



DEKALB COUNTY, GA – 2016 COUNTYWIDE HAZARD MITIGATION UPDATE

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



Plan Highlights



DeKalb County Interim CEO Lee May
& The Board of Commissioners

cordially invite you to the

FOURTH BIENNIAL DEKALB COUNTY EMERGENCY PREPAREDNESS FESTIVAL

Save the Date

Saturday, September 19, 2015

10A.M. - 3P.M.

North DeKalb Mall
2050 Lawrenceville Highway
Decatur, GA 30033

Are you prepared for floods, tornadoes or other natural disasters? Please join us to receive disaster & emergency preparedness information and learn about fire safety and crime prevention.

Presented by the DeKalb County Emergency Management Agency.



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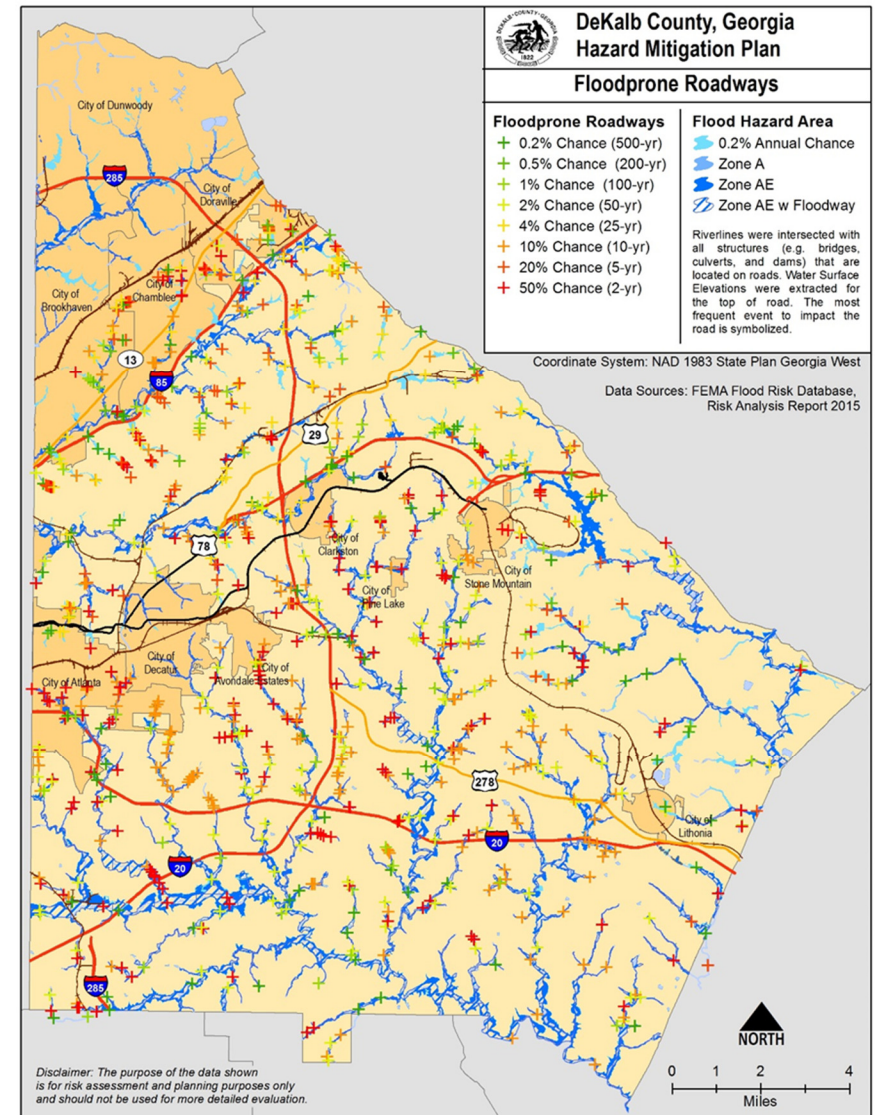
- Representatives of DeKalb County and its municipalities reviewed vulnerability for 11 natural hazards
- A couple of the hazards (tornado and winter storm) were elevated to the highest category for planning consideration due to their impacts on the county over the past 5 to 10 years
- Brookhaven, incorporated in 2012, became one of the largest municipalities, and has been added to the mitigation planning process
- Each community participated in Advisory Committee Meetings, provided input to the planning process, and updated mitigation actions to reduce their vulnerability to natural hazard

Executive Summary

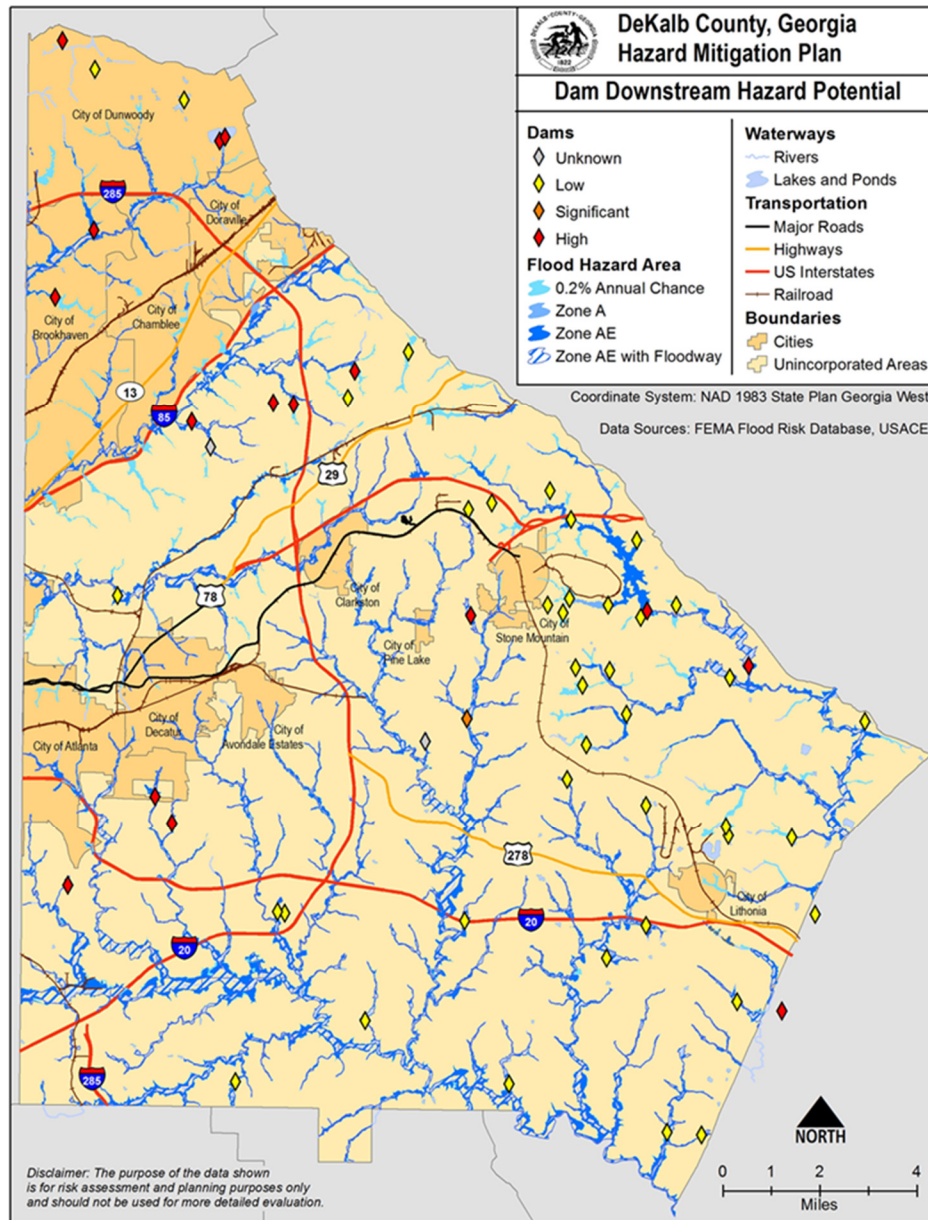
DeKalb County, GA has been fortunate to have been impacted by only one federally declared disaster, the 2014 Winter Storm, over the past 5 years. Across the United States, natural disasters continue to lead to increasing levels of death, injury, property damage, and interruption of business and government 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.

DeKalb County's Mitigation Advisory Committee (County, cities, and external stakeholders) worked collaboratively via in-person meetings, phone meetings, and email to update the countywide hazard mitigation plan. A survey was also provided to the public via the County's "constant contact" email system resulting in approximately 100 comments. Committee participants provided geospatial data, reports, and damage summaries to create a new risk assessment chapter. This also included the incorporation of better hazard data such as the flood risk datasets provided from the recently updated Federal Emergency Management Agency (FEMA) flood risk mapping. This information was utilized to assess vulnerability to infrastructure, critical facilities, and parcels at a greater level of detail than in the past. For instance, the flood risk section is able to identify roads that would be overtopped during different frequency events and notes that 190 road segments are potentially impacted by something as frequent as a 2-year flood event. These results will help the county to identify priority infrastructure for mitigation actions to avoid future losses.

Following the presentation of risk assessment data to the Mitigation Advisory Committee (MAC), the individual communities participated in capability assessment meetings to better understand their technical, fiscal, and



Executive Summary



administrative capacity to implement hazard mitigation measures. The meetings also resulted in an update to the status of previous actions planned. Some of the ongoing actions include the following:

- Acquisition of repetitively flooded properties,
- Improvements to stormwater infrastructure, and
- Assessment of hazard vulnerabilities via FEMA Risk MAP and dam breach analyses.

The updated strategies were incorporated into the draft plan for review by the MAC. Many members also noted that impacts from hazards may be amplified by ongoing challenges such as aging infrastructure and older trees that are nearing the end of their projected lifespans. The engaged participation by all cities as well as the public feedback from the survey indicate that hazard mitigation planning is a desirable activity that will be integrated into planning, building, communication, and funding efforts as resources allow.

The MAC committed to following a maintenance schedule that will allow the DeKalb Mitigation Plan to remain current and be revitalized as necessary when hazard and/or grant funding dictate. This adopted plan will keep DeKalb County and its municipalities eligible for Federal disaster funding for 5 years from the time of local adoption at which time an updated plan will be required.

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Participation	MAC Mtg 1 01/28/15	Capabilities Mtg	MAC Mtg 2 09/10/15	All Meetings	Capabilities Mtg Date
County/City					
DeKalb (Uninc)	21	5	4	30	8/12/2015
Avondale Estates	1	4	0	5	10/6/2015
Brookhaven	3	5	1	9	8/13/2015
Chamblee	1	4	1	6	8/13/2015
Clarkston	0	2	0	2	10/14/2015
Decatur	2	3	1	6	8/13/2015
Doraville	0	0	1	1	TBD
Dunwoody	3	2	1	6	8/13/2015
Lithonia	3	0	0	3	TBD
Pine Lake	1	1	0	2	9/22/2015
Stone Mountain	0	3	0	3	10/9/2015
Community Attendees	35	29	9	73	
Other Agencies					
MARTA	13	0	0	13	
DJJ*	3	0	0	3	
Emory University	1	0	0	1	
Health Dept (State)*	3	0	0	3	
GEMA	2	0	0	2	
Dewberry	2	2	1	5	
VOAD	1	0	0	1	
Other Total	25	2	1	28	
All Attendees	60	31	10	101	
* Located in County but a State agency					

Mitigation Advisory Committee (MAC)

The MAC served as the coordinating body for the project and actively worked to gather input, provide feedback into hazard priorities, and guided the general direction of the plan development process. The members of the MAC served a variety of functions for their communities including, public safety and first responders, community planners, geospatial and information technology specialists, and engineers from public works departments. DeKalb County utilized the services of Dewberry Consultants to support the plan development, including performing the hazard identification and risk assessment, facilitating meetings, coordinating with the Georgia Emergency Management Agency, and developing the report document. The MAC participated in two formal group meetings

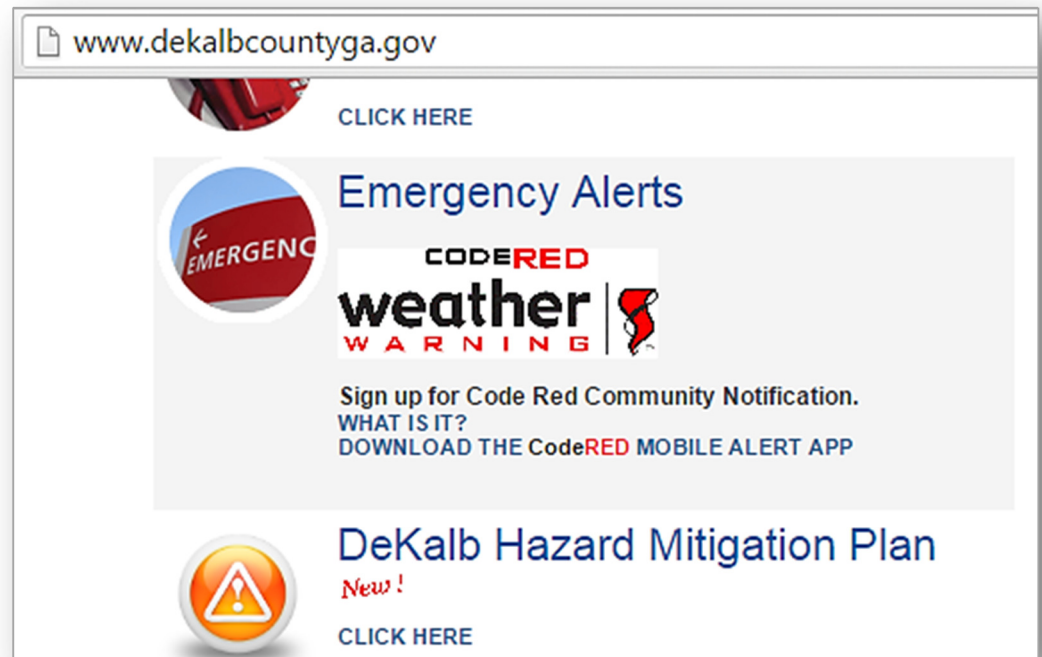
The MAC participated in two countywide meetings, both held at the Stonecrest Library. The first meeting served as a kickoff meeting while also gathering consensus from participants on hazard priority and ranking. The second meeting was held following the completion of draft results from the hazard identification and risk assessment activities.

This information was presented to MAC members for their review and feedback. The meeting was also utilized to reach consensus on countywide goals and objectives. Those communities that were not able to attend the 2nd MAC meeting provided their feedback during one on one phone calls as part of their individual capability assessment meetings. The attendance for the meetings included within the chart with additional documentation (minutes, sign-in sheets, etc. included as part of this document's appendices.

Public Participation

DeKalb County has had limited success in the past when trying to solicit input via public meetings. As such, the County decided to utilize other tools to gather input from the public relative to the hazard mitigation plan. The County utilizes an email system that can blast announcements countywide to residents and businesses. Using this system, the County provided an informational email explaining the desire for public input to the process and provided a link to a short online survey that could capture their concerns. The survey was distributed to all DeKalb County residents and businesses that use the email service and within 2 weeks, close to 100 responses had been captured. While not all feedback was directly related to the plan itself, the results were communicated to all MAC members and provided keen insights to help target risk communication messages in the future. For instance, many participants indicated that they weren't sure if their place of employment is vulnerable to hazards which may indicate the need to better interact with the business sector and encourage more risk communication with their employees. Another interesting finding was that flood hazard was ranked very low by participants when estimating their potential vulnerability while the MAC has this as a very large concern. Furthermore, many of the wind-related hazards were ranked as the highest natural hazard threat by survey participants. Some of the responses to the survey are provided on the following pages while the full survey result has been included in the appendices section.

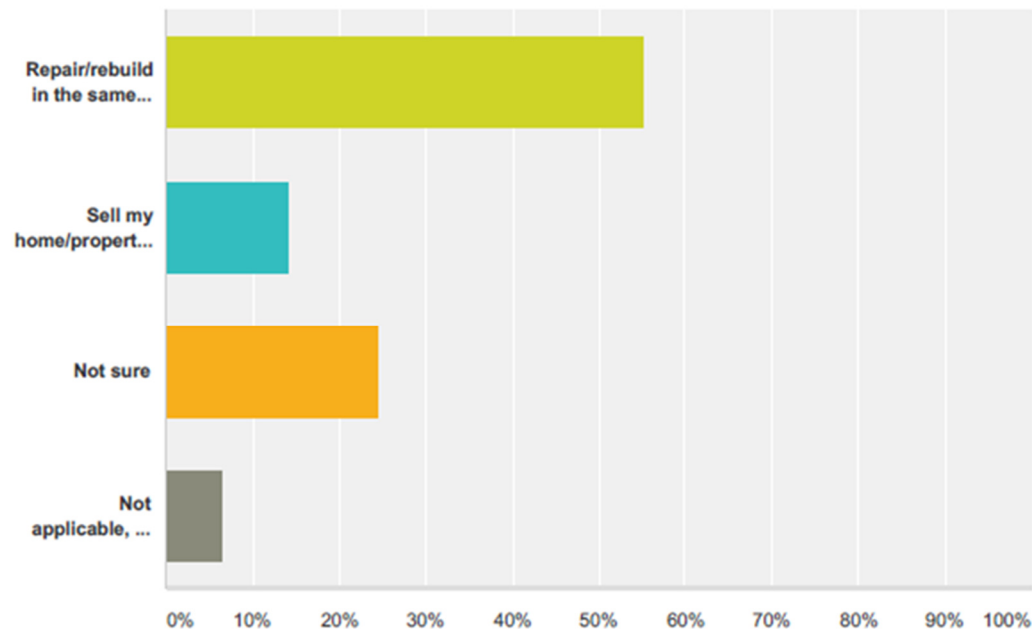
Once the plan draft was completed, the County decided to make it available via its website for review by the public. Upon approval of the draft document by all DeKalb stakeholders, it was provided to the Georgia Emergency Management Agency for a compliance review. The plan was also made available to the adjacent counties of Clayton, Fulton, Gwinnett, Henry, and Rockdale. The public had its final opportunity to participate in the update during the local adoption process. At that point, all participating communities brought the document to their County Commission and City Councils through the public process for local adoption.



