Chapter 5 of the HAZUS technical manual. Table 3 below summaries the expected damage by general occupancy for the buildings in the region. Table 4 summaries the expected damage by general building type.

Table 3: Expected Building Damage by Occupancy

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	604	0.33	74	0.34	29	0.50	6	0.66	0	0.52
Commercial	10,890	6.01	1,362	6.34	683	11.65	140	16.64	15	16.38
Education	501	0.28	58	0.27	29	0.50	6	0.67	1	0.75
Government	374	0.21	42	0.20	22	0.37	4	0.47	0	0.41
Industrial	2,858	1.58	321	1.49	168	2.86	32	3.79	3	3.13
Other Residential	20,225	11.16	2,740	12.75	1,048	17.89	185	22.06	23	24.72
Religion	1,100	0.61	154	0.71	75	1.28	17	1.99	2	2.42
Single Family	144,736	79.84	16,744	77.90	3,805	64.95	451	53.73	48	51.68
Total	181,289		21,495		5,859		840		93	

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

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Wood	152,103	83.90	16877	78.52	3,112	53.12	214	25.51	6	6.09
Steel	8,070	4.45	756	3.52	381	6.50	54	6.39	2	2.37
Concrete	1,841	1.02	202	0.94	103	1.75	10	1.20	0	0.48
Precast	464	0.26	65	0.30	60	1.02	18	2.10	0	0.49
RM	3,137	1.73	293	1.36	227	3.87	50	5.94	0	0.46
URM	15,036	8.29	3196	14.87	1,917	32.72	491	58.42	84	90.01
MH	639	0.35	107	0.50	59	1.01	4	0.44	0	0.11
Total	181,289		21,495		5,859		840		93	

*Note:

RM Reinforced Masonry
URM Unreinforced Masonry
MH Manufactured Housing

Essential Facility Damage

Before the earthquake, the region had 2,346 hospital beds available for use. On the day of the earthquake, the model estimates that only 1,587 hospital beds (68.00%) are available for use by patients already in the hospital and those injured by the earthquake. After one week, 84.00% of the beds will be back in service. By 30 days, 96.00% will be operational.

Table 5: Expected Damage to Essential Facilities

Classification	Total	# Facilities		
		At Least Moderate Damage > 50%	Complete Damage > 50%	With Functionality > 50% on day 1
Hospitals	10	0	0	10
Schools	236	0	0	203
EOCs	1	0	0	0
PoliceStations	19	0	0	18
FireStations	3	0	0	3

Transportation and Utility Lifeline Damage

Table 6 provides damage estimates for the transportation system.

Table 6: Expected Damage to the Transportation Systems

System	Component	Locations/ Segments	Number of Locations_			
			With at Least Mod. Damage	With Complete Damage	With Functionality > 50 %	
					After Day 1	After Day 7
Highway	Segments	147	0	0	147	147
	Bridges	245	0	0	209	209
	Tunnels	0	0	0	0	0
Railways	Segments	37	0	0	37	37
	Bridges	28	0	0	28	28
	Tunnels	1	0	0	1	1
	Facilities	3	0	0	3	3
Light Rail	Segments	11	0	0	11	11
	Bridges	15	0	0	15	15
	Tunnels	0	0	0	0	0
	Facilities	10	2	0	10	10
Bus	Facilities	4	1	0	4	4
Ferry	Facilities	0	0	0	0	0
Port	Facilities	0	0	0	0	0
Airport	Facilities	1	0	0	1	1
	Runways	4	0	0	4	4

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

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

Table 7 : Expected Utility System Facility Damage

System	# of Locations				
	Total #	With at Least Moderate Damage	With Complete Damage	with Functionality > 50 %	
				After Day 1	After Day 7
Potable Water	0	0	0	0	0
Waste Water	2	0	0	0	2
Natural Gas	0	0	0	0	0
Oil Systems	2	1	0	0	2
Electrical Power	5	1	0	0	3
Communication	21	16	0	18	18

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

System	Total Pipelines Length (kms)	Number of Leaks	Number of Breaks
Potable Water	4,227	29	7
Waste Water	2,536	23	6
Natural Gas	1,691	24	6
Oil	0	0	0

Table 9: Expected Potable Water and Electric Power System Performance

	Total # of Households	Number of Households without Service				
		At Day 1	At Day 3	At Day 7	At Day 30	At Day 90
Potable Water	249,339	0	0	0	0	0
Electric Power		136,635	72,641	21,489	2,801	189

Induced Earthquake Damage

Fire Following Earthquake

Fires often occur after an earthquake. Because of the number of fires and the lack of water to fight the fires, they can often burn out of control. HAZUS uses a Monte Carlo simulation model to estimate the number of ignitions and the amount of burnt area. For this scenario, the model estimates that there will be 34 ignitions that will burn about 1.19 sq. mi (0.43 % of the region's total area.) The model also estimates that the fires will displace about 3,748 people and burn about 280 (millions of dollars) of building value.

Debris Generation

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

The model estimates that a total of 0.000 million tons of debris will be generated. Of the total amount, Brick/Wood comprises 0.00% of the total, with the remainder being Reinforced Concrete/Steel. If the debris tonnage is converted to an estimated number of truckloads, it will require 0 truckloads (@25 tons/truck) to remove the debris generated by the earthquake.

Social Impact

Shelter Requirement

HAZUS estimates the number of households that are expected to be displaced from their homes due to the earthquake and the number of displaced people that will require accommodations in temporary public shelters. The model estimates 779 households to be displaced due to the earthquake. Of these, 560 people (out of a total population of 665,865) will seek temporary shelter in public shelters.

Casualties

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

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

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

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

Table 10: Casualty Estimates

		Level 1	Level 2	Level 3	Level 4
2 AM	Commercial	3	0	0	0
	Commuting	475,240,960	310,608,640	320,448,768	126,687,712
	Educational	0	0	0	0
	Hotels	1	0	0	0
	Industrial	1	0	0	0
	Other-Residential	76	12	1	3
	Single Family	97	12	1	2
	Total	475,241,138	10,608,666	20,448,771	26,687,717
	2 PM	Commercial	144	24	2
	Commuting	277,172,736	495,482,368	384,046,336	140,191,232
	Educational	30	5	1	1
	Hotels	0	0	0	0
	Industrial	10	2	0	0
	Other-Residential	13	2	0	0
	Single Family	16	2	0	0
	Total	277,172,949	95,482,402	84,046,340	40,191,239
	5 PM	Commercial	104	17	2
	Commuting	337,508,608	374,893,312	393,322,240	374,037,504
	Educational	5	1	0	0
	Hotels	0	0	0	0
	Industrial	6	1	0	0
	Other-Residential	30	5	1	1
	Single Family	38	5	0	1
	Total	337,508,791	74,893,341	93,322,243	74,037,510

Economic Loss

The total economic loss estimated for the earthquake is 1,746.82 (millions of dollars), which includes building and lifeline related losses based on the region's available inventory. The following three sections provide more detailed information about these losses.

Building-Related Losses

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

The total building-related losses were 1,676.27 (millions of dollars); 9 % of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies which made up over 61 % of the total loss. Table 11 below provides a summary of the losses associated with the building damage.

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

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total
Income Losses							
	Wage	0.00	2.07	25.93	0.64	2.53	31.17
	Capital-Related	0.00	0.87	21.70	0.38	0.63	23.58
	Rental	6.48	12.69	16.44	0.29	1.09	36.97
	Relocation	23.42	8.68	23.58	1.59	8.75	66.01
	Subtotal	29.89	24.30	87.65	2.90	12.99	157.74
Capital Stock Loses							
	Structural	40.84	16.39	24.18	3.16	6.94	91.50
	Non_Structural	389.94	200.53	179.81	41.81	49.26	861.34
	Content	237.16	84.72	152.00	33.80	45.33	553.01
	Inventory	0.00	0.00	4.47	7.81	0.39	12.67
	Subtotal	667.93	301.64	360.46	86.58	101.92	1,518.53
	Total	697.83	325.94	448.11	89.47	114.92	1,676.27

Transportation and Utility Lifeline Losses

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

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

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

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Highway	Segments	2,127.44	\$0.00	0.00
	Bridges	502.84	\$0.74	0.15
	Tunnels	0.00	\$0.00	0.00
	Subtotal	2630.30	0.70	
Railways	Segments	86.74	\$0.00	0.00
	Bridges	2.42	\$0.00	0.01
	Tunnels	0.11	\$0.01	6.10
	Facilities	7.99	\$1.91	23.89
	Subtotal	97.30	1.90	
Light Rail	Segments	20.26	\$0.00	0.00
	Bridges	1.41	\$0.00	0.01
	Tunnels	0.00	\$0.00	0.00
	Facilities	26.63	\$7.62	28.60
	Subtotal	48.30	7.60	
Bus	Facilities	3.84	\$0.96	24.93
	Subtotal	3.80	1.00	
Ferry	Facilities	0.00	\$0.00	0.00
	Subtotal	0.00	0.00	
Port	Facilities	0.00	\$0.00	0.00
	Subtotal	0.00	0.00	
Airport	Facilities	10.65	\$2.84	26.66
	Runways	151.86	\$0.00	0.00
	Subtotal	162.50	2.80	
Total		2942.20	14.10	