2015 DeKalb County Hazard Mitigation Plan Survey

Q7 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?

Answered: 78 Skipped: 13



Public Survey Results – Should I Stay or Should I Go?

The survey results indicate that a majority of the respondents would repair or rebuild in the same location. With that in mind, DeKalb communities should look to their planning and building codes to ensure that rebuilt structures would be compliant.

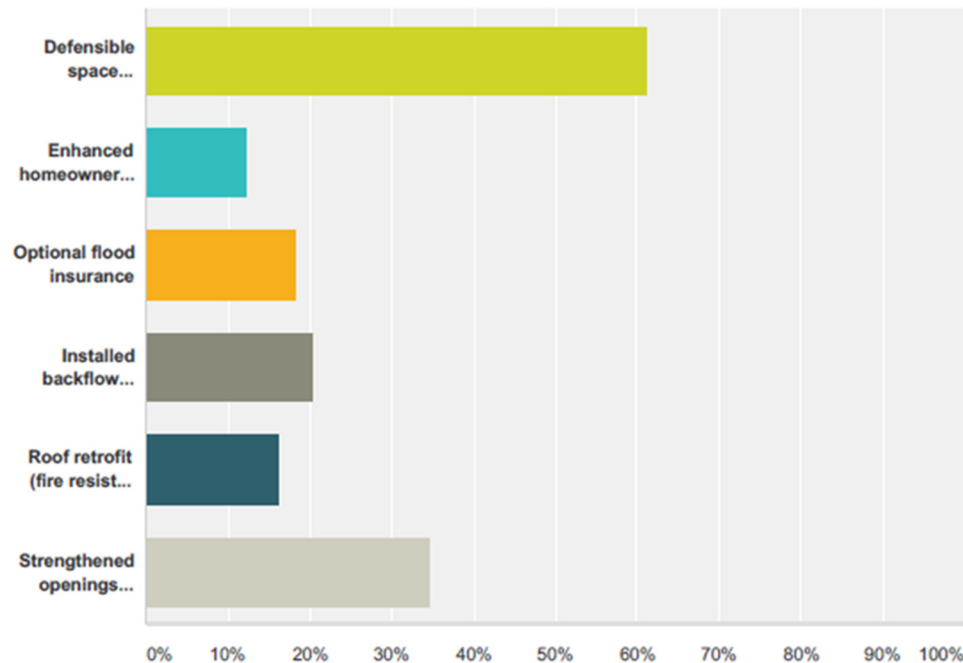
As a proactive consideration, potential conflicts with code changes could be evaluated and communicated to residents and businesses when threatened by a large hazard.

Benefits of the CRS program and increased cost of compliance associated with flood insurance policies could also be part of the communities' messaging.

2015 DeKalb County Hazard Mitigation Plan Survey

Q9 What are you doing to reduce risk of damage from natural and human-caused hazards? (choose all that apply)

Answered: 49 Skipped: 42



Public Survey Results – Homeowner Actions

The survey results for risk reduction are consistent with a trend throughout the overall survey; wind and wildfire threats are perceived as higher threats than other hazards.

These results are also consistent with feedback from smaller communities, such as Decatur, that indicated aging trees and infrastructure damaged by smaller, “nuisance” events can be a large burden on community resources.

Providing training and identifying protection measures to help homeowners perform their own mitigation actions could reduce the overall burden on limited community resources.

Hazard ID and Risk Assessment



The Hazard Identification and Risk Assessment (HIRA) section of the Plan is intended to describe the hazards that DeKalb County is exposed to as well as to quantify the potential impacts (current and future) to people and property.

HIRA - Overview

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. Due to the pending incorporation of new cities as well as ongoing large annexations, a conscious decision was made to identify hazard extents via maps as opposed to naming jurisdictions. Additional information regarding methodologies utilized and risk assessment is contained within the HIRA appendices.

Hazard	Number of Events	Property Damage (Inflated)	Crop Damage (Inflated)	Deaths	Injuries
Wind	167	\$2,242,455	\$0	2	4
Hail	113	\$17,399,913	\$0		
Flash Flood	39	\$9,536,843	\$0		
Winter Weather	22	\$611,600	\$0		
Drought	21	\$0	\$328,980		
Lightning	15	\$1,132,864	\$0	1	6
Flood	14	\$10,241,342	\$0		
Hurricane	14	\$0	\$0		
Extreme Cold	13	\$0	\$0		
Extreme Heat	11	\$0	\$0		
Tornado	9	\$51,365,382	\$0	1	2
Ice Storm	5	\$1,410,745	\$0		
Fog	2	\$0	\$0		

Figure 1 – NCDC Storm Events for DeKalb County, GA (\$ in 2015 Dollars)

Hazard	Period of Record	Annualized Events	Annualized Property Damage	Annualized Crop Damage
Wind	1955-2015	2.7	\$36,762	\$0
Hail	1955-2015	1.9	\$285,245	\$0
Flash Flood	1993-2015	1.7	\$414,645	\$0
Winter Weather	1993-2015	0.96	\$26,591	\$0
Drought	1995-2015	1.0	\$0	\$15,666
Lightning	1993-2015	0.65	\$49,255	\$0
Flood	1993-2015	0.61	\$445,276	\$0
Hurricane	1955-2015	0.23	\$0.00	\$0
Extreme Cold	1993-2015	0.57	\$0.00	\$0
Extreme Heat	1993-2015	0.48	\$0.00	\$0
Tornado	1950-2015	0.14	\$778,263	\$0
Ice Storm	1993-2015	0.22	\$61,337	\$0
Fog	1993-2015	0.09	\$0	\$0

Figure 2- NCDC Storm Events Annualized By Years of Record

National Climatic Data Center (NCDC) Storm data is published by the National Oceanic and Atmospheric Administration (NOAA), part of the U.S. Department of Commerce. The storm events database contains information on storms and weather phenomena that have caused loss of life, injuries, significant property damage, and/or disruption to commerce. Efforts are made to collect the best available information, but because of time and resource constraints, information may be unverified by the National Weather Service (NWS). The NWS does not guarantee the accuracy or validity of the information. The historical record of the storm data used for this update includes events starting in 1950 through 2015.

HIRA – Federal Disaster Declarations

Disaster Type	Disaster Number	Incident Type	Title	Incident Begin Date	IH Program	IA Program	PA Program	HM Program
EM	3368	Severe Ice Storm	Severe Winter Storm	2/10/2014			✓	
DR	1858	Severe Storm(s)	Severe Storms And Flooding	9/18/2009	✓		✓	✓
DR	1750	Severe Storm(s)	Severe Storms And Tornadoes	3/14/2008	✓	✓	✓	✓
EM	3218	Hurricane	Hurricane Katrina Evacuation	8/27/2005			✓	
DR	1554	Hurricane	Hurricane Ivan	9/14/2004	✓	✓	✓	✓
DR	1311	Severe Storm(s)	Severe Winter Storm	1/22/2000			✓	✓
DR	1209	Severe Storm(s)	Severe Storms And Flooding	2/14/1998		✓	✓	
DR	1071	Hurricane	Hurricane Opal	10/4/1995		✓	✓	✓
EM	3097	Snow	Severe Snowfall, Winter Storm	3/13/1993			✓	✓
EM	3044	Drought	Drought	7/20/1977			✓	✓
DR	370	Tornado	Tornadoes & Flooding	4/4/1973		✓	✓	✓

IH = Individuals and Households Program

IA = Individual Assistance Program

PA = Public Assistance Program

HM = Hazard Mitigation Program

Federal Disaster Declarations

An important source for identifying hazards that can affect a community is the record of federal disaster declarations. According to the Federal Emergency Management Agency (FEMA), since 1968 there have been six major disaster declarations (DR) and four emergency declarations (EM) for DeKalb County. Three of the 10 declarations were related to severe winter storms, three for severe storms and flooding, one tornado related, one drought related, and three with a hurricane incident type.

Since the 2011 plan, the county **experienced one emergency declaration in February 2014 related to severe winter storms**. Past emergencies and disasters are listed in the table to the left along with their program declaration type.

HIRA – Flood (Previous Occurrences)

Hazard Section	Hazard Type	Probability	Impact			Hazard Planning Consideration 2011	Hazard Planning Consideration 2016
			Affected Area	Primary Impact	Secondary Impacts		
FLOODING	FLOODING	Highly Likely	Medium	Critical	High	Significant	Significant
	DAM FAILURE	Unlikely	Isolated	Critical	High	Limited	Limited
WIND	WIND (STRAIGHT LINE, THUNDERSTORM, & LIGHTNING)	Highly Likely	Large	Limited	Moderate	Significant	Significant
	TORNADO	Highly Likely	Isolated	Critical	Moderate	Moderate	Significant
	HURRICANE	Likely	Medium	Critical	High	Moderate	Moderate
WINTER STORM	WINTER STORM	Likely	Large	Negligible	Moderate	Moderate	Significant
DROUGHT	DROUGHT	Likely	Large	Negligible	Limited	Limited	Moderate
EXTREME HEAT	EXTREME HEAT	Likely	Medium	Negligible	Limited	Limited	Moderate
WILDFIRE	WILDFIRE	Somewhat Likely	Small	Catastrophic	High	Limited	Limited
EARTHQUAKE	EARTHQUAKE	Unlikely	Medium	Negligible	Negligible	None	Limited

The countywide Mitigation Advisory Committee met on January 27, 2015 for a project kickoff meeting. During the meeting participants were asked to identify what hazards that they wanted to focus on during this planning cycle. For the 2016 update, the committee discussed the previous hazard rankings and decided to elevate several hazards based on current events and damages. **The hazards that were elevated included extreme heat/drought, wind (thunderstorm and tornado), winter storm, and earthquake.** The table above provides a side by side comparison for the 2011 and 2016 hazard consideration ranking. The majority of the hazards have increased in rank, while maintaining relative risk among hazard types.

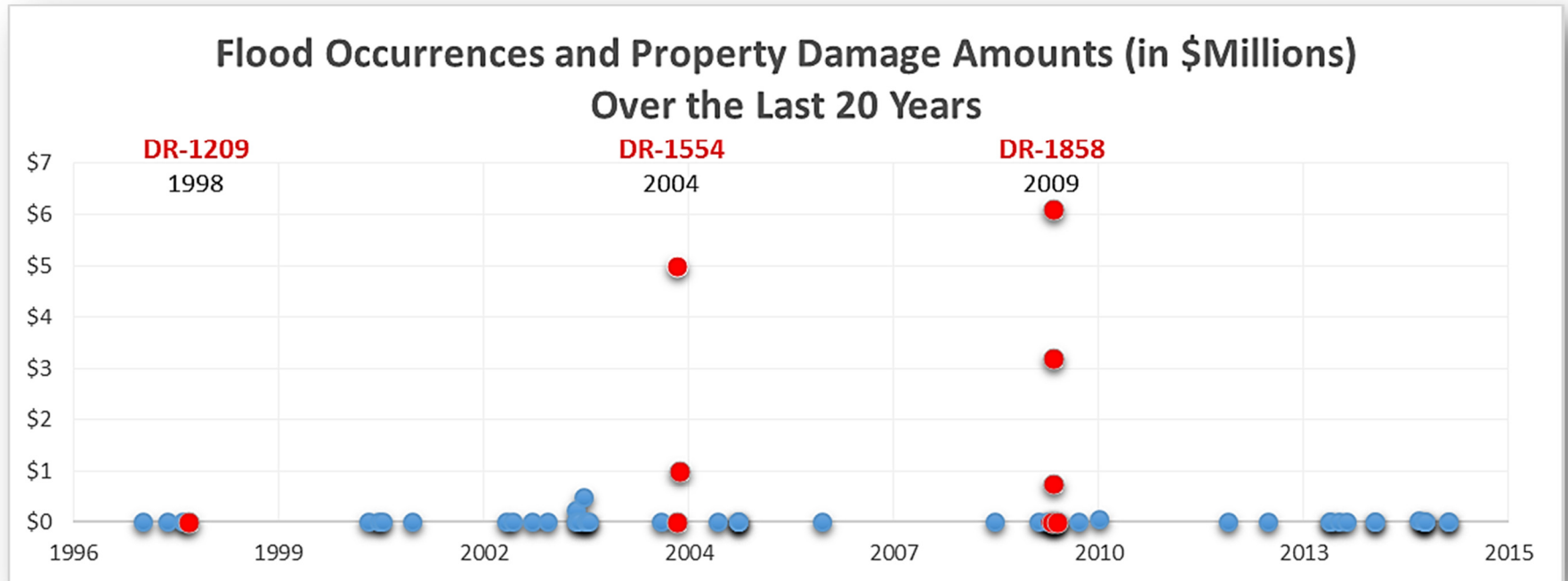
The hazard ranking was based on the overall probability and impact to the County as a whole. When examining the individual jurisdictions included in this plan, the same ranking does not always apply. For example, in Avondale Estates, where there are no mapped flooding hazards, flooding was not given the highest priority. Similarly, wildfire would not be a major consideration in highly urbanized jurisdictions such as Decatur. In the capabilities assessment portion of the Plan, each jurisdiction identifies their goals, objectives, and mitigation actions. The hazards that are most critical to those jurisdictions are presented in the order of their ranking. Further information, including a listing of hazards not included due to their being no history or identified exposure, is included within the HIRA appendices.

HIRA – Flood (Previous Occurrences)

Ranking Category	Degree of Risk			Assigned Weighting Factor
	Level	Criteria	Index Value	
Probability <i>Based on estimated likelihood of occurrence from</i>	Unlikely	Less than 1% annual probability	1	2.0
	Somewhat Likely	Between 1 and 10% annual	2	
	Likely	Between 10 and 100% annual	3	
	Highly Likely	100% annual probability	4	
Affected Area <i>Based on size of geographical area of community affected</i>	Isolated	Less than 1% of area affected	1	0.8
	Small	Between 1 and 10% of area affected	2	
	Medium	Between 10 and 50% of area affected	3	
	Large	Between 50 and 100% of area	4	
Primary Impact <i>Based on percentage of damage to typical</i>	Negligible	Less than 10% damage	1	0.7
	Limited	Between 10% and 25% damage	2	
	Critical	Between 25% and 50% damage	3	
	Catastrophic	More than 50% damage	4	
Secondary Impacts <i>Based on estimated secondary impacts to community at large considering economic impacts, health impacts, and crop losses</i>	Negligible	No loss of function, downtime, and/or evacuations	1	0.5
	Limited	Minimal loss of function, downtime, and/or evacuations	2	
	Moderate	Some loss of function, downtime, and/or evacuations	3	
	High	Major loss of function, downtime, and/or evacuation	4	

The chart to the left illustrates how the County decided to prioritize what hazards should be focused on during the planning cycle. This approach was selected during the 2010/2011 Plan Update process and utilized again by this year's participants in conjunction with other metrics. Ultimately, the Advisory Committee used this combination of quantitative and qualitative measures to help prioritize their efforts. However, some hazards, such as Winter Storm, were bumped higher by the advisory committee due to recent severe impacts to the communities.

HIRA – Flood (Previous Occurrences)



According to the National Climactic Data Center's Storm Events Database, there have been over **50 events to impact DeKalb County since 1997**. These events **total just under \$17 million in property damages**. During that time, 3 presidentially declared disasters occurred to support public assistance, individual assistance, and eventually mitigation project funding. These events and their flood impacts to DeKalb County are shown below:

- **DR-1209 – Tornadoes and Flooding – Flood damages of \$10,000 as most of the declaration was associated with tornado damage**
- **DR-1554 – Hurricane Ivan – Flood damages of approximately \$6,000,000 in multiple events during the 6-week declaration period**
- **DR-1858 – Severe Storms and Flooding – Over \$10,000,000 in property damage during the 3-week declaration period**

HIRA – Flood (Extent)

Hazard	Probability	Impact			Hazard Planning Consideration 2011	Hazard Planning Consideration 2016
		Affected Area	Primary Impact	Secondary Impacts		
Flooding	Highly Likely > 1/100 or 1% annual occurrence	Medium 5% to 25% of community impacted	Critical 25% to 50% of facility damage	High Major loss of function, downtime,	Significant	Significant

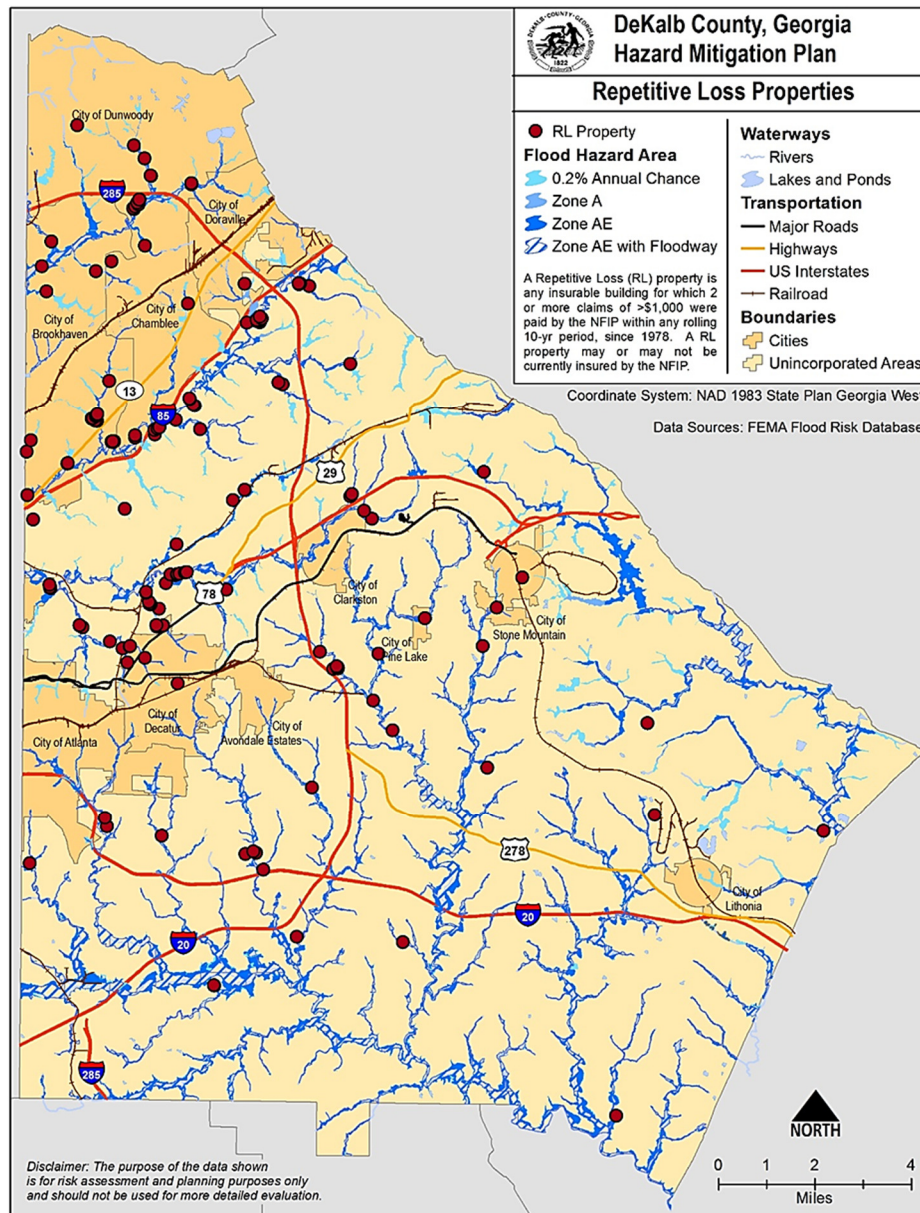
FEMA FIRM data was used to determine hazard risk for floods in the County of DeKalb. FEMA defines flood risk primarily by a 100-year flood zone, which is applied to those areas with a 1% chance, on average, of flooding in any given year. Any area that lies within the FEMA-designated 100-year floodplain 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. Below is a summary of extent by locality:

- 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.
- Snap finger 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.
- 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.

HIRA – Flood (Repetitive Loss Properties)



What does it mean to be a “Repetitive Loss Property”?

A property that is currently insured for which two or more NFIP losses (occurring more than 10 days apart) of at least \$1,000 each that have been paid within any 10-year period since 1978 is defined as repetitive loss property (RLP) by the NFIP program.

Per the Privacy Act of 1974, and in order to protect the privacy of the property owners, it is not allowable to show exact locations. Therefore, maps are shown at a low resolution and/or “repetitive loss areas” are utilized to perform planning for frequently flooded sites.

According to FEMA Risk MAP data, there are 157 RLPs (*all are residential properties*) within the incorporated and unincorporated areas of DeKalb County, three within the City of Atlanta. Of the participating localities, 91 are within the unincorporated areas of DeKalb County, followed by 30 in Brookhaven, 12 within Chamblee, and nine in Decatur and Dunwoody.

91 (or 33%) of the 279 claims are for repetitive loss properties located OUTSIDE of the mapped flood hazard area.

HIRA – Flood (Flood Insurance and CRS)

NFIP Maps and Flood Insurance

Thousands of communities across the United States and its territories participate in the National Flood Insurance Program (NFIP) by adopting and enforcing floodplain management ordinances to reduce future flood damage. In exchange, the NFIP makes federally backed flood insurance available to homeowners, renters, and business owners in these communities. Community participation in the NFIP is voluntary.

Flood insurance is designed to provide an alternative to disaster assistance to reduce the escalating costs of repairing damage to buildings and their contents caused by floods. Flood damage is reduced by nearly \$1 billion a year through communities implementing sound floodplain management requirements and property owners purchasing flood insurance. Additionally, buildings constructed in compliance with NFIP building standards suffer approximately 80% less damage annually than those not built in compliance.

Communities that participate in the NFIP are required to adopt and enforce the minimum federal NFIP floodplain management regulations. These regulations apply to all types of floodplain development and ensure that development activities will not cause an increase in future flood damages. Buildings are required to be reasonably safe from flooding which usually requires the finished floor elevation to be elevated at or above the corresponding Base Flood Elevation (BFE). The BFE is determined based on modeling and mapping identified within a community's Flood Insurance Study (FIS). The FIS and its corresponding Flood Insurance Rate Maps (FIRMs) provide information on areas of flood risk per the NFIP standards. These maps identify areas that have a 1%-annual chance of flooding as well as those areas with a 0.2%-annual chance of flooding. Some communities have additional flood frequencies that are modeled as part of their flood studies are within their local watershed mapping programs. When new structures are built, they are required to adhere to regulations and flood risk information provided by the NFIP. If the finished grade elevation for a structure is below the corresponding BFE, and there is a federally insured loan on the structure, then there is a mandatory requirement to purchase a flood insurance policy. The requirement for high risk structures to carry a flood insurance policy is one method used by the NFIP to offset the escalating costs of flood disasters.

Community Name	Emergency Entry Date	Initial FHBM Identified	Initial FIRM Identified & Entry Date	Current Effective Map Date
DeKalb County	05-Jun-70	05-Jun-70	15-May-80	16-May-13
Avondale Estates	--	21-Jan-10	07-May-01	16-May-13
Brookhaven	--	18-Oct-13	15-May-80	16-May-13
Chamblee	17-Dec-73	07-Jun-74	15-Sep-77	16-May-13
Clarkston	07-Aug-75	21-Feb-75	15-Jun-81	16-May-13
Decatur	19-Jun-70	11-Jun-71	11-Jun-71	16-May-13
Doraville	27-Nov-73	07-Jun-74	01-Sep-77	16-May-13
Dunwoody	--	14-Oct-09	07-May-01	16-May-13
Lithonia	--	30-Jan-08	07-May-01	16-May-13
Pine Lake	27-Feb-75	12-Apr-74	15-Jun-81	16-May-13
Stone Mountain	18-Jan-83	12-May-74	01-Aug-86	16-May-13

Figure 3 - Important Flood Insurance Rate Map (FIRM) Dates

HIRA – Flood (Flood Insurance and CRS)

NFIP and the Community Rating System (CRS)

Communities that regulate development in floodplains are able to participate in the NFIP. In return, the NFIP makes federally-backed flood insurance policies available for properties in the community. The CRS was implemented in 1990 as a program for recognizing and encouraging community floodplain management activities that exceed the minimum NFIP standards. There are ten CRS classes: class 1 requires the most credit points and gives the largest flood insurance premium reduction; class 10 receives no premium reduction. These discounts are applied per each CRS community and apply to all flood insurance policyholders.

DeKalb County entered the CRS in October 1992 and participates as a “Class 7” community. The City of Decatur (October 1993) also participates in the CRS and is a “Class 6” community. Participation in this program allows residents within the special flood hazard area

(SFHA) to receive a discount on their flood insurance premiums for policies purchased under the NFIP. Unincorporated DeKalb residents with flood policies within the SFHA would receive a 15% discount for their Class 7 rating while Decatur residents in the SFHA would receive a 20% discount for their Class 6 rating. Residents within the non-SFHA receive a 5% discount on their policies.

Community Name	Policy Statistics (as of 9/2015)			Claim Statistics (as of 9/2015)	
	Policies In-Force	Total Coverage	Total Premium	Total Claims since 1978	Total Paid since 1978
DeKalb County	1,458	\$ 688,651,300	\$ 2,380,846	1,250	\$ 20,147,568
Avondale Estates	9	\$ 2,870,000	\$ 4,357	0	\$0
Brookhaven	--	--	--	--	--
Chamblee	43	\$ 9,760,900	\$ 46,531	21	\$ 161,988
Clarkston	12	\$ 1,473,500	\$ 7,798	4	\$ 11,042
Decatur	233	\$ 45,595,700	\$ 186,224	142	\$ 1,041,197
Doraville	49	\$ 12,290,800	\$ 53,090	8	\$ 141,644
Dunwoody	110	\$ 28,774,400	\$ 52,713	0	\$0
Lithonia	--	--	--	--	--
Pine Lake	11	\$ 2,572,200	\$ 6,600	9	\$ 129,427
Stone Mountain	16	\$ 3,871,800	\$ 9,838	17	\$ 417,293
Total	1,941	\$795,860,600	\$2,747,997	1,451	\$22,050,159

Unincorporated DeKalb residents with flood policies within the SFHA would receive a 15% discount for their Class 7 rating while Decatur residents in the SFHA would receive a 20% discount for their Class 6 rating. Residents within the non-SFHA receive a 5% discount on their policies.

HIRA – Flood (Flood Exposure - Buildings)

Community Name	Residential	Commercial	Industrial	Agricultural	Religious	Government	Education	Total
DeKalb County	\$5,936,315	\$848,357	\$147,068	\$12,426	\$131,885	\$11,031	\$105,366	\$7,192,444
Avondale Estates	\$14,787	\$3,081	\$1,113	\$953	\$566	\$155	\$0	\$20,654
Brookhaven	\$595,401	\$150,934	\$9,805	\$932	\$9,486	\$1,750	\$36,679	\$804,989
Chamblee	\$389,434	\$129,319	\$23,016	\$3,369	\$8,136	\$567	\$7,309	\$561,147
Clarkston	\$88,816	\$9,728	\$713	\$114	\$132	\$485	\$3	\$99,991
Decatur	\$89,099	\$83,607	\$1,532	\$271	\$5,461	\$5	\$2	\$179,978
Doraville	\$49,366	\$21,046	\$902	\$1	\$1,322	\$0	\$106	\$72,744
Dunwoody	\$1,033,978	\$188,843	\$10,287	\$2,292	\$16,373	\$889	\$1,874	\$1,254,535
Lithonia	\$0	\$70	\$0	\$0	\$0	\$0	\$0	\$70
Pine Lake	\$1,809	\$716	\$159	\$0	\$0	\$0	\$0	\$2,684
Stone Mountain	\$38,694	\$2,843	\$192	\$145	\$238	\$0	\$0	\$42,112
Total	\$65,913,862	\$13,046,956	\$2,315,533	\$196,471	\$1,526,135	\$547,765	\$1,513,469	\$85,060,191

Figure 4 - Total Exposure of Assets in DeKalb County (shown in thousands of dollars)

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 above. 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 Energy¹. 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 capabilities and mitigation measures for each jurisdiction. According to the DeKalb GA 2015 Risk Analysis of Floodprone Buildings and Roadways, the total value of exposed assets within DeKalb County is estimated at over \$85 billion dollars.

¹ HAZUS-MH MR4 Technical Manual – Flood Model Chapter 3 page 5

HIRA – Flood (Estimated Losses - Buildings)

Municipality	Number of Building Footprints	100- year Flood Event Building Loss	100- year Flood Event Contents Loss	500- year Flood Event Building Loss	500- year Flood Event Contents Loss
Avondale Estates	2,589	\$98,940	\$90,581	\$147,602	\$195,395
Brookhaven	22,268	\$34,233,726	\$3,501,4859	\$72,543,114	\$76,417,479
Chamblee	10,907	\$12,549,810	\$19,555,219	\$30,633,099	\$52,327,893
Clarkston	2,526	\$8,913,510	\$4,184,532	\$10,264,424	\$3,284,567
Decatur	12,355	\$689,195	\$1,019,566	\$1,094,048	\$1,656,682
Doraville	5,636	\$3,747,968	\$11,158,605	\$7,081,584	\$20,119,837
Dunwoody	22,777	Was not part of 2015 Risk Analysis Report scope			
Lithonia	1,220	\$18,192	\$94,301	\$31,088	\$158,967
Pine Lake	662	\$173,123	\$622,624	\$197,519	\$673,566
Stone Mountain	3,405	\$1,158,952	\$698,211	\$2,941,431	\$1,865,573
DeKalb County Unincorporated	294,192	\$214,304,773	\$376,885,978	\$327,754,787	\$593,525,118
Total*		\$280,724,561	\$455,565,589	\$459,627,835	\$758,031,490

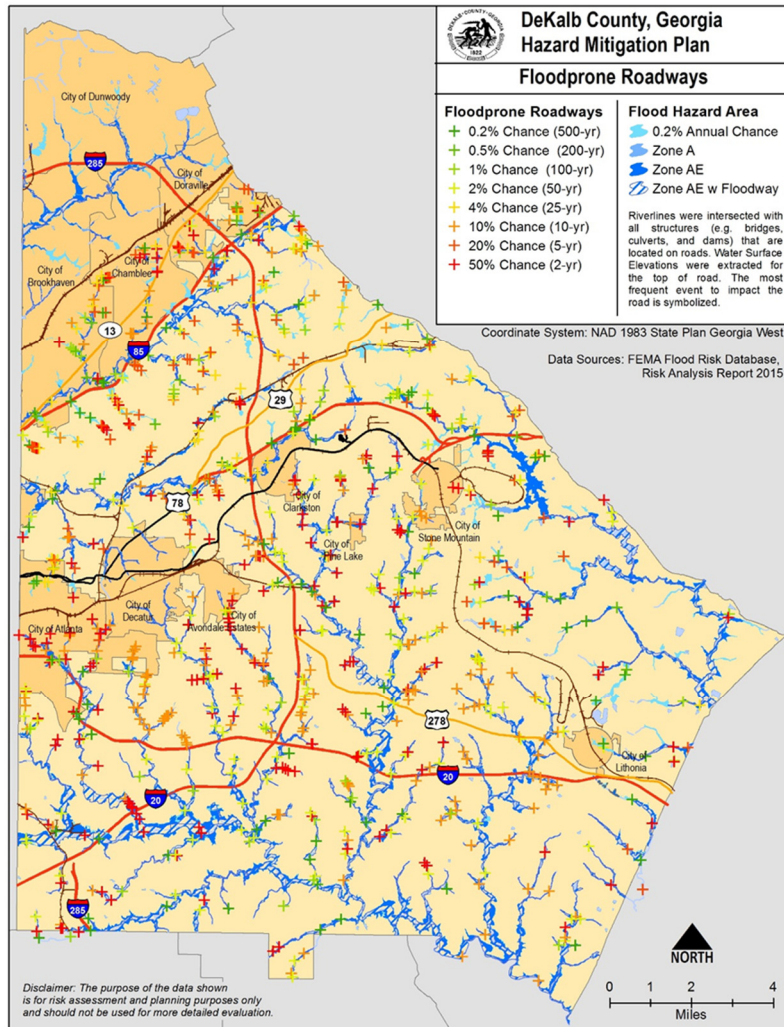
*Includes building and content loss to the portion of Atlanta that is within DeKalb County, however Atlanta has been left out as it is covered under Fulton County's Hazard Mitigation Plan

A "Level 2" Hazus Analysis was performed as part of the April 2015 Risk Analysis Study. More accurate loss estimates are produced by providing more accurate local inventories of buildings, essential facilities and other infrastructure (FEMA). The User Defined Facilities table in Hazus was populated using the building footprint provided by DeKalb County and 2010 US Census general building stock data.

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 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).

HIRA – Flood (Infrastructure Losses)



As part of the Risk Analysis Report, riverlines were intersected with all structures (including bridges, culverts, and dams). The water surface elevations were extracted and assigned to the top of road, with the most frequent flood event to impact the road being noted. The figure to the left shows the floodprone roads, symbolized by color based on the frequency of occurrence. Roads with a **red +** have a 50% annual chance of occurrence (2-year event) and the **dark green +** are associated with roadways that are inundated by the 500-year event.

The majority of these vulnerable roadways are located within the unincorporated areas of the county. Following the county, Fulton County's extraterritorial jurisdiction of Atlanta (portions within the DeKalb boundary) has 46 total roadways inundated, Chamblee has 33, and Brookhaven has 34.