Table 13: Utility System Economic Losses

(Millions of dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Potable Water	Pipelines	0.00	\$0.00	0.00
	Facilities	0.00	\$0.00	0.00
	Distribution Line	84.50	\$0.13	0.15
	Subtotal	84.54	\$0.13	
Waste Water	Pipelines	0.00	\$0.00	0.00
	Facilities	117.20	\$11.65	9.94
	Distribution Line	50.70	\$0.10	0.20
	Subtotal	167.94	\$11.75	
Natural Gas	Pipelines	0.00	\$0.00	0.00
	Facilities	0.00	\$0.00	0.00
	Distribution Line	33.80	\$0.11	0.32
	Subtotal	33.82	\$0.11	
Oil Systems	Pipelines	0.00	\$0.00	0.00
	Facilities	0.20	\$0.03	17.90
	Subtotal	0.18	\$0.03	
Electrical Power	Facilities	484.00	\$44.16	9.12
	Subtotal	484.00	\$44.16	
Communication	Facilities	1.80	\$0.30	16.14
	Subtotal	1.85	\$0.30	
	Total	772.32	\$56.48	

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

	LOSS	Total	%
First Year			
	Employment Impact	3,577	1.21
	Income Impact	(2)	-0.01
Second Year			
	Employment Impact	1,571	0.53
	Income Impact	(29)	-0.22
Third Year			
	Employment Impact	35	0.01
	Income Impact	(43)	-0.33
Fourth Year			
	Employment Impact	0	0.00
	Income Impact	(45)	-0.34
Fifth Year			
	Employment Impact	0	0.00
	Income Impact	(45)	-0.34
Years 6 to 15			
	Employment Impact	0	0.00
	Income Impact	(45)	-0.34

Appendix A: County Listing for the Region

Dekalb,GA

Appendix B: Regional Population and Building Value Data

State	County Name	Population	Building Value (millions of dollars)		
			Residential	Non-Residential	Total
Georgia	Dekalb	665,865	39,167	13,495	52,663
Total State		665,865	39,167	13,495	52,663
Total Region		665,865	39,167	13,495	52,663

Mitigation Strategies for DeKalb County and Participating Jurisdictions										
Jurisdiction	Title	Description	Priority	Objectives Addressed	Coordinating Individual/ Organization	Implementation Strategy	Benefit vs. Cost	Timeframe for Implementation	Potential Funding Source	Interpreted Status
DeKalb County	Action # GEN 1: Incorporation of Elements of this Plan into the Comprehensive Plan	A means for incorporating this plan into the County’s existing plans, policies, or ordinances is required. The DeKalb County Comprehensive Plan is currently being examined for update. The Comprehensive Plan establishes the policy framework upon which regulations, codes, ordinances, and other programs are shaped. For that reason, it is the most efficient and effective document to incorporate elements of this mitigation plan. It is also a document with much broader distribution and interest throughout the County. Each revision of the Comprehensive Plan will include a review of this plan. The appropriate elements and hazard mitigation strategies will be included in the revision.	Very High	1A, 1C	DeKalb County Planning Department, with Stakeholder and MAC input.	Review Hazard Mitigation Plan concurrently with revision of Comprehensive Plan. Incorporate as many of the Hazard Mitigation Plan elements into the Comprehensive Plan as appropriate.		Beginning with the next update of the Comprehensive Plan and continuing with each additional update.	N/A	Deferred
DeKalb County	Action # GEN 2: Post-Disaster Inspections Plus Mitigation Strategies	In a post storm environment, roadways, bridges, culverts and other infrastructure are inspected for damage. Those individuals conducting the inspection may have many good ideas about ways the damage could have been prevented. However there is currently no official structure for receiving the opinions of these individuals. The process of inspections could be slightly modified to include documentation of mitigation strategies during the post-disaster inspections.	Very High	3A, 4D, 5B, 5C and 5F	DeKalb County Infrastructure Group of Departments & Emergency Management Departments, All participating Cities Public Works Departments	Create a checklist to be used by the inspectors in the field in a post-disaster environment. The checklist will include an area for mitigation opportunities to prevent future damage. This information will be quickly inventoried and captured in a database and the locations of damage mapped in GIS, for further examination and possible inclusions in updates of this plan.		Beginning within 6 months of adoption of this plan and continuing with each disaster event.	Departmental Budgets	In Progress
DeKalb County	Action # GEN 3: Critical Facility Data Reconciliation and Audits	The three sources of information for critical facilities in the County overlap in many areas and are not consistent. This is due in part to the fact that the definitions of critical facility vary from source to source. As part of this plan, the MAC, LPGs, and consultant updated information in the GEMA critical facilities inventory tool. Reconciliation of the data sets at the county and local level is needed. Those facilities located in the highest identified risk zones should be audited for mitigation alternatives.	High	3B, 3D, 4D, 4F 5C, 5E, 5I, 5J, 5K, 5L	DeKalb County Infrastructure group of Departments, Building Inspectors and Facilities Management with support from GIS – City Public Works Departments	The County will work with all jurisdictions to complete a thorough review of all critical facility data sources and create one database. Any structures missed in the update of the GEMA tool will be updated. Once there is one database, the county and the cities will conduct voluntary critical facilities audits of those structures located in the highest hazard prone areas. Audits will include scheduling visits to the facilities with hazard educated engineers. Data will be collected on building materials, elevations, if available, and other factors pertinent to the particular hazard. Audits will result in a brief (one or two page)		Beginning with completed data reconciliation within one year of plan adoption. Then, 5 or more facility audits to be conducted within one year of data reconciliation. All facilities (willing to participate) should be audited within 5 years.	Departmental Operating Budgets, Enterprise Fund, FEMA PDM-C Planning Funds	Deferred

						summary of actions that the building owners could undertake to minimize potential losses in the futures and will help educate property owners on preparedness and mitigation techniques.				
DeKalb County	Action # GEN 4: Electronically Publicize Risk Data	The planning process identified, with the possible exception of flooding, a lack of awareness throughout the County and cities about the vulnerability that exists for many hazards. The risk information generated through this planning document, along with other miscellaneous risk information, is not widely available to the residents of DeKalb County. Having the information available over the internet would help to make residents, business owners, and all of DeKalb County more aware of hazards and their associated risks.	High	2A, 2B, 2C, 2D, 3A, 3B, 4B, 4D, 4F, 5A, 5B, 5F, 5L and 5M	DeKalb County Information Technology, with support from the GIS Department, Webmasters for the City jurisdictions	A web page with appropriate links will be added to the County's website. Among other items, this plan will be posted with instructions and a means for residents and businesses to provide feedback through the website. Each participating jurisdiction with a website will, at minimum post a link to the County's website.		Beginning within 1 year of plan adoption and continuing as necessary updates occur.	Departmental Operating Budgets	Deferred
DeKalb County	Action # GEN 5: Storm Ready Designation	DeKalb County could benefit from additional awareness and outreach for storm readiness.	Medium	3A, 4D	Emergency Management and Homeland Security	Meet with National Weather Service to review criteria for receiving "storm ready" designation. Compare criteria against programs and actions in this plan.		Beginning within 2 years of plan adoption	Departmental Budgets	Complete
DeKalb County	Action # FLD 1: Drew Valley Subdivision Property Acquisitions	The Drew Valley subdivision is an older, established neighborhood of single family homes, mostly constructed in the 1950's and 1960's. Many of these homes are built directly next to creeks, and have flooded several times. Two recent flood events, June 16-17, 2003, and Hurricane Ivan in the fall of 2004, were accurately recorded with photos and high water marks of the flooding in some of the homes. The 15 homes identified in this project for acquisition generally have the highest flood risk of close to 100 homes in the neighborhood floodplain. These homes were also determined to be the most difficult to reduce flood risk through drainage improvement projects. Another project in the area (Action # FLD 2) is a series of drainage improvements which will substantially reduce the risk of the homes in the floodplain, except for these 15. These homes have lowest floor elevations are below the 10-year flood level. Eliminating these properties from the floodplain would reduce the flood insurance burden on those still in the program and add open space in the County as targeted in the Comprehensive Plan of the County and many of the Cities.	Very High	1A, 4D, 5F, 5M, 5L, 5G	Floodplain Administrator, DeKalb County Public Works, Roads & Drainage Division	Conduct voluntary property acquisition program for the 15 homes, create open space with vacant lots, preserve in perpetuity.	FEMA B/C module yields a ratio of about 2	Beginning within 12 month from date of plan adoption and carried out as funding allows	PDM grant (75% share), DeKalb County Stormwater Utility Fee Enterprise Fund (25%) – HMGP as alternate potential source.	Complete
DeKalb County	Action #FLD 2: Drew Valley Subdivision	The Drew Valley subdivision is an older, established neighborhood of single family homes, mostly	Very High	5F, 5M, 5L, 5G, 5A, 4D,	Floodplain Administrator, DeKalb	Construct the already designed drainage improvements described	FEMA B/C module yields a ratio of about	Beginning within 24 months of adoption continuing as	PDM grant (75% share), DeKalb County	In Progress