Streams with the highest number of floodprone structures include:

- Snapfinger (24 floodprone structures)
- NFPC Main (20 floodprone structures)
- SM Creek (18 floodprone structures)
- Sugar Sugar (18 floodprone structures)
- NFPC TA Main (15 floodprone structures)
- Pole Bridge Creek (15 floodprone structures)

HIRA – Flood (Infrastructure Losses)

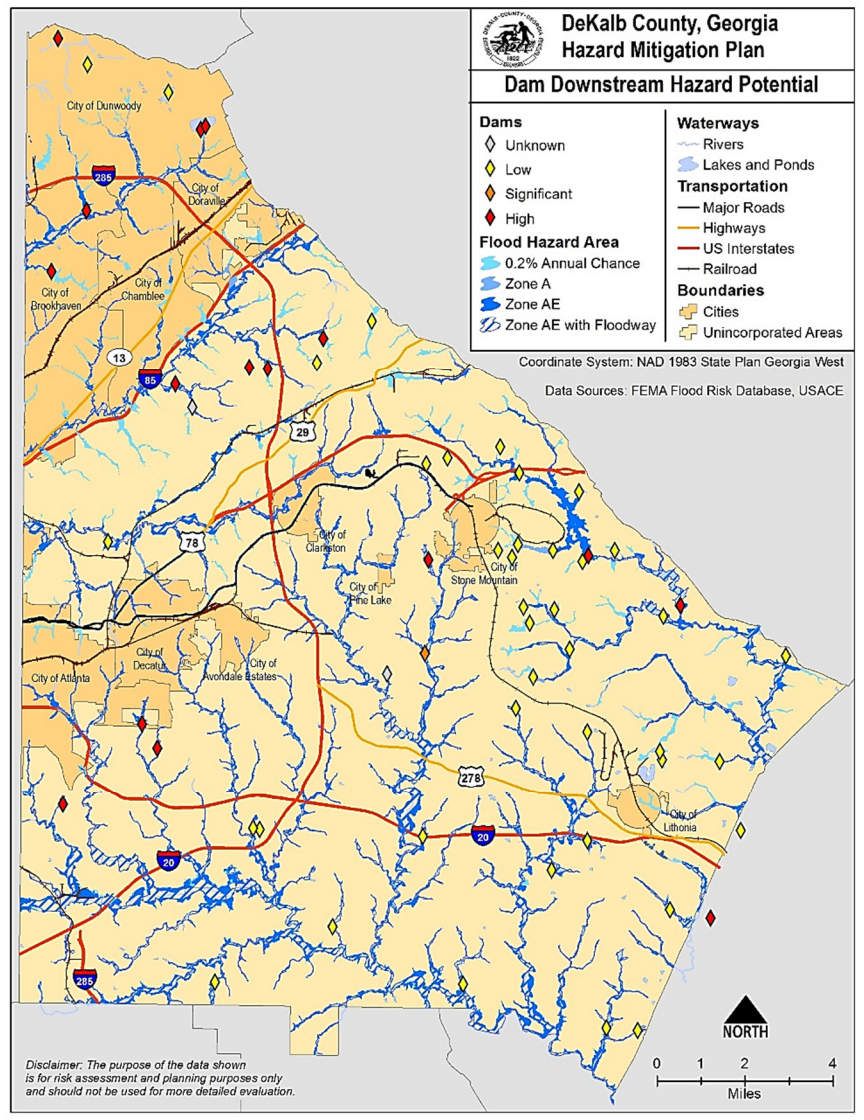
Municipality	50% Chance Event (2-yr)	20% Chance Event (5-yr)	10% Chance Event (10-yr)	4% Chance Event (25-yr)	2% Chance Event (50-yr)	1% Chance Event (100-yr)	0.5% Chance Event (200-yr)	0.2% Chance Event (500-yr)	No Overtopping	Grand Total
Atlanta	16	1	13	3	1	4	1	3	4	46
Avondale Estates	2		1		1					4
Brookhaven	2	2	3	4	1	4	5	3	10	34
Chamblee	7	5	7	4		1		4	5	33
Clarkston	3		1	2	1			6	1	14
Decatur			1							1
Doraville	5	8		3	1	1	2		2	22
Dunwoody	Was not part of 2015 Risk Analysis Report scope									
Lithonia					1			1	2	4
Pine Lake	1		1							2
Stone Mountain	2		2		1					5
DeKalb County Unincorporated	152	63	170	47	129	46	15	73	232	927
Grand Total	190	79	199	63	136	56	23	90	256	1,092

Roads at Risk

There are 190 road segments inundated by the 2-year event, meaning that they may be vulnerable to smaller and frequent flooding events such as nuisance storms or flash flooding.

These roadways (at least the vulnerable portions) should be evaluated for potential retrofitting as projects vulnerable to that level of recurrence flooding almost always produce cost beneficial results to be eligible for grant funding.

HIRA – Flood (Dam Breach)



Dam Breach

Hazard	Probability	Impact			Hazard Planning Consideration 2011	Hazard Planning Consideration 2016
		Affected Area	Primary Impact	Secondary Impacts		
Dam Breach	Unlikely < 1 event in the last 100 years	Isolated < 1% of community impacted		and/or evacuations	Limited	Limited

According to the [National Inventory of Dams](#), there are 68 dams located in DeKalb County. The dams are periodically inspected by the State of Georgia's Dam Safety Program. The primary purpose of the majority (60 dams) is classified as recreation, followed by 4 dams for water supply, one for irrigation and one for stock. Sixty-six of the dams are earthen, followed by one gravity dam, and one with unknown type.

Seventeen of the dams within the county are considered to have a high downstream damage potential, three significant, 44 low and four with an unknown classification. Two high hazard dams are within Brookhaven and three within Dunwoody.

Of the 68 dams listed, 17 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. Eight of the Category I dams are maintained by DeKalb County or local governments and the remaining nine by private owners. In contrast, category II dams (33 in DeKalb) are those for which improper operation or dam failure would not be expected to result in probable loss of human life (<http://www.damsafety.org/media/Documents/PDF/GA.pdf>). There is no history of dam failure from a Category I or II structure within the county.

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 as 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.

HIRA – Wind Hazards

Hazard Identification and Ranking

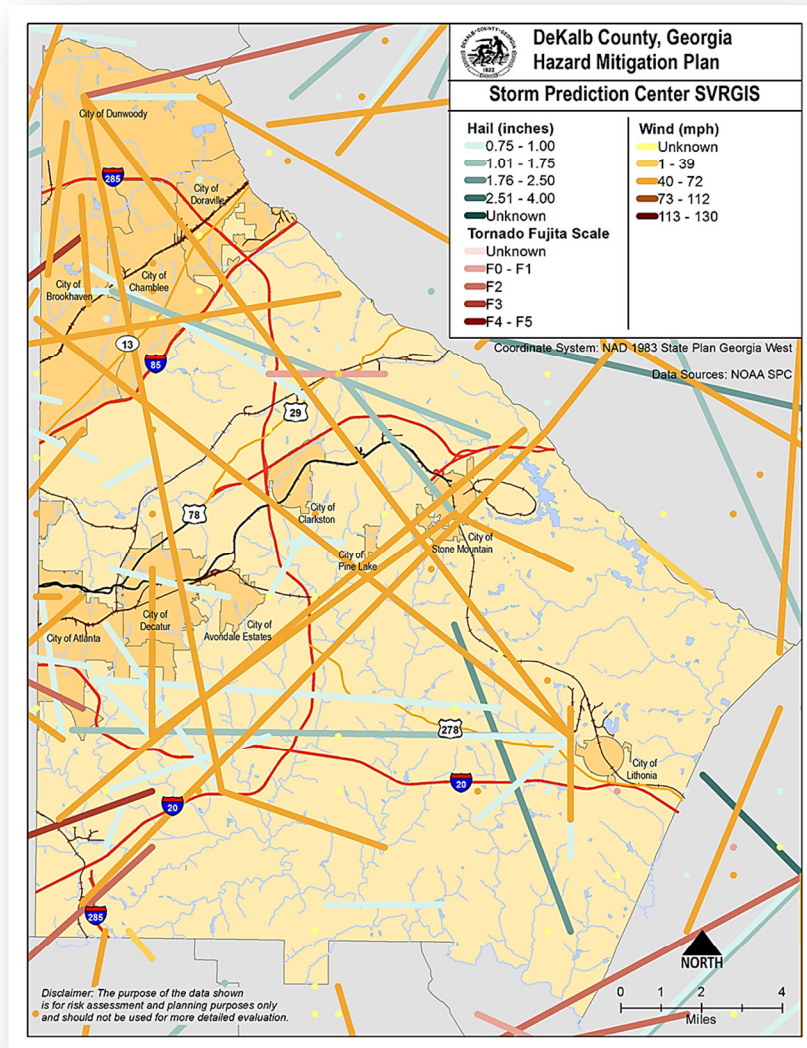
Hazard rankings completed for this plan were updated using the DeKalb County Hazard Vulnerability Analysis tool. The 2011 hazard rankings were reviewed and updated to reflect feedback of the MAC and public survey responses. **Hazard rankings were elevated for tornado winds during the 2016 update.**

Hazard	Probability	Impact			Hazard Planning Consideration 2011	Hazard Planning Consideration 2016
		Affected Area	Primary Impact	Secondary Impacts		
WIND (STRAIGHT LINE, LIGHTNING, AND THUNDERSTORM)	Highly Likely > 1/100 or 1% annual occurrence	Large > 25% of community impacted	Limited 10% to 25% of facility damage	Moderate Some loss of function, downtime, and/or evacuations	Significant	Significant
TORNADO	Highly Likely > 1/100 or 1% annual occurrence	Isolated < 1% of community impacted	Critical 25% to 50% of facility damage	Moderate Some loss of function, downtime, and/or evacuations	Moderate	Significant
HURRICANE	Likely 1/1000 to 1/100 or 0.1% to 1% annual	Medium 5% to 25% of community impacted	Critical 25% to 50% of facility damage	High Major loss of function, downtime, and/or evacuations	Moderate	Moderate

In addition to the overall county ranking, ten municipalities consider wind hazards, such as those impacts from hurricanes, thunderstorms, and tornadoes as a moderate risk with moderate damage potential. The City of Doraville considers these hazards significant in risk and damage potential.

The figure above summarizes the probability, severity, impacts and relative risk for wind related hazards. Tornado, and hurricane winds are further profiled and included in the wind section of this report as well as within the Hazard Identification and Risk Assessment Appendix. **Straight-line winds and tornadoes are considered significant risks for DeKalb County followed by hurricane wind as a moderate risk.**

HIRA – Wind Hazards (Tornado)



Tornadoes

In a typical year DeKalb County will not experience a tornado of any degree. Recent history shows that tornadoes of F0 – F3 magnitude are the most common to impact the county. However tornadoes of higher magnitude can occur in DeKalb County. The very limited disaster history presented below indicates that between one and four damaging tornadoes (F0-F3 magnitude; now comparable to EF-1 – EF-3 per the Enhanced Fujita Scale implemented in 2007) 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 the figure to the left, which shows the locations of 7 of the 9 tornadoes within DeKalb County. Locations of these touch downs were obtained from the NCDC database. The figure shows the spatial location of the recent tornado events as mapped by NWS SVRGIS. The wind events are shown as swaths in the pink to red color spectrum.

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	EF1	0	0	\$50K	33°44'N	84°21'W	33°43'N	84°19'W

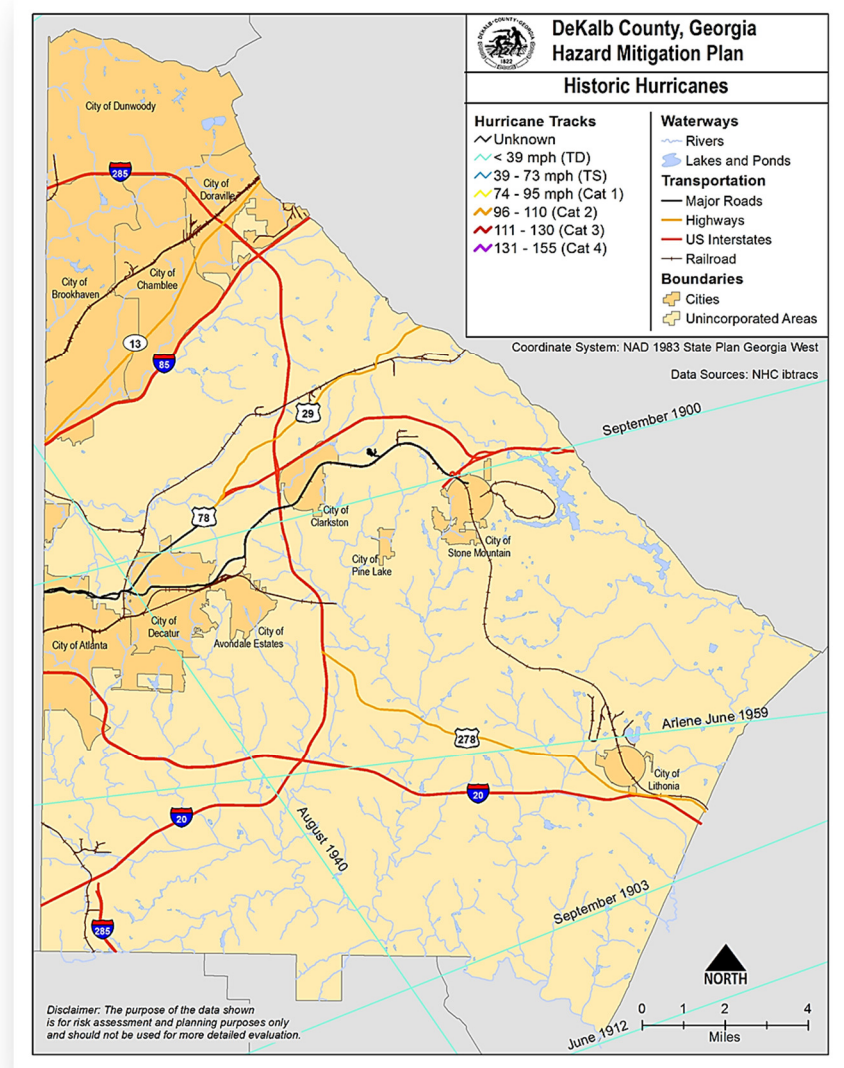
HIRA – Wind Hazards (Hurricane)

Hurricanes

According to a variety of historical records compiled by NOAA and posted on their website, 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 figure to the right shows the historic hurricanes to pass over DeKalb County. As shown, several hurricanes passed over the county as tropical depressions.

According the NCDC database, the most recent storms affecting DeKalb County, often as remnants of the storm itself or causing other hardships such as sheltering evacuees from other areas, include Tropical Storm Cindy (2005), Hurricane Katrina (2005), Tropical Storm Fay (2008), Hurricane Ida (2009), and Tropical Storm Lee (2010). The thunderstorms associated with the spiral bands of Fay produced tornadoes, damaging winds, flash flooding, and hail. 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. **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.**

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.



HIRA – Wind Hazards (Exposure & Losses)

Based on historical frequency of occurrence using NCDC data, a reasonable determination of probability of future wind events can be made. Wind has had significant impacts on DeKalb in the past and is likely to impact the County in the future. An examination of NCDC data suggests that **on an annual basis, approximately two to three high wind events of some significance is likely to occur in the county on an annual basis with damages near \$36,762; on average, a significant tornado is expected once every seven years in the county with damages near \$778,263.**

Hazard	Period of Record	Annualized Events	Annualized Property Damage
Wind	1955-2015	2.74	\$36,762
Hail	1955-2015	1.85	\$285,244
Lightning	1993-2015	0.65	\$49,255
Hurricane	1955-2015	0.23	\$0
Tornado	1950-2015	0.14	\$778,263

The table to the left shows the annualized number of flood events and estimated annualized damages (inflated to 2015) based on the NCDC historical record. Utilizing information obtained from NCDC data, wind related events have the potential to be destructive. Total damages (adjusted for inflation) on an **annualized basis range from more than \$36,762 for high wind events to more than \$285,244 for hail events.**

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 city jurisdictions, and the private utility companies. The vulnerability of power infrastructure is generally consistent from jurisdiction to jurisdiction.

The type of building construction has a significant impact on potential damages from high wind events. The DeKalb County area includes a variety of building types. **The primary construction type is wood framed residential and 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 there be a high wind event.

HIRA – Winter Storm

Probability	Impact			Hazard Planning Consideration 2011	Hazard Planning Consideration 2016
	Affected Area	Primary Impact	Secondary Impacts		
Likely 1/1000 to 1/100 or 0.1% to 1% annual	Large > 25% of community impacted	Negligible < 10% of facility damage	Moderate Some loss of function, downtime, and/or	Moderate	Significant

Hazard rankings completed for this plan were updated using the DeKalb County Hazard Vulnerability Analysis tool. The 2011 hazard rankings were reviewed and updated to reflect feedback of the MAC and public survey responses. **Hazard rankings were elevated for winter storms during the 2016 update.**

Between the years of 1965 and 2015, the NCDC database reported 27 winter storm, heavy snow, and ice events resulting in approximately \$2 million dollars in damages. An examination of NCDC data suggests that on an annual basis, approximately **one winter storm event of some significance is likely to occur in the county with damages near \$26,591**; on average, a **significant ice storm is expected once every four years in the county with damages near \$61,337**. During the period of historical record obtained from SHELUS and the NCDC; there were 22 winter events and 5 ice storms in a 23 year period, indicating a **96% probability of a winter storm occurrence in any given year and one ice storm approximately every 5 years**. Magnitude varies significantly by each event **with all areas of the county subject to potential impacts**. Summaries for more recent events are provided below:



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.