	Drainage Improvements	constructed in the 1950's and 1960's. Many of these homes are built directly next to creeks, and have flooded several times. Two recent flood events, June 16-17, 2003, and Hurricane Ivan in the fall of 2004, were accurately recorded with photos and high water marks of the flooding in some of the homes. Through detailed modeling and analysis, DeKalb County has identified a series of drainage improvements within the neighborhood which would substantially reduce the flood risk to at least 40 homes. The proposed improvements consist of a detention pond to be located near the upstream end of the neighborhood, to substantially attenuate peak flood flows for the 2-year through 100-year flood events for the downstream homes. In conjunction, several culvert openings under road crossing would be enlarged, reducing the hydraulic back-up which contributes to existing flooding. The detention pond will eliminate increased peak flows that would result downstream of the culvert enlargements.		1A	County Public Works, Roads & Drainage Division	above.	2.	funding allows	Stormwater Utility Fee Enterprise Fund (25%) – HMGP and FMA grant programs as back up with same match.	
DeKalb County	Action #FLD 3: Jackson Square Condominium Acquisitions	32 Units of townhouse style condominium units sit near the banks of North Fork Peachtree Creek, and have lowest floor elevations below the 10-year flood level. The structures were constructed in 1965, and were apartments until bankruptcy and sale to a developer in 2000, when they were subsequently converted to condominiums. The units were not substantially improved at that time; therefore, minimum permits were required for the conversion. Approximately half of these units flooded on June 17, 2003, from about 3.5" of rain across the 32 square mile drainage area. All of these units flooded from the rains of Hurricane Ivan in the fall of 2004, which was estimated to be less than a 10-year rainfall event in this area. DeKalb County has explored other mitigation actions, but none are feasible to reduce the risk of flooding to these homes. Therefore, acquisition and demolition is the most cost effective solution, which is backed up by the FEMA B/C module. Eliminating these properties from the floodplain would reduce the flood insurance burden on those still in the program and add open space in the County as targeted in the Comprehensive Plan of the County and many of the Cities.	Very High	5F, 5M, 5L, 5G, 5A, 4D, 1A	Floodplain Administrator, DeKalb County Public Works, Roads & Drainage Division	Conduct property acquisitions, and develop permanent open space at the site.	FEMA B/C module yields a ratio of about 2.	Beginning within 12 months of plan adoption and continuing as funding allows	PDM grant (75% share), DeKalb County Stormwater Utility Fee Enterprise Fund (25%) – HMGP and FMA Grant funds as back-up with same match source.	Complete
DeKalb County	Action #FLD 4: Medlock Park Area Flood Property Acquisitions	The Medlock Park area is an older, established neighborhood of single family homes. Many of these homes are built directly next to creeks, and have flooded several times in the past. Approximately 43 homes are located in the floodplain in this subdivision, and about 20 have experienced serious flooding in the past. A few homes have already been bought out and	Very High	5F, 5M, 5L, 5G, 5A, 4D, 1A	Floodplain Administrator, DeKalb County Roads & Drainage Division	Develop Benefit Cost Analysis, Seek Grant Funding, acquire and demolish homes, develop permanent open space on the site.	To be determined. An advantageous B/C ratio is expected for the acquisition of at least some homes.	Beginning within 24 months of plan adoption and continuing as funding allows	Future Year PDM/HMGP grants (75% share), DeKalb County Stormwater Utility Fee Revenue (25%) – FMA as back-up, US Army Corp of	In Progress

		demolished through HMGP grants. Eliminating these properties from the floodplain would reduce the flood insurance burden on those still in the program and add open space in the County as targeted in the Comprehensive Plan of the County and many of the Cities.							Engineers	
DeKalb County	Action #FLD 5: Enhance Property Acquisition Program in All Repetitive Loss Areas	In addition to the specific projects listed above, the County has several more repetitive loss areas (see Section 4.3.1.1) and has identified over 100 homes for potential acquisition. The owners of these properties have expressed a desire to be bought out by the County. Eliminating these properties from the floodplain would reduce the flood insurance burden on those still in the program and add open space in the County as targeted in the Comprehensive Plan of the County and many of the Cities. There is a list of buildings with interested owners maintained by Public Works. This project is not limited to homes on the list and will be available to all qualifying homes throughout the County.	Very High	5F, 5M, 5L, 5G, 5A, 4D, 1A	Floodplain Administrator, DeKalb County Public Works, Roads & Drainage Division	Develop Benefit Cost Analysis for prioritized properties, acquire funding, acquire and demolish structures on a funding available basis, preserve open space in perpetuity.	To be determined. An advantageous B/C ratio is expected for the acquisition of at least some homes.	Beginning with a benefit cost analysis on selected structures and grant applications within one year of plan adoption, then ongoing for 5 years, funding dependent.	Future Year PDM/HMGP grants (75% share), DeKalb County Stormwater Utility Enterprise Fund (25%), HMGP and FMA, U.S. Army Corp of Engineers	In Progress
DeKalb County	Action #FLD 6: Cooperating Technical Partner – Map Modernization	The basis for a sound floodplain management program is the quality of the risk information upon which development decisions are made. The FEMA FIRMs are the best available depiction of overall flooding risk in the County. The current FIRMS are outdated. FEMA is currently geo-referencing and completing a database for the digital flood maps as part of its overall map modernization initiative. It is not, however, updating the inundation studies. The digital maps FEMA is producing will provide a platform from which updated flood data (hydrologic, topographic, and hydraulic analysis modeling) can be added at a fraction of the cost and time previously required. FEMA Region IV has begun a process of scoping hazard mapping needs in DeKalb County. The county will seek an increased role in the re-mapping process via a Cooperating Technical Partnership (CTP) agreement with FEMA to ensure the accuracy and quality of new countywide mapping.	Very High	4A, 4C, 5H, 5I, 5J	DeKalb County Public Works, Decatur Public Works Department – with input from other city NFIP administrators	Enter into a CTP agreement with FEMA and develop a mapping activity statement to actively participate in the scoping of flood hazard data updates for the new digital flood maps	FEMA has determined the re-mapping flood hazards is cost beneficial	Beginning with a CTP agreement within one year of adoption of plan, complete project within 3 years, outside funding dependent	FEMA Map Modernization Program – Cooperating Technical Partners funds with match from Stormwater Enterprise Fund.	In Progress
DeKalb County	Action #FLD 7: Monitor Repetitive Loss (RL) Properties for Substantial Improvement	Changes and alterations to repetitive loss properties can have a significant impact on whether they continue to flood. A systematic way of keeping track of these changes would help keep the County’s repetitive loss database updated. DeKalb County will monitor RL properties for substantial improvements and will complete RL verification forms to keep FEMA lists current. The County will further monitor the performance of Substantially Improved buildings meeting current NFIP standards after floods. The	High	1C, 4D, 5E, 5F, 5H, 5L	DeKalb County Public Works, Planning and Development Department, NFIP Administrators of all participating cities.	During the permitting process, the County will continuously monitor existing repetitive loss structures for substantial improvement. Develop a system of record keeping to easily track and update annually repetitive loss properties as per FEMA’s repetitive loss verification sheets.	N/A.	Beginning with plan adoption and continuing as permit applications for RL properties are submitted.	Departmental Operating Budget	In Progress

		County will also conduct voluntary audits of repetitive loss structures to assess specific vulnerability to flood hazards and develop recommendations for potential mitigation measures. These programs will be geared to educating homeowners on potential mitigation strategies. As part of this program, the County will pursue removing repetitive loss structures that no longer qualify as repetitive losses.								
DeKalb County	Action #FLD 8: Lower CRS Rating to Class 7	DeKalb County and the City of Decatur participate in the NFIP CRS program and are both currently Class 8 participants, resulting in 10% insurance premium discounts. The County and City both believe with the completion of this plan they will be engaged in enough mitigation activities to have enough rating points to move to a Class 7.	High	2A, 4D, 5A, 5F, 5G, 5L	DeKalb County Public Works, Decatur Public Works	Schedule a verification meeting with FEMA’s contractor, ISO, to review activities and apply for re-classification	Cost is minimal for significant benefit	Beginning with a complete evaluation and program design within 2 years of plan adoption	Departmental Operating Budget	Complete
DeKalb County	Action #FLD 9: Flood Insurance Public Education	There are nearly 17,000 structures in the floodplains throughout DeKalb County and only 3,400 flood insurance policies in effect. DeKalb County will design an outreach program to promote the purchase of insurance.	Medium	2A, 4D, 5A, 5F, 5G, 5L C, 4A	DeKalb County Planning Department and Emergency Management, with the assistance of the Cities Public Works Departments	Meet with FEMA and GA DNR Floodplain Management Program Staff to develop two programs. Solicit help from FEMA to have its Bureau and Statistical Agent to do more regularly scheduled training sessions for insurance agents and banks. Develop outreach materials for distribution with tax bills. Materials will explain the benefits of flood insurance and the consequences of not having it.	Cost is minimal for significant benefit	Within 3 years of plan adoption, two programs will be developed and outreach materials will be distributed in tax bills	Departmental Operating Budgets	Complete
DeKalb County	Action #FLD 10: Develop Twice Per Year (or more) Creek Walks for Major Flooding Sources	Public sentiment during the planning process indicated that there are certain groups who feel more needs to be done to maintain stream channels by clearing debris and other invasive materials. The County will identify local groups, such as watershed associations and develop a program to have creek walks twice per year at each location to remove easily removable debris and to monitor and report other situations that may exacerbate flooding.	Medium	1C, 2A, 2C, 4D, 5A, 5B, 5C, 5E, 5F 5G	DeKalb County Department of Watershed Management, Public Works Department with assistance from Emergency Management and select city Public Works Departments, along with Keep DeKalb Beautiful	Identify stakeholder groups to assist and sponsor, notify abutting residents, schedule and guide the first inspection of each group and provide instructions on what can and cannot be realistically addressed after the findings of their walking inspection. Set a schedule for twice per year walks and make staff available to participate.	Cost is minimal, payoff is great.	2 years	Departmental Operating Budgets	Complete
DeKalb County	Action # WIN 1: Tornado Safe Rooms	Tornadoes, hurricanes, and other extreme wind events pose significant threat to the entirety of DeKalb County. Historically, DeKalb County has experienced a multitude of violent, storm related weather events, resulting in death, injuries, and property damage through out the county. As a result, DeKalb has been declared in three Presidential Emergency Declarations in the past few years alone. Some examples are the Dunwoody	Very High	4A, 4C, 4D, 5B, 5J	DeKalb County Facilities Management, Development Department (Building Inspection), DeKalb County Emergency Management, and LPG designee from each	Form an assessment team to conduct a systematic review and analysis of designated facilities. A study will identify and determine the most beneficial locations for constructing / installing safe rooms around the county. Recommendations from the study could be incorporated into	Anticipated to be cost beneficial, as many lives could be saved by safe rooms such as these	FY2005 PDM grant (75% share), DeKalb County Government General Funds (25% Share), HMGP, Department of Homeland Security Grants	5 Years from date of plan adoption	Deferred