January 2011

One of the most significant winter storms to affect north and central Georgia in years, but especially north Georgia, began the evening of January 9th and continued throughout much of the following work week. Snowfall of four to seven inches was common across most of north Georgia north of Interstate-20. The DeKalb County 911 Center reported snowfall accumulations across the county ranging from 4.0 to 4.5 inches.



February 2014

A significant winter storm impacted north and portions of central Georgia on Tuesday the 11th and Wednesday the 12th. Overall across the Metropolitan Atlanta counties and areas east (along and just south of Interstate 85) and west (along Interstate 20), sleet accumulations of 0.25 to 0.75 inches, freezing rain accumulations of 0.1 to 0.25 inches, and snowfall accumulations of 1 to 2 inches were reported.



February 2015

Continued cold temperatures combined with a series of upper-level troughs and associated surface low pressure systems to bring significant snow totals to portions of North Georgia. The CoCoRaHS observer reported 0.5 inches of snow.

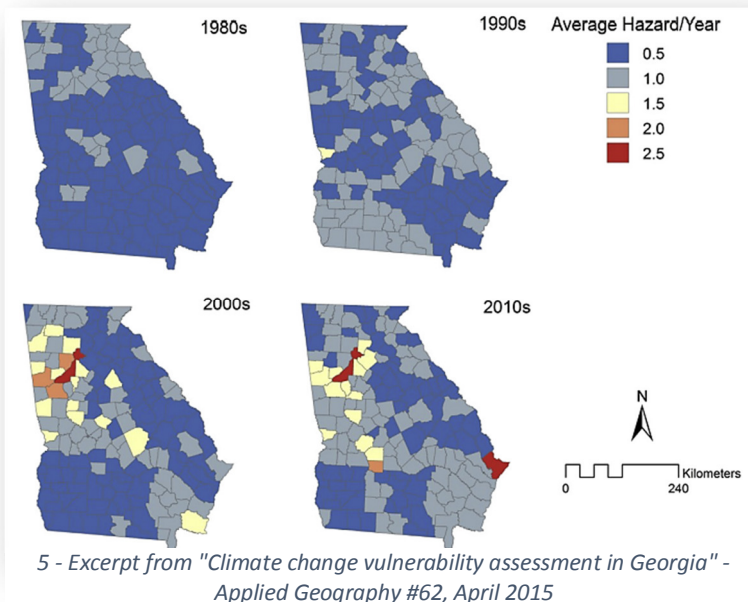
HIRA – Drought

Probability	Impact			Hazard Planning Consideration 2011	Hazard Planning Consideration 2016
	Affected Area	Primary Impact	Secondary Impacts		
Likely 1/1000 to 1/100 or 0.1% to 1% annual	Large > 25% of community impacted	Negligible < 10% of facility damage	Limited Minimal loss of function, downtime, and/or evacuations	Limited	Moderate

Hazard rankings completed for this plan were updated using the DeKalb County Hazard Vulnerability Analysis tool. The cities of Avondale Estates and Pine Lake consider drought to be a moderate risk with moderate damage potential while the remaining municipalities consider drought to be a limited risk with little damage potential.

The NCDC database lists **21 “events” of drought condition since 1997, accounting for \$328,980** in crop damages. Many of these are close in date and likely singular events over longer durations. All areas of DeKalb County are equally likely to experience conditions of drought. 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**, although limited historical data makes precise estimating of the probability unrealistic within the context of this planning process.

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.



Based on historical frequency of occurrence using NCDC data, a reasonable determination of probability of future drought events can be made. An examination of NCDC data suggests that **on an annual basis, approximately one drought event of some significance is likely to occur in the county on an with crop damages near \$15,666; on average, a significant extreme heat event is expected once every two years in the county.**

These estimates are believed to be an underrepresentation of the actual losses experienced due to hazards as losses from events that go unreported or that are difficult to quantify are not likely to appear in the NCDC database; this is especially true with crop damages.

The graphic on the left highlights the increasing occurrence of climate hazards (flood, drought, and heat wave) impacting Georgia communities, particularly those counties in the Metropolitan Atlanta area.

http://www.srs.fs.usda.gov/pubs/ja/2015/ja_2015_johnson-gaither_001.pdf

HIRA – Extreme Heat

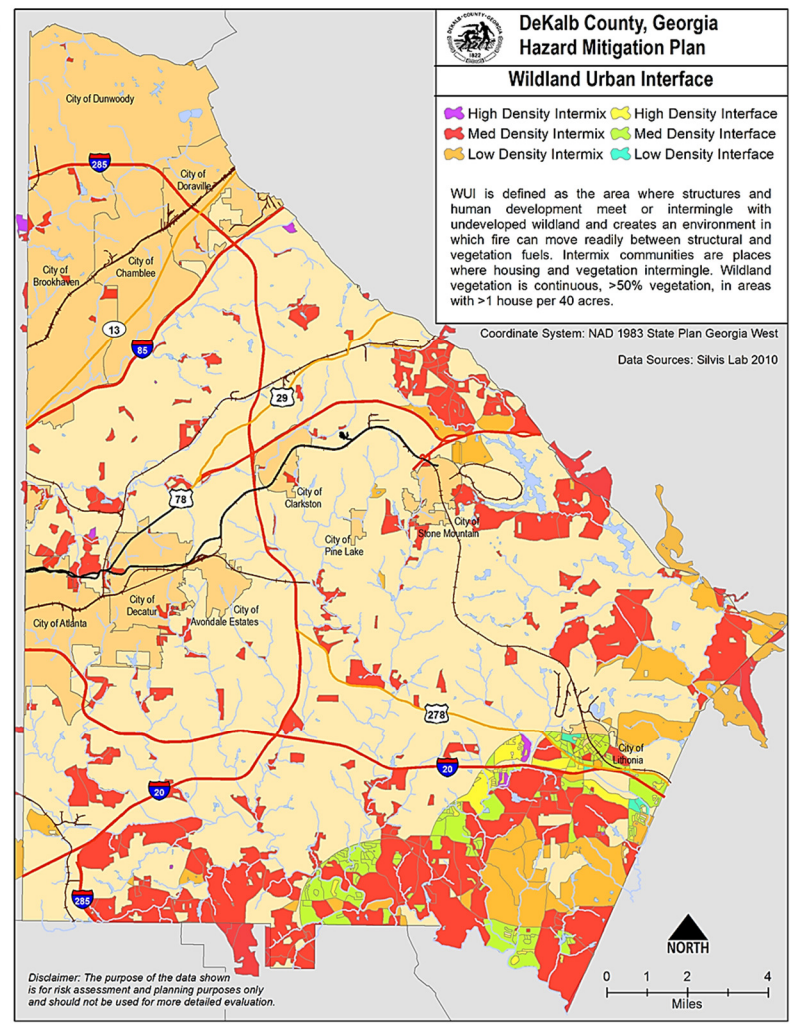
Probability	Impact			Hazard Planning Consideration 2011	Hazard Planning Consideration 2016
	Affected Area	Primary Impact	Secondary Impacts		
Likely 1/1000 to 1/100 or 0.1% to 1% annual	Medium 5% to 25% of community impacted	Negligible < 10% of facility damage	Limited Minimal loss of function, downtime, and/or evacuations	Limited	Moderate

Extreme heat was elevated during the 2016 plan update from limited risk to moderate risk and damage potential. In addition to the overall county ranking, the cities of Clarkston and Dunwoody consider extreme heat to be a limited risk with little damage potential.

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 NCDC database listed 11 extreme heat events between July of 1999 and September 2014 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.

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, such as the elderly and the very young that are more susceptible to the hazard. DeKalb County can typically expect to experience a heat wave several times a year. Climate records from the past 40 years indicate **the Atlanta area receives about 36 days annually where the high is over 90 degrees.** Based on limited historical records, **an extreme heat event can be expected approximately once every two years.**

HIRA – Wildfire



Probability	Impact			Hazard Planning Consideration 2011	Hazard Planning Consideration 2016
	Affected Area	Primary Impact	Secondary Impacts		
Somewhat Likely > 4 events in the last 100 years	Small 1% to 5% of community impacted	Catastrophic > 50% of facility damage	High Major loss of function, downtime, and/or evacuations	Limited	Limited

Wildfire has remained a limited hazard for the 2016 plan update. In addition to the overall county ranking, the cities of Clarkston, Dunwoody, Lithonia, and Pine Lake consider wildfire to be a moderate risk with moderate damage potential while the remaining municipalities consider wildfire to be a limited risk with little damage potential.

Response Year	Number of Incidents	Acres Burned	Number of Units Responded	Number of Personnel Responded	Total Response Manhours
2013/2014	-	14	64	163	209
2012	26	60	67	184	345

6 - DeKalb County Fire and Rescue Wildland Calls (2013-2014)

The DeKalb County Fire and Rescue provided wildland responses for 2012 through 2014. During 2013 and 2014, 14 acres within the county burned, resulting in the response of 64 units and 163 personnel. These events totaled 209 man hours. Fire and Rescue has an ATV unit and tractor available to respond to the incidents. It should be noted that Fire and Rescue are currently working on a wild land plan that will be complete by the end of 2015.

HIRA – Wildfire (Exposure and Losses)

The table below 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 (*Lowest Risk* - Zone 1: 0-10% vegetation; Zone 2: 20-40% vegetation; Zone 3: 40-60%; Zone 4: 60-80%, Zone 5; 80-100% - *Highest Risk*). 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.

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
Brookhaven						
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 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.**

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.

HIRA – Earthquake

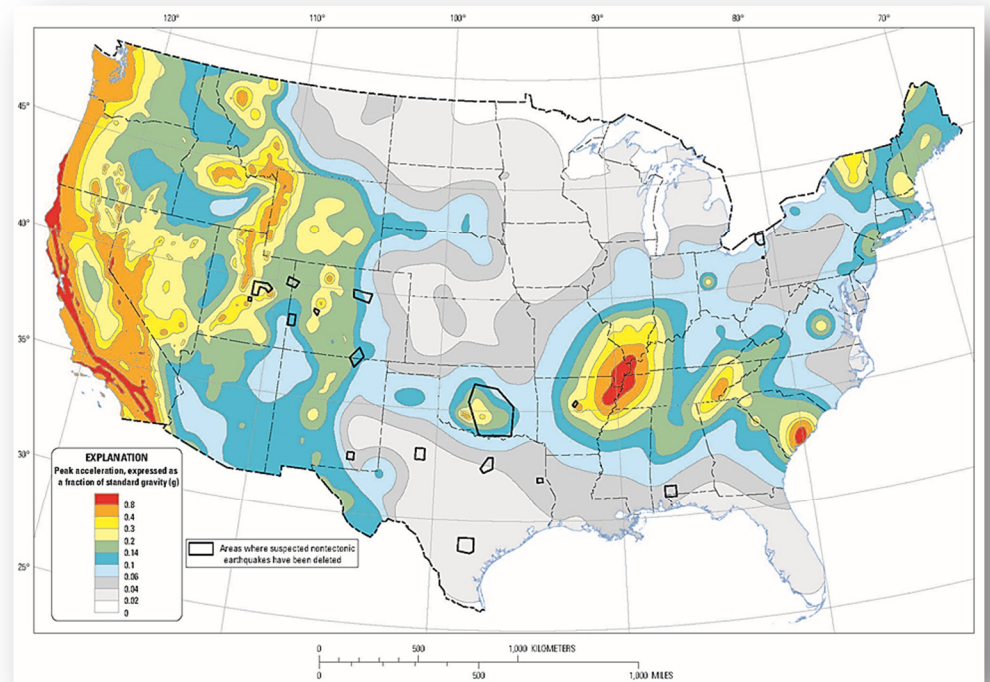
Probability	Impact			Hazard Planning Consideration 2011	Hazard Planning Consideration 2016
	Affected Area	Primary Impact	Secondary Impacts		
Unlikely < 4 events in the last 100 years	Medium 5% to 25% of community impacted	Negligible < 10% of facility damage	Negligible No loss of function, downtime, and/or evacuations	None* Insignificant Risk	Limited

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.

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. The Hazus assessment is available within *Appendix 4 - Hazard Identification and Risk Assessment*.

Since the previous plan, national seismic hazard maps were updated by the USGS and **released in 2014 to account for new methods, models, and data.** The figure to the right shows peak horizontal ground acceleration (PGA) for the United States. This represents the fastest measured change in speed, for a particle at ground level that is moving horizontally due to an earthquake with a 2% probability of exceedance in 50 years. Values are given in %g, where g is acceleration due to gravity, or 9.8 meters/second². **All communities within DeKalb County are located within the PGA rank of 4%g to 6%g (shown as light blue on the map).** The upper northeast portion of the county has a slightly higher risk compared to the rest of the county but is still within the “low” hazard zone.

Earthquake was elevated during the 2016 plan update from insignificant risk to limited risk and damage potential. 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) from



7 - 2014 USGS Map - Peak Ground Acceleration (%g) with 2% probability of exceedance in 50 years

HIRA – Summary

<i>Hazard Category</i>	<i>Hazard</i>	<i>Annualized Events</i>	<i>Annualized Property Damage</i>	<i>Annualized Crop Damage</i>
Flood	Flood	0.61	\$445,276	N/A
	Flash Flood	1.7	\$414,645	N/A
Wind (and Related Hazards)	Wind	2.7	\$36,762	N/A
	Hail	1.9	\$285,245	N/A
	Tornado	0.14	\$778,263	N/A
	Hurricane	0.23	N/A	N/A
	Lightning	0.65	\$49,255	N/A
Winter Storms	Winter Weather	0.96	\$26,591	N/A
	Ice Storm	0.22	\$61,337	N/A
Drought	Drought	1.0	N/A	\$15,666
Extreme Heat	Extreme Heat	0.48	N/A	N/A
Earthquake	Earthquake	N/A	N/A	N/A

The hazard profiles presented in this section were developed using best available data and result in what may be considered principally a qualitative assessment as recommended by FEMA. It relies heavily on historical and anecdotal data, stakeholder input, and professional and experienced judgment regarding observed and/or anticipated hazard impacts. It also carefully considers the findings in other relevant plans, studies and technical reports.

Historic damages and probability to hazards can be an indicator of vulnerability. The table to the left provides a summary of the expected events and damages for each hazard per year for DeKalb County.

The results of this vulnerability assessment are useful in at least three ways:

- Improving our understanding of the risk associated with the natural hazards in DeKalb County through better understanding of the complexities and dynamics of risk, how levels of risk can be measured and compared, and the myriad of factors that influence risk. An understanding of these relationships is critical in making balanced and informed decisions on managing the risk.
- Providing a baseline for policy development and comparison of mitigation alternatives. The data used for this analysis presents a current picture of risk in DeKalb County. Updating this risk “snapshot” with future data will enable comparison of the changes in risk with time. Baselines of this type can support the objective analysis of policy and program options for risk reduction in the region.
- Comparing the risk among the natural hazards addressed. The ability to quantify the risk to all these hazards relative to one another helps in a balanced, multi-hazard approach to risk management at each level of governing authority. This ranking provides a systematic framework to compare and prioritize the very disparate natural hazards that are present in DeKalb County. This final step in the risk assessment provides the necessary information for local officials to craft a mitigation strategy to focus resources on only those hazards that pose the most threat to the county.

HIRA – Summary

The table below provides a summary of results for the vulnerability assessment conducted for each of DeKalb County's assets (from the inventory listed earlier in this section). It lists those assets that are determined to be exposed to each of the wildfire and flooding hazards as those datasets have better geographic resolution for the County. Other hazards such as wind and drought are expected to have the same exposure countywide and thus are not shown. **The assets included here should ideally be considered for mitigation actions to reduce long-term vulnerability.**

Facility Type	Facility Name	Address	Building Value	Wildfire	FloodZone
Fire Station	DeKalb County Fire Services Station 24	4154 Redan Rd	\$545,900	High	AE
Elementary School	Woodward Elementary School	3034 Curtis Drive, NE	\$2,479,700	High	AE
Public Two-Year College	GPC SH Building	3251 Panthersville Road	\$47,628	Medium	AE
Public Two-Year College	GPC SI Building	3251 Panthersville Road	\$45,360	Medium	AE
Public Two-Year College	GPC SJ Building	3251 Panthersville Road	\$45,360	Medium	AE
Public Two-Year College	GPC SK Building	3251 Panthersville Road	\$45,360	Medium	AE
Public Two-Year College	GPC SD Building	3251 Panthersville Road	\$453,600	Negligible	AE
Public Two-Year College	GPC SF Building	3251 Panthersville Road	\$81,000	Negligible	AE
Private School	Learning Institute (The)	3900 Memorial College Ave.	\$243,300	High	0.2% Annual Chance
Wastewater Treatment Plant	DeKalb County-Snapfinger Creek WPCP	4124 Flakes Mill Rd	\$22,967,600	Medium	0.2% Annual Chance
Public Two-Year College	GPC SE Building	3251 Panthersville Road	\$77,760	Medium	0.2% Annual Chance
Police Station	Decatur Police Department	420 W Trinity Place	-	Negligible	0.2% Annual Chance
Public Two-Year College	GPC SC Building	3251 Panthersville Road	\$12,096,000	Negligible	0.2% Annual Chance

Mitigation Strategy

For each community:

Capabilities Assessment

- Existing Plans, Policies, and Ordinances
- Administrative and Technical Capacity
- Legal and Regulatory Capability
- Fiscal Resources and Capability

Goals, Objectives and Actions

- Mitigation Goal(s)
- Mitigation Objective(s)
- Prioritization and Implementation of Mitigation Action Items

#DeKalbParksPics 2015 Photo Contest
Honorable Mention awarded to Kenneth Doyle
Location: Hidden Acres Nature Preserve

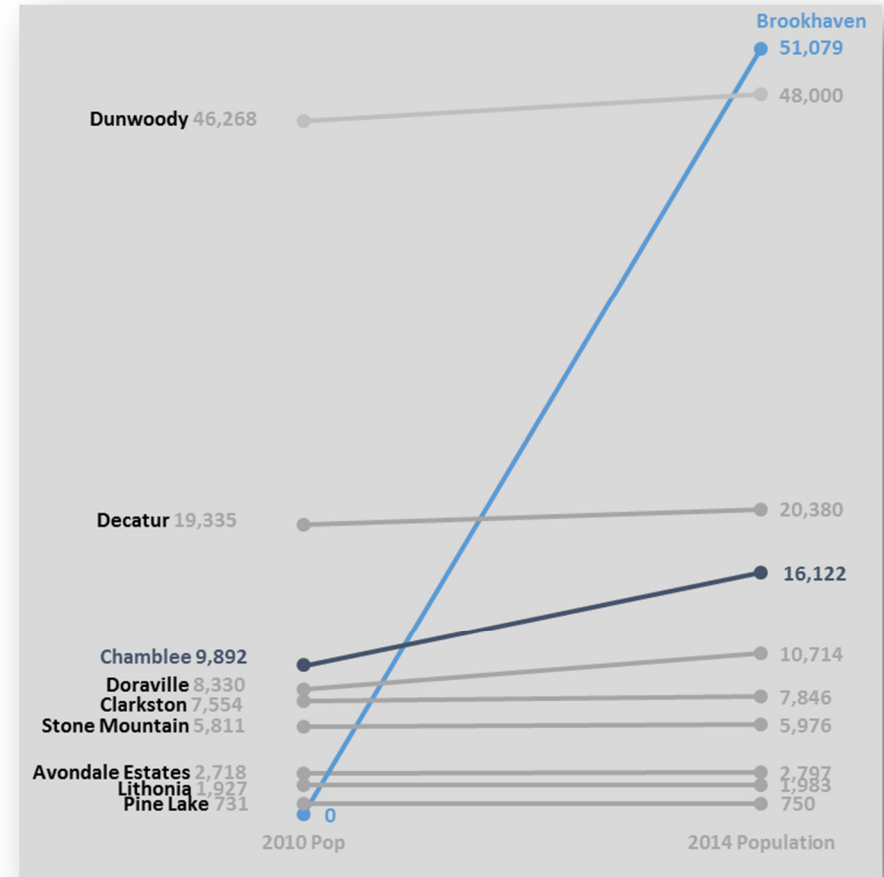
The Mitigation Strategy section of the Plan identifies how each community intends to address their vulnerabilities through mitigation actions and coordination with existing policy documents.

Annexations and a New City

DeKalb County's municipal structure continues to encounter major changes as new cities or large annexations have occurred every 1 or 2 years for the past decade. Some of the more prominent changes from the last 5 years are discussed below:

- The City of Brookhaven was formed in 2012 and instantly became DeKalb's most populous municipality (although 2015 estimates have Dunwoody, formed in 2008, and Brookhaven almost even).
- The City of Chamblee has annexed land that has nearly doubled its geography and population since the previous plan update.
- The City of Doraville's population has grown by more than 25% since the last update due to annexations.
- Unincorporated DeKalb County's population has been reduced by approximately 5-10% due to the annexations and new city.
- *During the final drafting of this report, the county's 11th city, Tucker, was established and will be incorporated during spring 2016; another proposed city, La Vista Hills, was not approved by less than 1% of the required vote. The creation of Tucker moves approximately 30,000 people from unincorporated county into the city's limits.*

The numerous changes to city limits impacts how services are provided by the unincorporated county. In some cases, the cities rely on DeKalb for essential services such as police and fire, while other cities can support these by themselves. The mitigation strategy identified on the following pages integrates these changing boundaries and services.

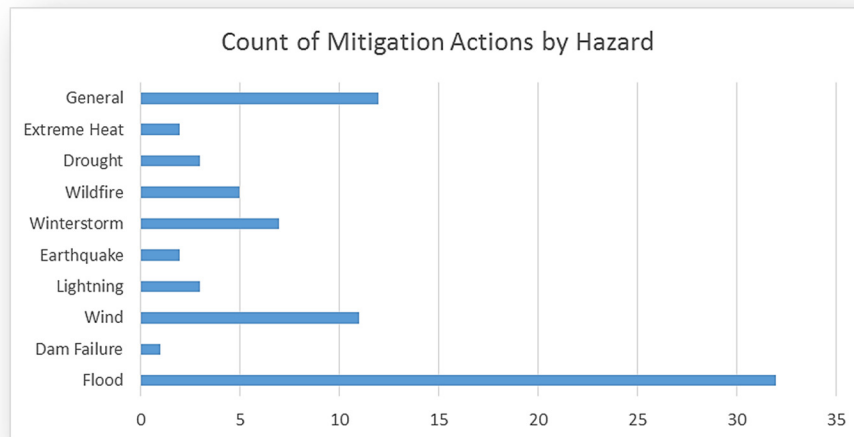


City Population Changes 2010-2014 (ACS Estimate)

Goals and Objectives (Countywide)

During the 2nd meeting of the Mitigation Advisory Committee (MAC), the members of the MAC voted to continue with the previous plans goals and objectives; communities that were not able to attend the MAC meeting provided approval during their Capability Assessment meetings held later. The goals and objectives serve as countywide guidance, although some communities chose to add additional objectives specific to their municipality in support of ongoing planning activities.

Each community proposed actions that support these objectives while reducing vulnerability to the hazards most pressing to the communities. The selection of implementation actions was provided by each community during the planning process via their local planning group (typically a cross-section of departments representing planning, public safety, public works, and information technology). These groups also reviewed previous actions to determine whether they had been completed, deferred, or should be removed from the 2016 update. The County and many of its municipalities have had large turnover in staffing from the previous planning efforts making it challenging to verify the status of older actions. Numerous efforts have been made to connect current staff to the older activities to validate project status, current cost estimates, and benefit cost analysis of the proposed actions. These efforts will continue through the plan maintenance process.



The 5 Goals

Goal 1 - Promote disaster resistant future development

3 supporting objectives

Goal 2 – Increase public understanding and support for effective hazard mitigation

4 supporting objectives

Goal 3 – Build and support capacity and commitment to become less vulnerable to hazards

4 supporting objectives

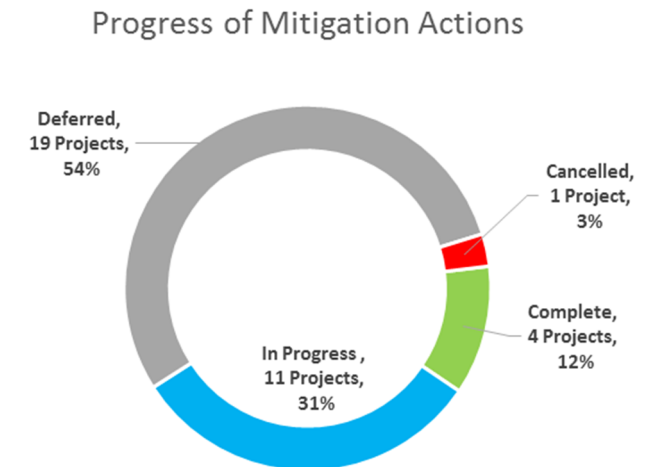
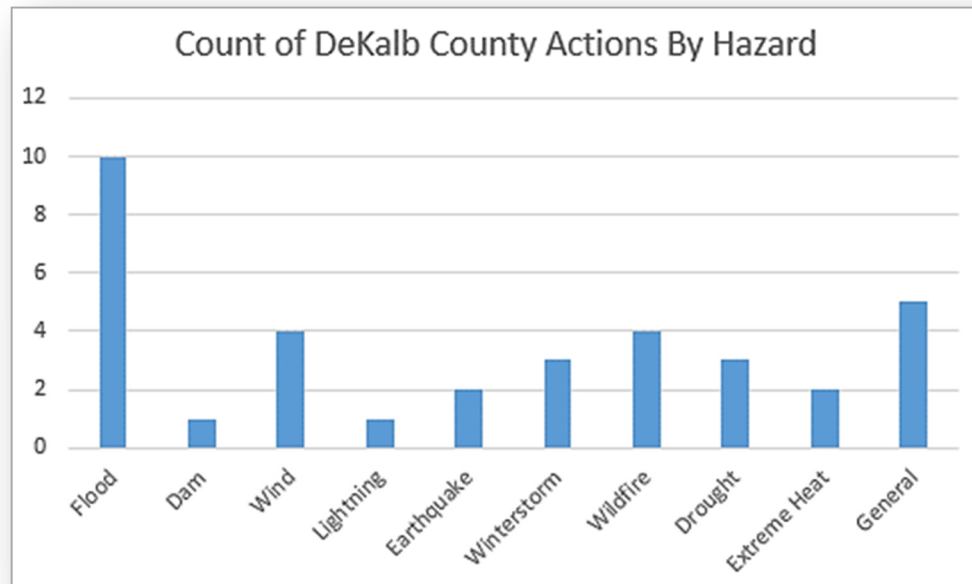
Goal 4 – Enhance hazard mitigation coordination and communication with federal, state, and local governments

6 supporting objectives

Goal 5 – Reduce the possibility of damage and losses to existing assets (people, infrastructure facilities) from all hazards

DeKalb County (Proposed Actions)

Many of Unincorporated DeKalb County's proposed actions have not changed over the past 5 years as funding and other necessary resources were not available to implement the activities. However, DeKalb has been able to accomplish approximately 12% of actions from the 2011 Plan. Some of the main activities accomplished include updating of flood hazard maps, dam breach analysis and assessment, and updates to the zoning code. The full listing of each individual, proposed action is provided within *Appendix 5 – Goals, Objectives, and Actions*.



DeKalb County (Administrative Capabilities)

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 Managament
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

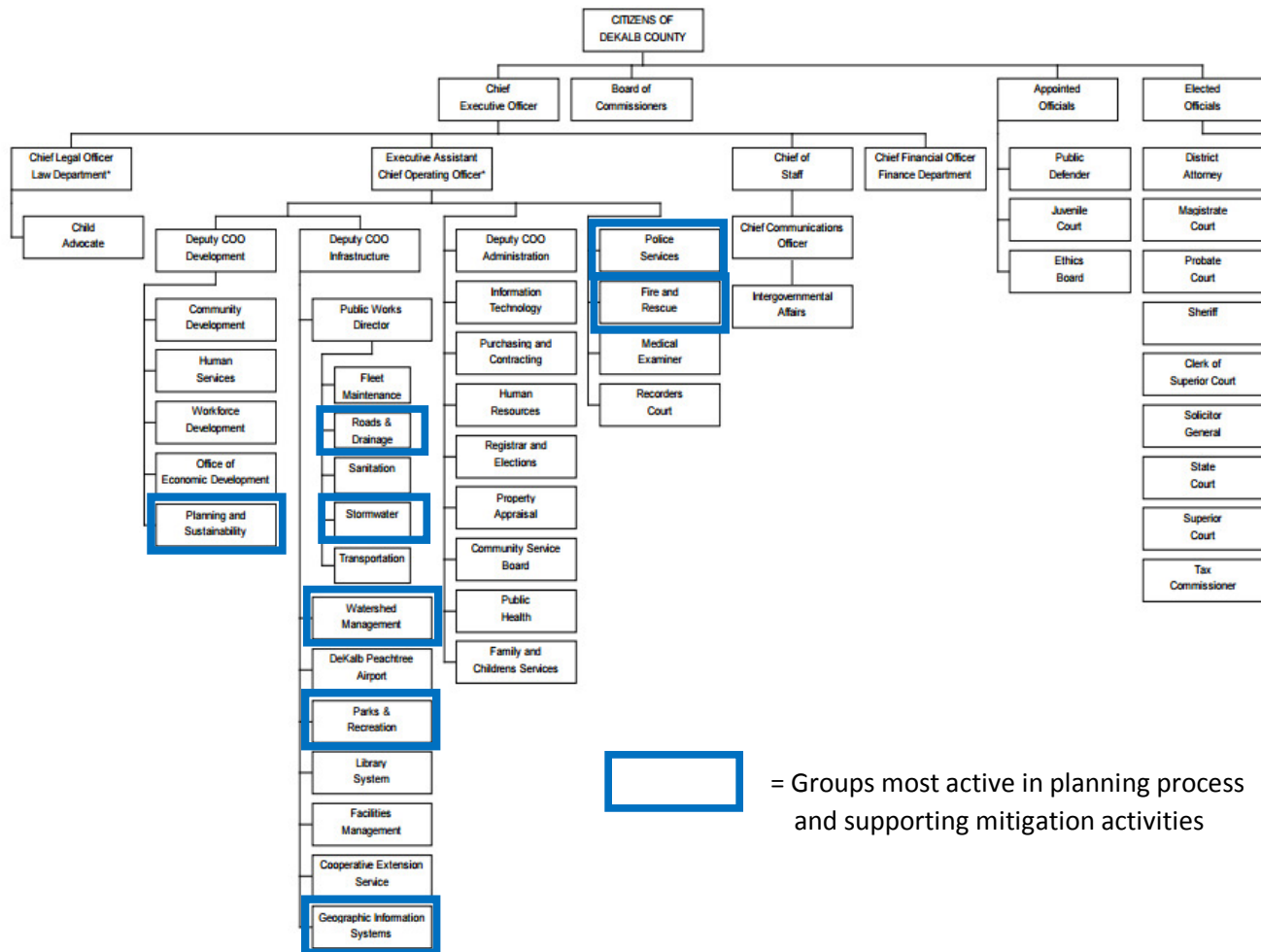
Does the County have the right staff to support mitigation planning?

The administrative and technical capabilities of the County are shown in the table to the left, 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.

DeKalb's existing staff resources are strong and diverse so as to support the successful implementation of mitigation actions.

DeKalb County (Administrative Capabilities)

DEKALB COUNTY ORGANIZATIONAL CHART



DeKalb County's staff continue to support hazard mitigation activities. One of the continuing challenges from the administrative perspective is that the organizational structure changes fairly often with many departures at the senior leadership level.

Additionally, the many changes in geography, due to a steady stream of large annexations and incorporations impacts the allocation of resources across the county and also requires increased coordination with the municipalities.

DeKalb County (Legal/Regulatory Support)

Legal and Regulatory Capabilities

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

DeKalb County's regulatory framework is strong and supports the ability to implement hazard mitigation actions via codes and ordinances.

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

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

Are the right financial mechanisms in place to support the implementation of mitigation actions?

The table to the left 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.

DeKalb County has adequate financial procedures and resources in place to support the implementation of hazard mitigation activities.

Avondale Estates (Capability Assessment)

Administrative/Technical

- Most of the capabilities from the 2010/2011 update remain the same.
- Fire response is provided by the County; City has its own Police.
- The City utilizes a third-party vendor to perform reviews for building and construction services.
- An emergency management team has been created to fulfill the role of an emergency manager.
- The staff's City Planner is also a grant writer adding to their capacity to implement mitigation measures.

Legal and Regulatory

- The City has a limited geography (approximately 1 square mile) and is built out so the existing plans suffice.
- There has been a recent annexation which has added a bit more land to the community and includes some flood hazard area.
- The City is participating in the Atlanta Regional Planning program and supports the ARC 2030 long-range plan.

Fiscal

- Fiscal capabilities are limited, although the City can levy taxes for specific purposes (vote required) and incur debt through special tax and revenue bonds (vote required).
- Currently, there is no capital improvements funding



COMMUNITY SPECIFIC GOAL

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

The City has 1 mitigation action (status is "In Progress") which is **providing improvements to the stormwater infrastructure system**. The City has performed some improvements and is working with the County for where their drainage system flows into the City. Some sewer lines that were leaking and running into the City have been repaired. The City has finished a lake dredging project which has provided additional flood relief.