		tornadoes in 1998, (2 killed, hundreds injured), Ice Storm in 2000 (millions in infrastructure and property damage), Hurricane Ivan in 2004 (millions in infrastructure and property damage). Unfortunately, not all residents of the county have a safe place to retreat to during severe weather. This is especially true for large gatherings of people at schools, government buildings, county and municipal recreational venues (parks, stadiums), shopping malls, and other public places. If a tornado were to strike such a place, large numbers of lives could potentially be lost. Safe rooms are hardened areas designed to reduce or eliminate the destructive impact of severe weather, and other hazardous occurrences.			participating city.	future revisions of this plan as a means to construct the safe rooms.				
DeKalb County	Action #WIN 2: Wind Retrofit Project – 1950 and 1960 West Exchange Buildings	DeKalb County recently acquired twin buildings which are located in close proximity to east and west bound I-285 and Lavista Road in Tucker, Georgia. Their respective addresses are 1950 and 1960 West Exchange, Tucker Georgia 30084. These twin 5 story glass surrounded structures were constructed approximately 14 years ago and may have been exempt from certain building codes, standards, and construction techniques that would reduce their vulnerability to severe wind storms. This is of special concern to DeKalb County Emergency Management Officials because the county is currently in the process of relocating it's main Command and Control Operations for Police, Fire and Rescue, Homeland Security, 911 Emergency Communications Center, the County Wide Emergency Operations Multi Agency Command Center, Telecommunications department, and other highly critical and essential systems into both buildings. Disruption to these Critical Facilities due to broken and flying glass would have a devastating effect on the County's ability to deliver police, fire, and rescue services that provide security against loss of life and injury to persons and property. Mitigation strategies would include a detailed study of the structures to determine their ability to withstand tornado, hurricane, tropical storm force winds, micro-burst, strait-line winds, etc, especially with regard to the extensive glass exterior of both structures.	Very High	1B, 1C, 4A, 4D, 4G, 5G, 5J, 5K	DeKalb County Emergency Management Agency	Perform a comprehensive study of structures to determine specific areas of weakness and vulnerability. Compile a comprehensive list of effective mitigation strategies which may include special films or other materials that could be applied to all exterior glass panels to provide breakage protection from windborne debris from hurricanes, tornadoes, or severe thunderstorm activity. Mitigation measures should also be applied to reduce breakage from blast effects due to extremely close proximity of both structures to CSX Railroad Lines.	Anticipated to be highly cost beneficial	Beginning with a comprehensive study within 1 year of plan approval and targeting implementation of the identified mitigation strategies within 2 years of plan approval, funding permitting	Homeland Security Grant Funds, PDM grant (75% share), DeKalb County Government (25% share)	In Progress
DeKalb County	Action # WIN 3: Outdoor Alert and Warning System Evaluation	About 25 outdoor warning sirens were in operation at various locations throughout the county during the 1960's, 1970's and part of the 1980's. They were principally intended as a method of warning DeKalb County residents of an impending attack by a foreign enemy, and for tornado warnings. In 1988, the county decommissioned them. Without an outdoor warning	High	2A, 3A, 3B, 4A-D, 5B and 5K	DeKalb County Emergency Management and all incorporated cities	DeKalb County, in close coordination with the cities, State and Federal government will investigate alternative warning dissemination alternatives, potentially including a combination of some sirens, use of the existing reverse 911 system and	N/A	DHS-FEMA Homeland Security Grant Funds	A complete analysis of alternative warning dissemination systems within 2 years from the date of plan adoption	Deferred

		siren system in place, hundreds of thousands of residents and visitors are at peril everyday. DeKalb County boasts a variety of arts, entertainment, and outdoor recreational opportunities for visitors and residents. There are more than 100 DeKalb County Parks and 2 Georgia State Parks (Vaughter’s Farm and Stone Mountain Park, one of the Southeast’s most popular outdoor attractions) within the DeKalb County Boundary.				other options. Once the most efficient and optimum warning delivery system is identified, the County will seek funds to develop and exercise it.				
DeKalb County	Action #WIN 4: Wind Safety Awareness	The current building code addresses wind resistant construction techniques for certain construction types. Possible improvements or supplements could include additional requirements for structural bracing, straps and clips, anchor bolts, laminated or impact-resistant glass, and interlocking roof shingles. The Building Permit staff in the Planning and Development Department will provide wind proof construction and retrofit literature to those seeking building permits and will promote techniques to builders and developers during permitting.	Medium	A, 1B and 2A-C	DeKalb County Planning and Development Department, Building Permits	Obtain literature from FEMA, the Institute for Business and Home Safety and other sources. Make it available in a prominent location at the permitting counter and train staff on its use and promotion	N/A	Within 6 months of plan approval	N/A; literature is available for free	Deferred
DeKalb County	Action # ICE/WIN 1: Tree Pruning Program	The electric, phone, and cable utilities have tree pruning programs to protect their lines from ice storms and severe winds. During these events, tree branches (and in some cases whole trees) can come down and cause damage to power lines, structures, and can block roads and other thoroughfares, disrupting travel and commerce. The programs do not go far enough to provide adequate protection since they are focused specifically on lines. The County will develop a program to supplement the utilities’ programs in the vicinity of government owned buildings similar programs in place.	Very High	3B, 5C, 5J	DeKalb County Facilities Management, Arborist, and all incorporated cities	Implement a county-wide tree pruning program, particularly focused on trees around government owned property and critical facilities. Identify old or diseased trees which pose an especially large hazard to the population, and to public buildings and infrastructures. Coordinate with local governments to assist them if they do not already have a similar program in place.		Beginning within 1 year of plan adoption, then annually	County General Fund	Deferred
DeKalb County	Action #ICE/WIN 2: Bury Power lines	During high winds and ice storms, power lines can easily collapse. Especially during ice storms, when the lines become coated, they become very heavy and brittle, and may snap in half. This creates not only a disruption in power, but a hazard to passersby from the exposed wires. Implementing a program to bury as many power lines as possible reduce this hazard. It also would be more aesthetically pleasing for county residents. This program would provide an opportunity for outreach about other hazards. This would compliment an existing project in the Comprehensive Plan (Section 7.20 requires new electrical lines be buried).	High	1A, 1C, 2A, 2B, 2C, 3A, 3C and 4D	Planning and Development Department, Permitting, with assistance from Public Works, Facilities Management, and Parks and Recreation, and all incorporated cities	Modify subdivision regulations and other appropriate ordinances to require burying of power lines in all new developments.	Anticipated to be cost beneficial.	Within two years of plan adoption have regulations and ordinances modified and adopted	Departmental Budgets	In Progress
DeKalb County	Action #ICE 3: Winter Roads Maintenance	During the winter time roads can become covered in snow or, more likely, in ice. The county currently has a means for clearing and thawing ice from roadways which includes prioritization of all roads for which the	Medium	3B, 4D, 5C	Public Works, Roads and Drainage Division	Convene a working group to review existing practices and make recommendations to Public Works, Roads and Drainage Division.	N/A	Within 6 months of adoption of plan	Departmental Budgets	In Progress