Brookhaven (Capability Assessment)

Administrative/Technical

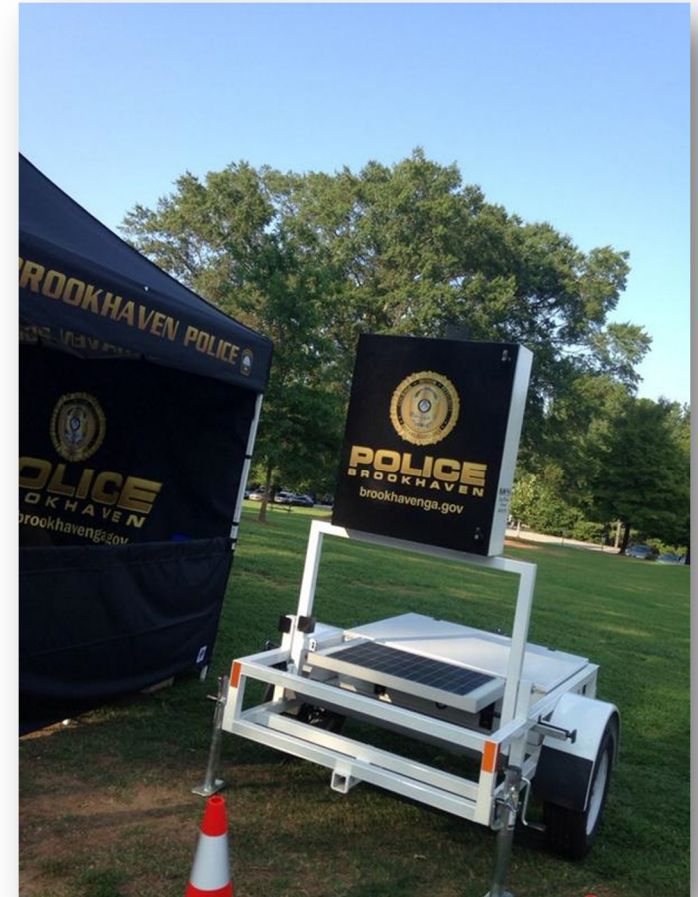
- City incorporated in 2012 (not part of previous planning effort).
- The City covers 12 square miles with over 50,000 residents and is growing.
- Limited staffing and capabilities. Most city services are contracted out.
- The City owns no buildings. The Police Department location (rented) operates as the command center.
- GIS available to staff for planning.
- City is built out so the focus is on redevelopment.

Legal and Regulatory

- City has floodplain management ordinances within Chapter 14 (Land Development Code), Article IV of Brookhaven Code of Ordinances
- The City's Comprehensive Plan has recently been developed with a 20-year planning horizon (2014-2034). Language includes protection for floodplain areas.

Fiscal

- The City's current budget is just over \$20 million.
- Fiscal capabilities are limited, although the City can levy taxes for specific purposes (vote required) and incur debt through special tax and revenue bonds (vote required).
- Per the current budget document, approximately 47% of the expenditures are for Public Safety (39%) and Public Works (8%).



Brookhaven (Capability Assessment)

Hazard Concerns and Related Items of Interest

- Impacted most by ice/winter storms in the past few years.
- On-call contractor for emergencies (salt streets and bridges, damaged infrastructure, debris).
- City Hall does have a generator backup.
- There is no City Fire Department. The City pays DeKalb for fire response. New vendor for EMS.
- FEMA flood hazard maps are in the process of being updated.
- A CSX rail line runs through the city.

Business and Non-Profit Items of Note

- As there are no city-owned facilities, Brookhaven has plans to work with churches and the Salvation Army should sheltering be necessary.
- The Southeast US Headquarters for the Salvation Army is located within the city limits.
- Large businesses in the area include the ATT headquarters at Lenox Park, the Administrative Office for the Children's Hospital, and the headquarters of Auto Traders.
- Peachtree DeKalb airport is just outside the City.

Public Safety/Mitigation Outreach

- Social media, "Next Door" program, Brookhaven 101 community educational seminars

City Specific Actions

- FLD1, 2, 3, and 4: Proposed flood actions including mapping, inventory assessment, watershed analysis, and culvert assessment.
- GEN1: Identify locations for future permanent facilities in low risk areas in order to provide critical city services.
- ICE1: Assess permanent staging areas for use in winter storms and general public works operations.



Chamblee (Capability Assessment)

Administrative/Technical

- Most of the capabilities from the 2010/2011 Update remain the same, however annexation has increased geography 300%.
- Each department is capable of performing their own GIS mapping and analysis.
- Planning for emergencies in coordination with large businesses such as the IRS, CDC, and newly annexed Peachtree Airport.
- Community has a floodplain administrator, but the community is not a participant in the NFIP Community Rating System
- The Development Department is outsourced to a consulting and engineering firm.

Legal and Regulatory

- There have been no changes to planning documents although 5-year updates to the comprehensive plan are underway.
- Community regulates existing and future conditions flood hazard areas.

Fiscal

- Fiscal capabilities are limited, although the City can levy taxes for specific purposes (vote required) and incur debt through special tax and revenue bonds (vote required).
- Community has a Livable Communities Initiative grant which supports redevelopment of the Town Center to include many of the administrative offices for Chamblee.



Chamblee (Capability Assessment)

Hazard Concerns and Related Items of Interest

- City has own Fire and EMS as well as non-basic police support (helicopter, gang prevention/response, etc).
- Limited sheltering capacity. The Civic Center has generator backup and could be used as a shelter.
- Community is most concerned about flood, tornado, and winter storm.
- Road maintenance will be transferred to County January 1, 2016.
- Dependent upon DeKalb County for potable water.

Business and Non-Profit Items of Note

- Planning for emergencies in coordination with large businesses such as the IRS, CDC, and newly annexed Peachtree Airport.
- Limited interaction with disaster-related non-profits, such as the Salvation Army or American Red Cross

Public Safety/Mitigation Outreach

- Social media, “Next Door” program, Chamblee 101 community educational seminars, and reverse notification system

City Specific Goals and Actions

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.

- GEN 1: Ongoing Program for Transporting Seniors during Extreme Weather – *Status: Deferred*
- GEN 2: Identify Overnight Shelters – *Status: Deferred*
- FLD 1: Drainage Improvements at Peachtree Industrial Blvd – *Status: Deferred*
- FLD 2: Floodplain Property Acquisitions with County – *Status: Deferred*
- FLD 3: Map of Storm Drain System – *Status: Deferred*
- WIN 1: Extension of County’s Tornado Warning Siren Project – *Status: Deferred*
- WIN 2: Civic Center Roof Retrofit – *Status: Deferred*
- WIN/ICE 3: Continuation of Tree Removal Program – *Status: Deferred*



Clarkston (Capability Assessment)

Administrative/Technical

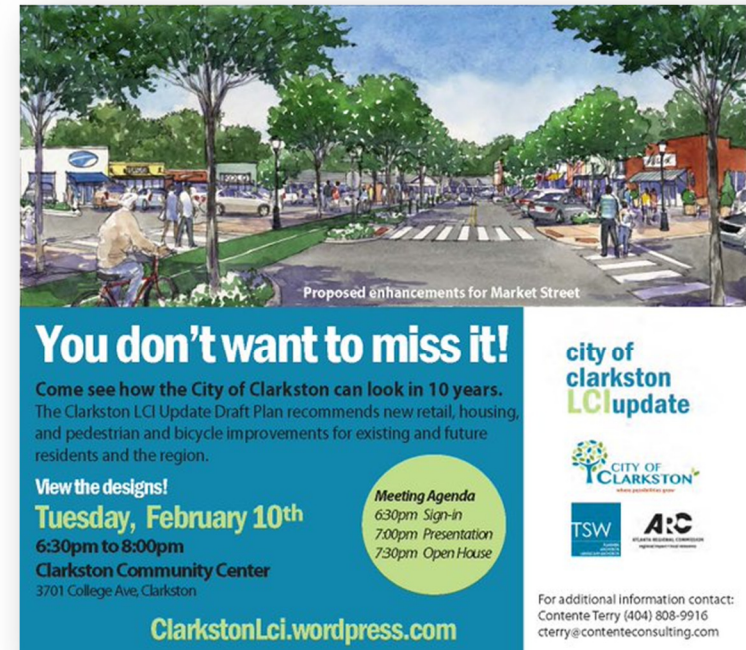
- The City has gained resources through hiring of full-time positions and consultant services.
- Annexations in January 2015 and January 2016 (and late 2015 referendum for additional annexation) will impact demand for services.
- GIS mapping provided through DeKalb County or on-call consultant services.
- City now has a Development Manager and a Public Works Director on staff. These two groups are also supported by consultants resulting in less reliance on the county.
- An emergency management team fulfills the role of an emergency manager.
- All senior staff support grant writing, adding to their capacity to implement mitigation measures.
- There's a proposed City Complex and the Police Department may move into it.

Legal and Regulatory

- There have been no major changes to regulatory capabilities since the previous plan update.
- Most planning documents are generally the same although the update to the comprehensive plan starts in 2016.
- The City has a limited geography (approximately 1 square mile) and is built out so the existing plans suffice.
- Recent update to the Clarkston Livable Communities Initiative grant which provided an updated City Concept Plan and Long Term Vision

Fiscal

- Current revenues are over \$5 million and will likely continue to increase with new annexations and rebounding property values.
- Fiscal capabilities are limited, although the City can levy taxes for specific purposes (vote required) and incur debt through special tax and revenue bonds (vote required).



Clarkston (Capability Assessment)

Hazard Concerns and Related Items of Interest

- Increasing pressure to improve the stormwater system.
- Additional stormwater compliance through NPDES, MS4 program.
- Community is most concerned about flood and winter storm hazards.
- 60 languages spoken within the community.

Public Safety/Mitigation Outreach

- Social media and reverse notification system

Community Specific Goals and Actions

- Completed Action
 - GEN1 – Identification of critical facilities
- Ongoing Actions
 - GEN2 – Right of way determination and possible acquisition
 - FLD1 – Norman Rd Drainage System Study (Expected completion 2017)
 - FLD2 – Flooding south of Montreal Road (Ongoing as funding is available)
- Deferred Actions
 - FLD3 – Acquisition of Property on Hill St (Property is vacant. Deferred until funding is available)
 - THD1 – Lightning rod for City Hall (Deferred until funding is available)
 - THD2 – Wind Retrofit for Police Station (Deferred pending move into proposed City Complex)



COMMUNITY SPECIFIC GOALS

- 1) Reduce the possibility of damage and losses to existing assets due to all hazards
- 2) Build and support capacity and commitment to become less vulnerable to hazards

Decatur (Capability Assessment)

Administrative/Technical

- Most of the capabilities from the 2010/2011 Update remain the same. Still limited in surveying capacity which could help with flood hazard assessment.
- GIS mapping is outsourced to contractor.
- City provides all services (no reliance on County).

Legal and Regulatory

- There have been no changes to planning documents.
- The City has sufficient legal and regulatory tools in place to support hazard mitigation.

Fiscal

- Fiscal capabilities are limited, although the City can levy taxes for specific purposes (vote required) and incur debt through special tax and revenue bonds (vote required).
- Annual budget over \$23 million with approximately 39% going to public safety staff and activities.



Decatur (Capability Assessment)

Hazard Concerns and Related Items of Interest

- Flooding is the most pressing long-term concern.
- City has many trees that are reaching the end of their lifespan and are easily uprooted/damaged by minor hazard events; the City has a tree maintenance program in place to reduce damages.
- City works with DeKalb County to train and support Citizen Emergency Response Teams (CERTs).

Public Safety/Mitigation Outreach

- Social media, Smart Alert, and reverse notification system

City Specific Goals and Actions

- Ongoing Actions
 - FLD1 - Stormwater Improvements
 - FLD2 – Flood-prone Property Acquisition - Flood Mitigation Assistance (FMA) Program – 2 floodplain properties designated as repetitive losses by FEMA will be acquired. Additional properties will be acquired as funding becomes available.
 - Ice/Wind1 – City Tree Maintenance
- Completed Action – FLD/GEN/ICE/WIND3 - Continuity of Government – Enhanced government buildings, plans, and capabilities



COMMUNITY SPECIFIC GOAL

Reduce the possibility of damage and losses to our citizens, employees, property, and critical facilities/infrastructure due to natural hazards.

Doraville (Capability Assessment)

Administrative/Technical

- Most of the capabilities from the 2010/2011 Update remain the same
- Primary departments are Community Development, Police, and Finance

Legal and Regulatory

- The Comprehensive Plan is going through a mid-term update in 2015.
- Ongoing planning activities include the 2015 Tax Allocation District #1 Transit-Oriented Development Redevelopment Plan, 2014 Livable Communities Form-Based Code, and Urban redevelopment Plans in 2012 and 2013.

Fiscal

- Fiscal capabilities are limited, although the City can levy taxes for specific purposes (vote required) and incur debt through special tax and revenue bonds (vote required).
- 2016 Budget is \$12.5 million with over half going to Police, Public Works, and Community Development

Community Mitigation 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

Mitigation Actions

- FLD1: Map of storm drain – *Status Deferred*
- FLD2: Update storm drain infrastructure – *Status Deferred*
- ICE/WIN1: Tree trimming program – *Status Deferred*
- LIT1: Surge protection – *Status Deferred*



Dunwoody (Capability Assessment)

Administrative/Technical

- Most of the capabilities from the 2010/2011 update remain the same.
- The City can perform its own GIS mapping and analysis.
- Public safety enhanced with new Homeland Security Coordinator.
- Some formerly outsourced positions (Directors for Community Development, Parks and Recreation, Economic Development, and Human Resources) are now in-house.

Legal and Regulatory

- There have been minimal changes to planning documents although 5-year updates to the comprehensive plan are underway.
- An economic development plan is now in place.

Fiscal

- Fiscal capabilities are limited, although the City can levy taxes for specific purposes (vote required) and incur debt through special tax and revenue bonds (vote required).
- The utility fee has been increased and helps to fund improvements to stormwater infrastructure and the stormwater reserve.
- 2015 budget is approximately \$22.7 million with significant allocations for public safety and critical infrastructure improvements.



Dunwoody (Capability Assessment)

Hazard Concerns and Related Items of Interest

- Community is most concerned about flood, winter storm, and tornado hazards.
- Much higher population in the daytime (150,000) than nighttime (46,000) due to commercial centers within the city.
- New electric utilities are underground.

Public Safety/Mitigation Outreach

- Social media and reverse notification system

Community Specific Goals and Actions

- Completed Actions
 - FLD1 – Stormwater system infrastructure mapping
 - GEN1 – Emergency alert and warning system
- Ongoing Actions
 - FLD2 – Stormwater system infrastructure improvements
 - FLD3 – Mapping of flood hazards
 - ICE1 – Tree maintenance and pruning program to reduce ice impacts
- Deferred Actions
 - FLD4 – Acquisition of flood-prone properties.



COMMUNITY SPECIFIC GOAL

Reduce the possibility of damage and losses to our citizens, employees, property, and critical facilities/infrastructure due to natural hazards

Lithonia (Capability Assessment)

Administrative/Technical

- Most of the capabilities from the 2010/2011 Update remain the same.
- Minimal in-house capabilities.

Legal and Regulatory

- There have been no changes to planning documents although 5-year updates to the comprehensive plan are underway.
- The City has a limited geography (approximately 1 square mile) and is built out.

Fiscal

- Fiscal capabilities are limited, although the City can levy taxes for specific purposes (vote required) and incur debt through special tax and revenue bonds (vote required).
- Currently, there is no capital improvements funding

Community Specific Mitigation Goals

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.

Mitigation Actions

- FLD 1: Construct flood control structures which address the flooding problem at Max Cleland Blvd and the Railroad Tracks – *Status Deferred*
- GEN 1: Increase public awareness about natural hazard risks, especially fire hazards – *Status Deferred*
- ICE 1: Improve drainage to prevent icing of roadways during winter events – *Status Deferred*
- WND 1: Retrofit Critical Facilities to protect first responders in a wind event – *Status Deferred*



Pine Lake (Capability Assessment)

Administrative/Technical

- Minimal changes from the 2010/2011 Update.
- Very limited full-time staff responsible for the 1 square mile municipality of approximately 800 people.
- City has contractors for stormwater and building development services.
- City has their own Police and Public Works departments but relies on the County for Fire Rescue.
- New City Administrator as well as new directors for Public Works responsibilities.

Legal and Regulatory

- The Comprehensive Plan update will start late 2015/early 2016 once the Atlanta Regional Commission planning effort concludes.
- Zoning ordinances are being reviewed in late 2015.
- City is working on new plans for flood and winter storm hazards.

Fiscal

- The City can levy taxes for specific purposes (vote required) and incur debt through special tax and revenue bonds (vote required).
- Minimal funding available to support capital improvements funding.



Pine Lake (Capability Assessment)

Hazard Concerns and Related Items of Interest

- Community is most concerned about flood and wildfire hazards.
- Dam in the community has been moved and the lake has been dredged, adding more storage for flood waters.
- City now has a snow plow and is stocking sand for winter storm response.

Public Safety/Mitigation Outreach

- Social media and quarterly neighborhood meetings.
- Website being updated.

Community Specific Goals and Actions

- Completed Actions
 - FLD1 – Hydrology and hydraulic study (additional modeling is ongoing)
 - FLD2 – Stream restoration (additional monitoring activities are ongoing)
- Ongoing Actions
 - FLD3 – Land acquisition (1 property purchased)
 - WDF1 – Hazard identification, building code changes, and public education to reduce the wildfire risk (Intensive review of Residential Building Code occurring late 2015)
- New Action
 - FLD4 – Creek restoration and reduction of stormwater runoff



COMMUNITY SPECIFIC GOAL

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

Stone Mountain (Capability Assessment)

Administrative/Technical

- The City outsources the City Engineer responsibilities as well as safety inspections and construction plans.
- Limited full-time staff support.
- Director of the Downtown Development Authority provides grant writing capabilities for the City.
- City relies on the County and the Atlanta Regional Commission for GIS support.