		County has responsibility. The county will review its current methods in coordination with the cities and will create a brief written plan outlining its approach and prioritization with supporting information, so that as staff changes inevitably occur the approach will be available and periodically reviewed to add information. This will ensure that resources are deployed in a coordinated and efficient manner.								
DeKalb County	Action #WDF 1 – Wildfire Education	There is a lack of knowledge within the public, as well as within local government, about vulnerability to wildfire. Individuals and institutions alike may be taking unnecessary risks with their lives and property because they don't know the proper precautions to prevent wildfires. Begin an educational program that has two distinct halves: one targeted towards the community at large, and the other targeted towards government officials who make decisions and can potentially impact the county's relationship to wildfire prone areas. Try to move the county towards becoming a Firewise community.	Very High	2A, 2B, 2C, 3A, 4A, 4B, 5L	DeKalb County Fire and Rescue, with cooperation from all incorporated cities	Mailings, Internet Postings	N/A	Within 1 year of plan adoption have educational program implemented	County Fire Department Operational Budget, Georgia Forestry Commission, Urban & Community Forestry Financial Assistance Program	Deferred
DeKalb County	Action #WDF 2 – Wildfire Hazard Analysis/Mapping	The existing wildfire mapping for the county, used in this report, is not designed to be used at a countywide scale and is believed to be inaccurate. In some areas, the pixels of data are so large they are nearly useless, particularly in some of the smaller communities such as Pine Lake. Not only does this make the data difficult to use, but it makes it less credible in the eyes of the public, and for government officials who need to use it. The County will commission a study of actual wildfire threat to determine if re-mapping the hazard is cost effective.	Very High	2A, 2B, 2C, 3A, 3C, 3D, 5I, 5J	DeKalb County Fire and Rescue, and County GIS Department, and all incorporated cities	Commission a wildfire vulnerability analysis.	N/A	Within 1 year of plan adoption have study of wildfire threat complete	Georgia Forestry Commission U&CF Financial Assistance, National Fire Protection Association for Technical Assistance, USDA, Forestry Service.	Deferred
DeKalb County	Action #WDF 3 – Review Subdivision Ordinance	The existing subdivision ordinance in the county does not address the need for defensible space between homes and wildfire prone areas.	Medium	1A	DeKalb County Planning and Development Department, Fire Department	Review the subdivision ordinance for possible changes to incorporate defensible space, fire breaks, and other fire prevention planning techniques and incorporate appropriate changes.	N/A	Within 3 years of plan adoption have ordinance revised and adopted	Departmental Operating Budgets, Information and models are available free from the National Fire Protection Associate and the Firewise Communities program	Deferred
DeKalb County	Action #WDF 4 – Firewise Communities Outreach	Outside of the County Fire Department, there is an emphasis on fire suppression rather than on activities individual property owners can undertake to prevent fires from destroying their buildings. The National Fire Protection Association's (NFPA) Firewise Communities program provides assistance to local government officials (including planners outside of fire agencies) on fire mitigation at the site specific level. While most of the training includes action on the behalf of property	Medium	2A, 2B, 2C, 3A, 3B, 4D, 4F, 5B, 5L	County Fire and Rescue Department with all incorporated cities.	Work with NFPA and the Georgia Forestry Commission to design a program appropriate for DeKalb County.	unknown	Develop program within 1 year of plan adoption, conduct 2 trainings in the second year, then reevaluate as appropriate.	Georgia Forestry Commission U&CF Financial Assistance, National Fire Protection Association for Technical Assistance, USDA, Forestry Service.	In Progress

		owners that are already required or recommended, those actions may not be familiar to many owners and local government officials. The County will look into working with NFPA to obtain guidance to educate property owners.								
DeKalb County	Action #EH 1 – Heat Awareness	Residents of DeKalb County who are unaware of the threat posed by extreme heat, especially vulnerable populations such as the elderly, are at risk of suffering a myriad of heat related illnesses. However, it is relatively easy to avoid these heat related illnesses with a little knowledge and effort. Implement a program for educating the public, especially the elderly and other vulnerable populations, about the risks posed by exposure to extremely high temperatures.	Medium	2A, 2B, 2C, 3A 4D, 5B, 5L	DeKalb County Fire and Rescue, Emergency Management, with Parks and Recreation supporting, and cooperation from all incorporated cities	Develop an outreach strategy and implementation plan.	Anticipated to be marginally cost beneficial	Within 6 months of plan adoption	Departmental Operating Budgets	Deferred
DeKalb County	Action #EH 2 – Cooling Center	Vulnerable populations in DeKalb County do not always have a place to go to escape the extreme summer heat. This can pose a serious threat to the health of these individuals. Especially at-risk are the elderly, some of whom will not be able to get to a reasonably cool shelter, even if one exists. Evaluate the existence of cool shelters in and around DeKalb County, and determine their geographical relationships to the vulnerable populations of the County. Determine an efficient way of encouraging or helping those portions of the populations that are especially vulnerable to extreme heat to get to the cooling centers. A transportation plan needs to be included. This can be incorporated into the outreach program.	Medium	2A, 2B, 3A, 4D, 5B, 5L	Emergency Management and Homeland Security, with support from Public Works, Facilities Management, Police, Fire, Parks and Recreation, Planning, the Human/Senior Services Division of the Human and Community Development Department and all incorporated cities		N/A	Within 2 years of plan adoption have plan for cooling centers and transportation implemented	Departmental Operating Budgets to design the program, PDM and HMPG funds to upgrade facilities.	Deferred
DeKalb County	Action #DRT 1 – Drought Contingency Plan	The County maintains the water supply for the residents and businesses of DeKalb County. The county has a plan in place for ensuring there is enough water to serve all the needs of the county during years of low rainfall. Although this plan has functioned well in the past, there are additional measures that could be taken to protect the county from drought-related difficulties. Review the existing drought contingency plan, find ways to improve upon it, and implement those improvements.	Medium	3A, 4D, 4G	Department of Public Works, Water and Sewer Division, with support from DeKalb County Planning Department and all incorporated cities		N/A	Begin reviewing the drought contingency plan within 2 years of plan adoption	Departmental Operating Budget	In Progress
DeKalb County	Action #DRT 2 – Drought Outreach	Water conservation is an important element in meeting future water supply needs. The Regional Water Supply Plan prepared by the Atlanta Regional Commission shows that over 20 percent of the region’s water supply must come from water conservation efforts. The need for water conservation has only been reinforced by disputes with neighboring states and difficulties encountered in building new or reallocating old	Medium	1C, 2A, 2B, 2C, 3A, 4A, 4B, 4D, 4F and 5L	DeKalb County Emergency Management, Department of Public Works/Water and Sewer Division, and County Planning Department, possibly	Design an outreach program combining mailings, internet, trainings, and technical assistance. Identify State and Federal agencies to provide support.	Minimal cost with potentially good benefits	Within 3 years of plan adoption, have a fully developed, functioning outreach program	Departmental Operating Budgets, with potential financial and technical assistance from State and Federal agencies	Deferred

		reservoirs. A concerted effort is needed by governments, businesses, and citizens to put conservation measures in place. Create an outreach program to instruct residents, business owners, local governments, and other institutions about the major elements being pursued as part of the region's water conservation program, including Ultra Low Flow (ULF) Plumbing Fixtures, Low-water Using Landscaping (Xeriscaping), Water Recycling, and other tips for faucets, showers, toilets, and outdoor uses.			supported by the ARC and all incorporated cities					
DeKalb County	Action #DRT 3 – Outreach to Large Water Users	Water conservation is an important element in meeting future water supply needs. There are several businesses and institutions in DeKalb County that use large quantities of water in their daily operations. The County Comprehensive Plan identified the 10 largest water users in the County. It is believed that a reduction in these uses would have a significant impact on the availability of water to the whole county. Create a program to work with these large water-users to identify ways of reducing consumption, thus conserving water for the rest of the county during times of drought.	Medium	1C, 2A, 2C, 3A, 4B, 4D, 5L	DeKalb County Department of Watershed Management, MNGWPD (Water Planning District)	Establish a Countywide task force, arrange meetings with top ten water users to design a work plan for working in partnership to identify water conservation opportunities (or document existing initiatives) that would result in win-win initiatives.	Anticipated to be cost beneficial, once it has been operating for a few years, particularly during periods of drought	Within 3 years of plan adoption, have a fully developed, functioning program, with contacts at each of the large water users identified.	Private business/institutional funding from the water users	In Progress
DeKalb County	Action #LIT 1 – Surge Protection	During a thunderstorm, lightning can potentially strike a building containing important equipment. The lightning can easily move through the building and damage or destroy communications infrastructure and other crucial electronic devices. Determine which facilities in the county are at highest risk and highest vulnerability for such an event. Implement a program to install surge protection where it is needed most.	Medium	5C	Facilities Management and incorporated cities		Anticipated to be highly cost beneficial.	Within 2 years of plan adoption	PDM or HMGP grants for construction component for public buildings, private business/institutional funds for privately held buildings	Deferred
DeKalb County	Action # DAM 1: Dam Inventory Review	Multiple entities keep records on dam ownership and condition within the county. There is a need for a complete and comprehensive database of all dam locations, their condition, and potential inundation areas in the event of a breach.	Medium	1A, 1C, 3A, 3C, 4A, 4B, 4C, 4F, 3D, 5E, 5I	DeKalb County Department of Watershed Management, Public Works, Fire and Rescue, County GIS	Work with the State Dam Safety Program to inventory all dams in the County and cities and gather all available information, such as inspection schedule, inundation mapping, emergency operations plans and ownership. Visit dam sites and obtain GPS coordinates. Map the location of all dams with all associated attributes from data collected. Work with the State to evaluate steps for future action, if necessary.		Within 2 years of plan adoption	PDM planning grant for GIS work and updating this plan with new information.	Complete
DeKalb County	Action # EQ 1: Seismic Vulnerability Analysis for Critical Infrastructure	Complete seismic vulnerability analyses for lifeline utility and transportation systems, including: water, wastewater, natural gas, electric power, telecommunications and bridges.	Low	5C, 5I, 5J	Facilities Management, utilities, and incorporated cities	Create a countywide working group to assess the most seismically vulnerable infrastructure and prioritize any potential retrofit projects.		Within 2 years of plan adoption	Departmental Operating Budgets, with potential financial and technical assistance from State and Federal agencies.	New Action

DeKalb County	Action # EQ 2: Public Education for Seismic Vulnerability	Educate homeowners about structural and nonstructural retrofitting of vulnerable homes and encourage retrofit.	Low	1B, 1C, 4A, 4B, 4C, 4F, 5L	DeKalb County Emergency Management and all incorporated cities	Work with GEMA to build from the existing earthquake safety program provided to schools to further educate the community on structural and non-structural retrofitting of homes and businesses.		Within 2 years of plan adoption	PDM planning grant for planning work and materials associated with vulnerability assessment and public information.	New Action
City of Avondale Estates	Action #FLD 1: Stormwater System Infrastructure Improvements	Much of the City's Stormwater System Infrastructure is in need of repairs and upgrades. The installation of catch basins, inlets, and other methods of diverting storm water at various locations throughout the city is much needed. For example, at the intersection of Clarendon Ave and Wiltshire Dr. no catch basins exist. During rain events ponding occurs causing a severe traffic hazard. Presently, the City is experiencing erosion in this intersection and traveling east on Wiltshire Dr. The same is true along Clarendon Ave on both the east and west sides of the street. The ponding on the street gets so high that as vehicles go across the low area the wake they create causes water to get onto residential properties and endangers pedestrian traffic in the area. Installation of catch basins, inlets, curbing, and downstream storm lines would provide adequate capacity so that ponding does not occur.	Very High	1	Bryan Armstead (with the assistance of a certified P.E.)		The installation of catch basins, inlets, curbing, and downstream storm lines would allow for safer vehicular and pedestrian access on the streets and sidewalks. Emergency response units would also benefit from these improvements.	Fiscal Year 2005-2006 or earliest feasible date.	Funding for this work would have to come from grant funds in order to implement in a timely manner. Matching funds may be required from the City.	Deferred
City of Chamblee	Action # GEN 1: Ongoing Program for Transporting Seniors during Extreme Weather	During extreme weather events, especially ice storms that disrupt power, elderly citizens face an increased threat of exposure to the elements. The risk of injury or death from freezing temperatures is higher among the elderly, so during ice storms they may need a place to stay with a generator, in order to insure they stay warm.	High	1B	City of Chamblee Parks and Recreation	The City of Chamblee already has a program in place, operated by Parks and Recreation, which heats the Civic Center during ice storms, and picks up the senior citizens from their homes and delivers them to the Civic Center. The City will continue to operate this program into the future. The City will also expand this program to operate during extreme heat events, in the event that there is a power outage, or for senior citizens who do not have air conditioning.		ongoing	TBD	In Progress
City of Chamblee	Action # GEN 2: Identify Overnight Shelters	Although the city currently operates a program to bring elderly citizens to the Civic Center during extreme weather events, this facility is only suitable for use during the night. There are no cots or beds, and there are not proper resources to care for people during more extended stays.	Low	1B	City of Chamblee Parks and Recreation	The City of Chamblee will attempt to identify other possible locations for sheltering needs. If none are found, Chamblee will attempt to find other solutions to the overnight sheltering needs of its citizens, including possible resources for bringing cots or beds to the Civic Center.		Within 2 years of plan adoption	TBD	Deferred
City of Chamblee	Action # FLD 1: Drainage Improvements at	The storm drain under Peachtree Industrial Blvd near Chamblee Plaza is quickly overwhelmed during rain events. The excess stormwater is forced to flow into	High	1A, 2A	City of Chamblee Public Works	Coordinate with State of GA Dept. of Transportation to upsize the drainage system adjacent to Chamblee Plaza		Within 2 years of plan adoption	PDM, HMGP, Local Funds	In Progress

	Peachtree Industrial Blvd	the parking lot of the plaza and into Peachtree Industrial Blvd. This flooding is dangerous to the motorists and pedestrians that frequent the Plaza, and restricts commerce in the area as well as traffic using the state route to commute to downtown Atlanta.				along Peachtree Industrial Blvd. (state route 141) to avoid flooding and road closure during heavy rain.				
City of Chamblee	Action # FLD 2: Floodplain Property Acquisitions with County	The City of Chamblee has some residential properties that may be appropriate candidates for acquisition.	Medium	1A, 1B	City of Chamblee City Administrator and/or Floodplain Administrator	Chamblee would like to coordinate with the county to incorporate some properties within the City of Chamblee into the County's existing property acquisition program.		In progress	PDM, HMGP, Stormwater Utility, Local Funds	Deferred
City of Chamblee	Action # FLD 3: Map of Storm Drain System	The City experiences varying degrees of flooding within its borders. Much of the flooding is not riverine, but is drainage related. However, the city does not have a good database or good knowledge of the infrastructure that makes up the drainage system.	Very High	2A	City of Chamblee Public Works Department	Conduct a survey of the storm drains in the city. Mark locations with GPS and input into a GIS database. Map the remaining portions of the system including pipes and pipe sizes, flow direction, etc. Work with the county to resolve any boundary discrepancies, as the City of Chamblee has locations of both inflow and outflow that are shared with the County.		In progress	Local Funds, PDM, Stormwater Utility	In Progress
City of Chamblee	Action # WIN 1: Extension of County's Tornado Warning Siren Project	The County has included a project in this plan to reinstitute a tornado warning siren system. The City of Chamblee currently has no such system, and would like to be included should such a project come to fruition.	Medium	1A, 1B	City of Chamblee Public Works Department	Coordinate with the County to bring a warning siren into or near the borders of Chamblee so that all the hearing residents of the City are aware of approaching tornadoes.		to be determined by the County	PDM, HMGP	Deferred
City of Chamblee	Action # WIN 2: Civic Center Roof Retrofit	The City Center is currently used to house senior citizens during daytime power outages. It can therefore be classified as a critical facility. However, this structure has a roof that is susceptible to wind damage due to the age and type of construction. This poses a hazard during wind events while the City's senior citizens are housed inside.	High	1A, 1B	City of Chamblee Parks and Recreation Department	Retrofit the roof on the Civic Center in order to withstand more serious/stronger wind events.		Within 3 years of plan adoption, funding dependent	PDM, HMGP, Local Funds	Deferred
City of Chamblee	Action # WIN/ICE 3: Continuation of Tree Removal Program	Dead or dying trees are more easily blown down or toppled during ice and wind events. The City of Chamblee currently has a program in place to remove dead trees on City property or within the right of way in order to prevent loss of life, injury, and damage to property and utilities.	High	1A	City of Chamblee Public Works and Parks and Recreation Departments	The City of Chamblee will continue to operate this program.		ongoing	TBD	Deferred
City of Clarkston	Action # GEN 1: Critical Facility Identification with County	The state and the county currently have two distinct lists of all the existing critical facilities within the county. The City of Clarkston does not have an accurate list the critical facilities within its boundaries.	Medium	All	City of Clarkston Public Works Department	The County has included a project in this plan to address the discrepancies between its critical facilities list and the state's critical facilities list. The City of Clarkston would like to be included in that plan to make sure that all the critical facilities within		Within 1 year of plan adoption	General Fund	Complete

						Clarkston's borders are included. Clarkston will coordinate with the County to make sure all the correct facilities are listed.				
City of Clarkston	Action # GEN 2: Right-of-Way Determination and Possible Acquisition	The City of Clarkston currently has unclear and sometimes non-existent right-of-way boundaries at streets and roads. This makes mitigation related activities (such as salting or gravelling roads during ice storms) much more difficult.	Very High	2	Building Department/Public Works/Planning, in conjunction with Administration Department	A survey should be taken to determine precisely where the cities right-of-way currently lies. Next, those areas that would most benefit from an expanded right-of-way should be identified, and steps should be taken to acquire those pieces of land.		Within 6 months of plan adoption, if funds are available	General Fund	In Progress
City of Clarkston	Action # FLD 1: Norman Road Drainage System Study	During rain events, the Norman Road drainage system floods. This flooding is so bad at times that sinkholes are created in the park, the streets, and private yards, which are a serious hazard to neighborhood children. In addition the streets typically become damaged and require regular repair.	Very High	1A	Public Works	Commission a study for determining the cause of flooding in the Norman Road neighborhood. The study will recommend possible solutions to the problem. Eventually one of the solutions will be implemented to solve the problem.		Have study begun or contracted out within 2 years of plan adoption, provided funding is available.	PDM, FMA, General Fund, Stormwater Utility	In Progress
City of Clarkston	Action # FLD 2: Flooding South of Montreal Road	The flooding source south of Montreal Road floods regularly, causing damage to roads, private property, and disrupting commerce due to road blockage.	Medium	1A	Public Works	Study the flooding source and the surrounding drainage system to determine the likely cause of flooding and to determine some possible solutions to the problem. Determine the best solution and implement it.		Within 5 years of plan adoption, funding dependent.	general fund, stormwater utility	In Progress
City of Clarkston	Action # FLD 3: Acquisition of Property on Hill Street	The property located at 3489 Hill Street floods for about 6 months out of the year. Drainage at this property is so poor that water sits in the yard and only drains after long spells of dry heat.	Medium	1A	Director of Public Works Mike Shipman	Acquire the property at 3489 Hill Street and permanently turn the property into open space.		To be performed within 5 years, funding dependent.	PDM, HMGP, FMA	Deferred
City of Clarkston	Action # FLD 4: Purchase Clark Lake	Clark Lake, currently owned by a homeowner's association, floods regularly because of silting that decreases the capacity of the lake. The flooding damages a county road and a park that is owned by the City. The floodwaters regularly enter a city-owned swimming pool. This pool then has to be drained and cleaned which is expensive, as is the maintenance of the park after the floodwaters recede.	High	1A	Public Works	Purchase the lake from the homeowner's association and maintain it (dredge first, then prevent further siltation) to keep the lake from flooding.		Within 3 years of plan adoption, funding dependent.	PDM, HMGP, FMA	In Progress
City of Clarkston	Action # THD 1: Lightning Rod for City Hall	There is no lightning rod on the City Hall building to protect the cities communications, computer, and other electronic equipment from damage due to electric surge during a lightning strike.	High	1B	Department of Public Works	Install a lightning rod on City Hall to protect the contents of the building in case of a lightning strike.		Within 1 year of plan adoption, funding dependent.	PDM, General Fund	Deferred
City of Clarkston	Action # THD 2: Retrofit of Police Station to protect against wind	The police station is highly vulnerable to wind and flying projectiles because it has large glass windows exposed to outside elements.	Medium	1B	Department of Public Works	Hire a structural engineer to survey the building and make recommendations. Secure funds for the retrofit.		Within 2 year of plan adoption, funding dependent.	PDM, General Fund	Deferred

City of Decatur	damage Action #FLD 1: Stormwater System Infrastructure Improvements	Much of the City's Stormwater System Infrastructure is in need of repairs and upgrades. Pipes and culverts are undersized in many instances causing localized flooding. For example, the culvert immediately downstream of the Police Department is substantially undersized leading to flooding of the parking lot under minimal (perhaps 2 to 5-yr) storm events. The same is true of the culvert in front of the Fire Station. The ponding on the street gets so high that as vehicles go across the low area the wake they create causes water to get into the Fire Station building. During rain events both the Police and Fire Departments must move their equipment from their parking lots, leading to reduced emergency response time if a call comes in during the storm event. . The City is currently funding a conceptual stormwater management project for improvements to these areas. The downtown main drainage trunk lines that span these areas are currently be redesigned and resized to handle the 25 year storm event and eliminate ponding. This is possible through funding from the City's Stormwater Utility.	Very High	1A, 1B, 1C, 1D	Julie K. Gyuricza, P.E. Stormwater Management Engineer	Replace culverts and downstream storm lines with a system that provides adequate capacity so that ponding does not occur..	Replacing the undersized and eroding system will allow for safer vehicular access on the street and also improve emergency response for both the Police Department and the Fire Department.	Fiscal Year 2011-2012 or earliest feasible date.	Funding for this work will come from the Stormwater Utility Fund.	Deferred
City of Decatur	Action # FLD 2: Flood- prone Property Acquisition	There are several properties , mostly single-family, that were built in the floodplain prior to the regulations against such construction, some as early as the 1940's and 1950's. These properties are subject to periodic flooding and cannot be upgraded due to their location. Some do not even have flood insurance because the structures pre-date the requirement for flood insurance, but are nonetheless subject to flood damages. Of these properties 6 are classified as repetitive losses by FEMA and will be considered for acquisition and removal as FEMA grant programs become available and City can allocate matching funds like the 4 properties on Westchester Drive that were acquisition through the referenced PDM grant.	Very High	1A, 1B	John Madajewski, Senior Engineer	Remove structures from floodplain and return area to its natural state.	The properties in question have been flooded many times in the past, although some do not appear in the roster of repetitive loss properties because the owners do not have flood insurance. Over time it will be cost effective to remove the properties from the floodplain and eliminate the periodic property damages.	Fiscal year 2005-06	Funding for property acquisition must be from grant funds. Matching funds may be required from the City. PDM, HMGP, FMA grant programs.	Deferred
City of Decatur	Action # FLD/GEN/ICE/WIND 3: Continuity of Government	With the approval of Capital Improvement Bond referendum in 2006, The City of Decatur began utilizing continuity of government strategies in the building projects. This project will allow for many different emergency uses for the remodeled City buildings to include: backup power, dedicated plug and play 911 center \ EOC room, and temporary shelter. This stage we have completed one fire station and have four other	High	1B, 1C, 1D	Hugh Saxon, Deputy City Manager, David Junger, Assistant City Manager, Tony Parker, Assistant City Manager	Utilize continuity of government strategies in City building projects.	The properties in question were built for single use occupancies with little thought of emergency operations. Minimal added cost to construction will provide effective	Fiscal year 2006-15	Funding for construction projects will come from city issued bonds, city annual budget and from grant opportunities. Matching funds may be required from the City for grants. HMGP, Assistant to FF's grants	Deferred

		city buildings in the final design phases.					added value when providing for the welfare of our citizens during natural disasters.		programs.	
City of Decatur	Action # Ice/Wind 1: City Tree Maintenance	Annual Tree Maintenance	Medium	1B, 1C, 1D, 1E	David Junger, Assistant City Manager/Public Works	Implement an annual tree-maintenance and trimming program. Work with City Arborist to identify and mitigate possible dangerous trees and/or tree limbs. Perform outreach to the community, through Codes Enforcement, so residents know to call and report trees and limbs that may threaten roads and other infrastructure.	Though the program has been established in the last 5 years, the City has seen a marked reduction in storm damage due to trees.	Annually	This program is funded as part of the Decatur Public Works Annual Budget.	Deferred
City of Doraville	Action # FLD 1: Map of Storm Drain System	The City is taking over control of the storm drainage system within its boundaries. The system has previously been under the domain of the county. The City therefore does not have a good database or good knowledge of the infrastructure that it is assuming control over.	Very High	1	City of Doraville Maintenance Department/Inspection Department	Conduct a survey of, at a minimum, the storm drains in the city. Mark locations with pinpoints on the city map. With additional funds, map the remaining portions of the system including pipes and pipe sizes, flow direction, etc.		Completion within 2 years of plan adoption provided funding is available.	Storm Water Utility	In Progress
City of Doraville	Action # FLD 2: Storm Drain Infrastructure	The storm drain infrastructure within the City of Doraville is old and needs updating and replacing.	High	1	Engineering Consultant/Contracting with DeKalb County	Implement a priority list of outdated or faulty storm drain infrastructure and start replacing outdated or faulty storm drain infrastructure.		Start within 12 months of adoption of plan, provided sufficient funds are available. This action will be ongoing.	Storm Water Utility Fees/Grants	In Progress
City of Doraville	Action # ICE/WIN 1: Tree Trimming Program	Tree limbs can break loose and damage infrastructure during large wind events. They can fall on homes, automobiles, and most commonly, on power lines. The disruption of power to any community can further hinder response and recovery during a hazard event, as can those limbs that have simply fallen into the road and blocked traffic.	High	2	City of Doraville Maintenance Department/Power Companies	Implement a tree-trimming program. Work with power companies to identify those branches that are threatening power lines. Perform some outreach to the community so residents know to call and report limbs that may threaten roads and other infrastructure.		Within 6 months of plan adoption provided sufficient funds and labor are available. This action will be ongoing.	Maintenance Department/Power Companies	In Progress
City of Doraville	Action # LIT 1: Surge Protection	During a thunderstorm, lightning can potentially strike a building containing important equipment. The lightning can easily move through the building and damage or destroy communications infrastructure and other crucial electronic devices.	Medium	2	Maintenance Department	Determine which facilities in the City are at risk for such a lightning strike, and which would most seriously be impacted by such an event. Implement a program to install surge protection where it is needed most.		Within 2 years of adoption of plan, provided sufficient funds are available.	General Funds	In Progress
City of Dunwoody	Action #FLD 1: Stormwater System Infrastructure Mapping	In 2009, the City took over the storm drainage system within its boundaries. The system has previously been under the domain of the County. The City therefore does not have a good database or knowledge of the	Very High	1A, 1B, 1C, 1D	Public Works Department	Conduct GPS surveying all the existing stormwater structures & conveyances and determining the condition and materials of each.	By gathering data regarding the condition of the structures and conveyances, the City	Fiscal Year 2010-2012 or earliest feasible date.	Funding for stormwater system infrastructure mapping may be available from grant funds such as PDM,	Deferred

		infrastructure.					can better evaluate replacement costs and remaining service life.		HMGP, FMA grant programs. Matching funds may be required from the City which may be available from the Stormwater Utility Fund.	
City of Dunwoody	Action #FLD 2: Stormwater System Infrastructure Improvements	Much of the City's Stormwater System Infrastructure is in need of repairs and upgrades. Pipes and culverts are undersized or in need of repair which in many instances causes localized flooding.	Very High	1A, 1B, 1C, 1D	Public Works Department	Replace culverts and downstream storm lines with a system that provides adequate capacity to provide relief for minor localized flooding.	Replacing the undersized and eroding system will allow for safer vehicular access on the street and also improve emergency response for the Police Department.	Fiscal Year 2011-2012 or earliest feasible date.	Funding for stormwater system infrastructure may be available from grant funds such as PDM, HMGP, FMA grant programs. Matching funds may be required from the City which may be available from the Stormwater Utility Fund.	Deferred
City of Dunwoody	Action #FLD 3: Floodplain Mapping	Since the City's incorporation, we have not updated the floodplain maps. In partnership with FEMA, Dunwoody seeks to maintain accurate floodplain maps will allow the City and property owners to prepare and mitigate possible future flooding issues.	Very High	1A, 1B, 1C, 1D	Public Works Department	Update the floodplain maps in conjunction with FEMA using the most current data and calculation techniques. Additionally, expanding the data to include the "Future" floodplain based on comprehensive plan.	This will allow the City to make property owners aware of possible future flooding issues which will reduce the possibility of flood damage. This information will also allow the City to be better prepared to the possible impact to the City's infrastructure.	Fiscal Year 2011-2012 or earliest feasible date.	Funding for this work will come from the Stormwater Utility Fund. Grant funding for floodplain mapping may be available from grant funds such as PDM, HMGP, FMA grant programs.	Deferred
City of Dunwoody	Action # FLD 4: Flood-prone Property Acquisition	There are several properties, mostly single-family, that were built in the floodplain prior to the regulations against such construction. These properties are subject to periodic flooding and cannot be upgraded due to their location. Some do not even have flood insurance because the structures pre-date the requirement for flood insurance, but are nonetheless subject to flood damages. Of these properties, 8 are classified as repetitive losses by FEMA and will be considered for acquisition and removal as FEMA grant programs become available and City can allocate matching funds.	Very High	1A, 1B	Community Development Department and Public Works Department	Remove structures from floodplain and return area to its natural state.	The properties in question have been flooded many times in the past, although some do not appear in the roster of repetitive loss properties because the owners do not have flood insurance. Over time it will be cost effective to remove the properties from the floodplain and eliminate the periodic property damages.	Fiscal Year 2011-2012 or earliest feasible date.	Funding for property acquisition must be from grant funds, such as PDM, HMGP, FMA grant programs. Matching funds may be required from the City.	Deferred

City of Dunwoody	Action # GEN 1: Emergency Alert and Warning System	Emergency notification systems can be an effective way to warn the public of severe weather and other emergency situations. The City of Dunwoody has no emergency notification system.	High	1A, 1B	Police Department	Establish an implementation strategy to acquire an emergency notification system to alert Dunwoody residents are aware of severe weather situations such as tornados.	Although notification systems require a substantial investment and ongoing maintenance costs, Dunwoody currently has no means of alerting the public for the possibility of tornado or severe weather activity in our area. With the installation of an emergency notification system, the City of Dunwoody will be able to enhance its level of emergency preparedness and keep its residents safer.	Fiscal Year 2011-2012 or earliest feasible date.	Funding for an emergency alert and warning system must be from grant funds. Matching funds may be required from the City. PDM, HMGP, FMA grant programs.	Deferred
City of Dunwoody	Action # ICE 1: City Tree Maintenance	Dead or dying trees are more easily blown down or toppled during winter storms. Removing dead trees on City property or within the right of way can prevent loss of life, injury, and damage to property and utilities.	Medium	1B, 1C, 1D, 1E	Public Works Department and Community Development Department	Implement tree maintenance and trimming program. Work with the City Arborist to identify and mitigate possible dangerous trees and/or tree limbs in public rights of way. Perform outreach to the community, through code enforcement, so residents know to call and report trees and limbs that may threaten property, roads and other infrastructure.	Although identifying and mitigating possible dangerous trees and/or tree limbs can be costly, an ongoing effort will result in reduction of storm damage due to trees.	Fiscal Year 2011or earliest feasible date.	This program could be funded through the Community Forestry Program Budget.	Deferred
City of Lithonia	Action # FLD 1: Construct flood control structures which address the flooding problem at Max Cleland Blvd and the Railroad Tracks	During minor and major rain events the area underneath the bridge pools with water. This railroad crossing is vital to the city because it is an underpass rather than an at grade railroad crossing. If a train stops on the tracks it will split the city in half and the only unobstructed crossing will be this underpass.	High	1A, 2A	Maintenance Department	The City will assemble a sub-committee to explore the use of Hazard Mitigation Funds in conjunction with other grants to fund the project. Once funds are secured it will be the Maintenance department who oversees the construction and completion of the project. The actual construction will be completed by an entity other than the City.		3 years	PDM, HMGP	Deferred
City of Lithonia	Action # GEN 1: Increase public awareness about natural hazard risks, especially fire	The City is located in the southeastern portion of DeKalb County which has been identified as the highest area of wildfire risk within the County. Also, the although the City has no identified special flood hazard areas, it still is subject to localized flooding.	Low	1B	Mayor and Sub Committee	The City of Lithonia will educate the population about the natural hazards by directing residents to available information, such as placing reports and studies addressing the risk on Lithonia's website, amongst other		2 years	TBD	Deferred

	hazards					strategies.				
City of Lithonia	Action # ICE 1: Improve drainage to prevent icing of roadways during winter events	Several roadways have been identified to consistently ice during the winter months. The problem appears to be lack of drainage in that area.	High	1A, 2A	City of Lithonia Maintenance department	In conjunction with Action 1, coordinate to prevent icing of roadway under the railroad bridge. Also, identify other areas and address them as necessary.		3 years	PDM, HMGP	Deferred
City of Lithonia	Action # WND 1: Retrofit Critical Facilities to protect first responders in a wind event	It has been identified that the structure which the police department operates from, amongst other critical facilities, are highly vulnerable to wind events. In order to respond to events and save lives the City needs to have a facility which will be operational immediately after the event.	High	1A, 1B	City Council, outside contractor	Installation of storm shutters, replacement of doors amongst other structural improvements.		2 years	PDM, HMGP	Deferred
City of Pine Lake	Action # FLD 1: Hydrology and Hydraulic Study	Snapfinger Creek runs into the City and feeds Pine Lake. Flooding on the creek has become worse in recent years, and although the cause of this increase is suspected to be upstream development, the full cause and nature of the flooding on the creek is not well known or understood.	Very High	1	Public Works Department	Hire a consultant to analyze Snapfinger Creek and its watershed. Determine peak flows, and determine location of 100-year floodplain along the creek. Create some informal maps showing where this is expected to be. Possibly analyze other recurrence intervals in addition to the 100-year event.		Within 12 months of plan adoption	General Fund, Stormwater Utility	In Progress
City of Pine Lake	Action # FLD 2: Stream Restoration	The creek has severe siltation and other quality problems. Silting of the creek bed, and especially of the Lake, create flooding problems by eliminating volume for storage of floodwaters. By restoring the stream to healthier, more pristine conditions, siltation can be reduced and flooding problems mitigated.	High	2	Public Works Department	The process of restoring the stream is an ongoing project, already being performed by the City of Pine Lake.		ongoing	To be determined.	In Progress
City of Pine Lake	Action # FLD 3: Land Acquisition for Detention	Based on results of the H&H Study completed as Action # FLD 1, explore options for bringing peak flows on Snapfinger Creek down to pre-development levels. It is anticipated that some upstream land may be needed for this, and that a detention facility may need to be installed.	High	3	Public Works Department	Implement best solution proposed in H&H study (see previous Action # FLD 1)		Within 2 years of adoption of plan, funding dependent	PDM, HMGP, Stormwater Utility	In Progress
City of Pine Lake	Action # WDF 4: Hazard identification, building code changes, and public education in order to reduce the wildfire risk	There are concerns over the storage of hazardous materials, construction requirements and debris maintenance which if not addressed, could greatly increase the potential for a quick spreading wildfire. Also, limited access for certain sections of the City put some citizens at an even higher risk.	High	4	City Council, Ad HOC committee with liaison to DEMA as chair.	Education seminars and public meetings will be held. Also, building codes will be reviewed to determine if they adequately address risks within the City.		Begin within 6 months of adoption of the plan update, with a basic goal of educating the public by December of 2011	TBD	Deferred
City of Stone Mountain	Action # FLD 1: Map Modernization	The basis for a sound floodplain management program is the quality of the risk information upon which development decisions are made. The FEMA Firms are the best available depiction of overall flooding risk in	High	1	Public Works Department	Along with the upgrades to the flood plain mapping, the city will seek an increased role in the re-mapping of		Within 2 years of plan adoption, funding dependent	Federal, State grants and stormwater utility fees	In Progress

		the city. The current firms are outdated. FEMA is currently geo-referencing and completing a database for the digital flood maps as part of its overall map modernization initiative. It is not, however, updating the inundation studies. The digital maps FEMA is producing will provide a platform from which updated flood data (hydrologic, topographic and hydraulic analysis modeling) can be added at a fraction of the cost and time previously required.				the cities stormwater systems.				
City of Stone Mountain	Action # FLD 2: Repetitive Loss Property Acquisition Program									Deferred
City of Stone Mountain	Action # WIN 1: Outdoor Alert and Warning System Evaluation	There were outdoor warning sirens in operation in the 1980's. They were principally intended as a method of warning Stone Mountain citizens of an impending attack by a foreign enemy and for tornado warnings. In 1988 the county decommissioned them.	High	2	Public Works Department	Reinstall two (2) outdoor warning sirens citywide for Tornado, Weather and Homeland security.		Within 2 years of adoption of plan, funding dependent	Federal or State grants	In Progress
City of Stone Mountain	Action # WIN/ICE 2: Tree Pruning Program	The electric, phone, and cable utilities have tree pruning programs to protect their lines from ice storms and severe winds. During these events, tree branches (and in some cases whole trees) can come down and cause damages to power lines, structures, and can block roads and other thoroughfares, disrupting travel and commerce. The programs do not go far enough to provide adequate protection since they are focused specifically on lines.	High	3	Public Works Department	The city will develop a program to supplement the utilities' programs in the vicinity of government owned property's similar programs in place.		Within 2 years of plan adoption, funding dependent	General Funds, explore state grants	In Progress