Legal and Regulatory

- Comprehensive Plan update beginning in 2016.
- The City has a limited geography (approximately 1.6 square mile) and is built out.
- Portion of the city is within the historic district where additional development standards apply.

Fiscal

- Fiscal capabilities are limited, although the City can levy taxes for specific purposes (vote required) and incur debt through special tax and revenue bonds (vote required).
- The stormwater utility fee provides approximately \$150,000 to support maintenance and improvements.



Stone Mountain (Capability Assessment)

Hazard Concerns and Related Items of Interest

- Community is most concerned about floods, high winds, and ice storms.
- Increasing need for stormwater infrastructure improvements.
- Emergency Management assistance is provided through DeKalb County.

Public Safety/Mitigation Outreach

- County provides 911 and reverse-911 support to the City.

Community Specific Goals and Actions

- Completed Actions
 - FLD1(a) – Increase capacity of stormwater infrastructure (Design Phase complete)
- Ongoing Actions
 - FLD1(b) – Construction of new stormwater infrastructure (ongoing as funding allows)
 - FLD2 – Repair existing infrastructure (ongoing as funding allows)
 - WIN/ICE1 – Tree pruning program
 - ICE1 – Maintain materials and equipment to treat roads in advance of ice storms



COMMUNITY SPECIFIC GOAL

Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities due to floods, high winds, and ice storms.

Plan Maintenance (Review, Evaluation, & Implementation)



During MAC Meeting #2, the group agreed to the timeline above for maintaining the plan. **The plan stakeholders will meet at least twice a year** to discuss mitigation activities and any recent hazard events. **Every two years, the group will meet with a specific focus on evaluating the plan** to see if there need to be any changes to the municipal and/or countywide portions of the plan. Additionally, any updates on projects/actions will be communicated to the participants. Over the course of the 5-year period, there will be opportunities to **integrate aspects of the hazard mitigation plan into companion planning documents** such as each community's comprehensive plan, building code, stormwater ordinance, etc. Each local planning group representing a city or the county will be responsible to coordinate integration of plan elements and save a copy of those changes to be included in the 5-year update. **The stakeholders will also work to increase public participation in hazard mitigation education and strategies through such as websites, social media, and public meetings.** The location of the plan will be advertised to the public for additional review and comment. In an effort to improve the holistic approach to hazard mitigation, the advisory committee members will **continue to recruit additional stakeholder from public, private, and non-profit entities** interested in improving the county's resilience to impacts from natural hazards. The Director of DeKalb County's Emergency Management Agency (DEMA) will be the organizational lead for ongoing maintenance of the countywide plan.

Plan Adoption

A RESOLUTION TO APPROVE AND ADOPT THE HAZARD MITIGATION PLAN

WHEREAS DeKalb County understands the need to develop a multi-jurisdictional hazard mitigation plan in order for the County to comprehend its vulnerability to natural and man-made hazards, and the actions needed to reduce or eliminate those risks; and

WHEREAS DeKalb County realizes the development of such a plan is vital to the protection, health, safety and welfare of its citizens as well as its visitors; and

WHEREAS DeKalb County understands that in order for the County to receive mitigation funding from the Federal Emergency Management Agency (FEMA), it must have a mitigation plan in place at the time of submitting a proposal; and

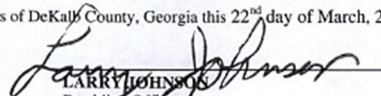
WHEREAS DeKalb County and its municipal governments are required to maintain a Pre-Disaster Mitigation Plan that fulfills the Federal requirements of the Disaster Mitigation Act of 2000; and

WHEREAS DeKalb County has updated its Multi-Jurisdictional Hazard Mitigation Plan, attached hereto as Exhibit A, that outlines the community's options to reduce overall damage and impact from natural and technological hazards; and

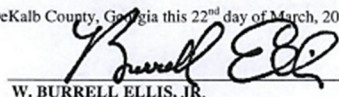
WHEREAS the Updated Multi-Jurisdictional Hazard Mitigation Plan has been reviewed by county residents, business owners, state and local agencies, and has been revised to reflect their concerns.

NOW, THEREFORE, BE IT RESOLVED THAT THE HAZARD MITIGATION PLAN IS HEREBY APPROVED AND ADOPTED,

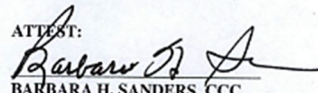
ADOPTED BY the Board of Commissioners of DeKalb County, Georgia this 22nd day of March, 2011.


LARRY JOHNSON
Presiding Officer
BOARD OF COMMISSIONERS
DEKALB COUNTY, GEORGIA

APPROVED BY the Chief Executive Officer of DeKalb County, Georgia this 22nd day of March, 2011.


W. BURRELL ELLIS, JR.
Chief Executive Officer
DeKalb County, Georgia

ATTEST:


BARBARA H. SANDERS, CCC
Clerk to the Board of Commissioners and
Chief Executive Officer
DeKalb County, Georgia

The DeKalb County Countywide Hazard Mitigation Update must be adopted by the County and all participating jurisdictions. As part of the approval process, the draft plan goes to the Georgia Emergency Management Agency (GEMA) and then the Federal Emergency Management Agency (FEMA) to verify that the plan is in compliance with state and federal requirements.

Once the plan is approved by GEMA and FEMA, the County will receive an "Approval Pending Adoption" letter indicating that the plan will be in effect upon the time that is formally adopted by the local jurisdictions. As the local adoption process is publicly advertised, it provides an additional opportunity for the public to comment on the plan.



Additional Resources (Including Plan Documentation)

Plan Description, Purpose, and Authority.....	Appendix 1
Planning Process.....	Appendix 2
Community Profiles.....	Appendix 3
Hazard Identification and Risk Assessment.....	Appendix 4
Goals, Objectives, and Actions.....	Appendix 5
Plan Review, Evaluation, and Implementation.....	Appendix 6



SECTION 1 PLAN DESCRIPTION AND AUTHORITY***Significant Changes to this Section from Previous Plan***

DeKalb County now has ten incorporated cities as opposed to nine in the previous plan (As of November 2015, the new City of Tucker [not a participant] was incorporated making it 11 cities, but only the 10 municipalities incorporated during the planning process were covered under this Countywide Plan Update). A new city, Brookhaven, was incorporated in 2012 (note that in the previous plan update, another city, Dunwoody, had been incorporated in 2008). The countywide population has increased from an estimated 674,334 in 2003 to an estimated 747,247 residents in 2014. Each of the incorporated cities indicated a slight population increase since the 2011 plan. Employment and demographic data has been updated to the most current resources available. No major changes to land use were reported, although there are continuous, significant annexations occurring for multiple cities.

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 from natural hazards 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 ten incorporated cities and the unincorporated County within the DeKalb region.

1.1 PLAN DESCRIPTION

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.

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.

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. In an effort to reduce the Nation's mounting natural disaster losses, the U.S. Congress passed the Disaster Mitigation Act of 2000 (DMA 2000) in order to amend the Robert T. Stafford Disaster Relief and Emergency Assistance Act. Section 322 of DMA 2000 emphasizes the need for state and local government entities to closely coordinate on mitigation planning activities. In addition, this section makes the development of a hazard mitigation plan a specific eligibility requirement for any local government applying for federal mitigation grant funds. These funds include the Hazard Mitigation Grant Program (HMGP) and the Pre-Disaster Mitigation (PDM) program, both of which are administered by the Federal Emergency Management Agency (FEMA) under the Department of Homeland Security. Communities with an adopted and federally-approved hazard mitigation plan thereby become pre-positioned to receive available mitigation funds before and after the next 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 five 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.

The DeKalb County Multi-jurisdictional Hazard Mitigation Plan has been prepared in coordination with FEMA Region IV and the Georgia Emergency Management Agency (GEMA) to ensure that the Plan meets all applicable DMA 2000 and state requirements.

1.2 PLAN PURPOSE AND AUTHORITY

The purpose of the DeKalb County Multi-jurisdictional Hazard Mitigation Plan is to:

- Provide a comprehensive update to the *DeKalb County Hazard Mitigation Plan* as amended in 2010 (Adopted March 2011)
- Protect life, property, and promote safety by reducing the potential for future damages and economic losses that result from hazards
- Make the community a safer place to live, work and play
- Qualify DeKalb County and its participating jurisdictions and partners for grant funding in both the pre-disaster and post-disaster environment
- Speed recovery and redevelopment following future disaster events
- Demonstrate a firm local commitment to hazard mitigation principles; and
- Maintain compliance with state and federal legislative requirements for local hazard mitigation plans

1.2.1 Scope

The focus of the DeKalb County Multi-jurisdictional Hazard Mitigation Plan is on those hazards determined to be “high” or “moderate” risk as determined through a detailed hazard risk assessment conducted for DeKalb County. Other hazards that pose a “low” or “negligible” risk will continue to be evaluated during future updates to the Plan, but they may not be fully addressed until they are determined to be of high or moderate risk. This enables DeKalb County and its participating jurisdictions and partners to prioritize mitigation actions based on those hazards which are understood to present the greatest risk to lives and property.

The geographic scope (i.e., the planning area) for the Plan includes all areas within the unincorporated jurisdiction of DeKalb County and its municipalities.

1.2.2 Authority

The DeKalb County Multi-Jurisdictional Hazard Mitigation Plan has been developed in accordance with current state and federal rules and regulations governing local hazard mitigation plans, and has been adopted by DeKalb County and its participating jurisdictions and partners in accordance with standard local procedures. Copies of local adoption resolutions will be included with the plan documents available through the DeKalb Emergency Management Agency. The Plan shall be routinely monitored and revised to maintain compliance with the following provisions, rules and legislation:

- Section 322, Mitigation Planning, of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as enacted by Section 104 of the Disaster Mitigation Act of 2000 (P.L. 106-390)
- FEMA's Interim Final Rule published in the Federal Register on February 26, 2002, at 44 CFR Part 201

1.2.3 Summary of Plan Contents

The contents of this Plan are designed and organized to be as reader-friendly and functional as possible. While significant background information is included on the processes used and studies completed (i.e., risk assessment, capability assessment), this information is separated from the more meaningful planning outcomes or actions (i.e., mitigation strategy, mitigation action plans). The 2015 plan update maintains the same structure of the previous plan, revised and supplemented with data, analysis, and new information that was not available in 2010. Three additional hazards have been identified as hazards to consider in the plan update (Section 4).

Within Section 2: **Community Profiles**, each community is recognized for their role in the overall development of the plan. This includes identifying their participation within the planning meetings as well as helping to determine the overall mitigation strategy for the County.

Section 3: **Planning Process**, provides a complete narrative description of the process used to prepare the Plan. This includes the identification of who was involved, how the group interacted with outside agencies such as GEMA, and how the public and other stakeholders were involved. It also includes a detailed summary for each of the key meetings held along with any associated outcomes. The rest of this introduction section focuses on community profiles for each participating community. It describes the general makeup of DeKalb County, including prevalent geographic, demographic and economic characteristics. In addition, building characteristics and land use patterns are discussed. This baseline information provides a snapshot of the planning area and thereby assists local officials to recognize those social, environmental and economic factors that ultimately play a role in determining community vulnerability to hazards.

The Risk Assessment is presented in Section 4: **Hazard Identification and Risk Assessment**. The section serves to identify, analyze and assess DeKalb County's overall risk to hazards. The risk assessment also attempts to define any hazard risks that may uniquely or exclusively affect specific areas of DeKalb County or its participating jurisdictions and partners.

The Risk Assessment builds on available historical data from past hazard occurrences, establishes detailed profiles for each hazard, and culminates in a hazard risk ranking based on conclusions about the frequency of occurrence, spatial extent and potential impact of each hazard. FEMA's Hazus-MH[®] loss estimation methodology was also used in evaluating known hazard risks by their relative long-term cost in expected damages. In essence, the information generated through the risk assessment serves a critical function as DeKalb County seeks to determine the most appropriate mitigation actions to pursue and implement—enabling it to prioritize and focus its efforts on those hazards of greatest concern and those structures or planning areas facing the greatest risk(s).

The **Goals, Objectives, and Actions**, found in Section 5, provides a comprehensive examination of DeKalb County's capacity to implement meaningful mitigation strategies and identifies existing opportunities to

increase and enhance that capacity. Specific capabilities addressed in this section include planning and regulatory capability, staff and organizational (administrative) capability, technical capability, fiscal capability, and political capability. Information was obtained through the use of detailed survey questionnaires for local officials and an inventory and analysis of existing plans, ordinances and relevant documents. The purpose of this assessment is to identify any existing gaps, weaknesses or conflicts in programs or activities that may hinder mitigation efforts, and to identify those activities that should be built upon to establish a successful and sustainable local hazard mitigation program.

The final section, ***Plan Maintenance*** (Appendix 6), documents how DeKalb County and its municipalities will keep the strategy active between the 5-year plan update cycles. It also provides guidance as to how the committee will reconvene should a disaster occur that requires them to re-assess projects and re-prioritize them for potential disaster assistance funding.

Additionally, the Plan contains 5 additional annexes to provide greater detail and documentation to elements of the plan update. These include copies of presentations, meeting sign-in sheets, public survey results, and further support materials utilized during the process.

SECTION 2 PLANNING PROCESS

Significant Changes to this Section from Previous Plan

During the planning process, there were 2 full meetings with the countywide Mitigation Advisory Committee. In addition, one on one meetings were conducted in person or via phone with the individual communities to collect data, update capabilities, and review goals and objectives. Meeting with community staff individually allowed the participants to ask questions and discuss their organizational needs as well as the countywide objectives. The community members and stakeholders provided plans and insights to address potential changes in administrative or land use practices. An online survey was provided as an additional means to capture public input into the process and results are included within this section. The County and its municipalities plan worked with communication liaisons to utilize social media and community websites to communicate risk and advertise the public survey. 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.

2.1 HAZARD MITIGATION PLANNING OVERVIEW

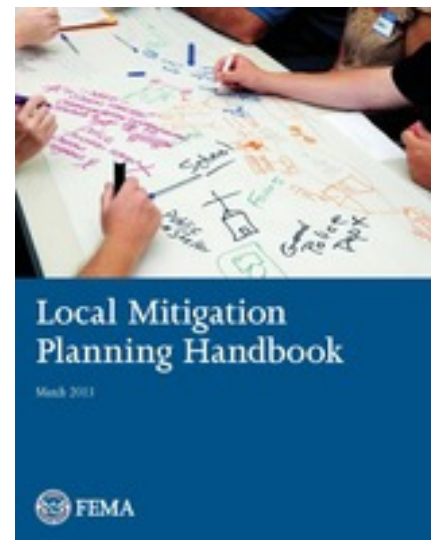
DeKalb County generally followed the planning process recommended by FEMA in the *FEMA Local Mitigation Planning Handbook*. The process followed the 9 general steps below:

1. Determine the Planning Area and Resources
2. Build the Planning Team
3. Create an Outreach Strategy
4. Review Community Capabilities
5. Conduct a Risk Assessment
6. Develop a Mitigation Strategy
7. Keep the Plan Current
8. Review and Adopt the Plan
9. Create a Safe and Resilient Community

Many of the steps listed above are self-explanatory.

The *Conduct a 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. New FEMA Risk MAP flood hazard data and derivatives of those products have



been incorporated into the assessment. Once draft hazard maps were developed they were presented to the full MAC at a mid-term meeting and also via webinar to those communities that could not attend. 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 capacity for the county and its cities 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 meetings with the communities' mitigation planning leads and stakeholders (identified as the Local Planning Group or LPG for each community).

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 Department of Health, Metropolitan Atlanta Regional Transit Authority (MARTA), and non-profit representatives 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.

2.1.1 Public Involvement

An important component of the mitigation planning process involved public participation. Individual citizen and community-based input provides the entire planning team with a greater understanding of local concerns and increased the likelihood of successfully implementing mitigation actions by developing community "buy-in" from those directly affected by the decisions of public officials. As citizens become more involved in decisions that affect their safety, they are more likely to gain a greater appreciation of the hazards present in their community and take the steps necessary to reduce their impact. Public awareness is a key component of any community's overall mitigation strategy aimed at making a home, neighborhood, school, business or entire county safer from the potential effects of hazards.

In addition to the MAC meetings, DeKalb County created a Public Participation Survey and distributed it to residents and businesses throughout the County. These media advertisements and survey instruments provided local officials, residents, businesses, academia and other private interests in DeKalb County and

its neighboring communities to be involved and offer input throughout the local mitigation planning process.

Public involvement in the development and plan updates was sought at three distinct periods of the planning process: (1) during the immediate beginning of the planning process; (2) during the drafting stage of the Plan; and (3) upon completion of a final draft Plan but prior to official plan approval and adoption. Public input was sought using three methods: (1) open public meetings; (2) survey instruments; and (3) making copies of draft Plan deliverables available for public review on the County's website and at government offices.

Public Review Period

In May of 2016, a public review draft of this plan was released for comment and published to the DeKalb County website with easy access from the County's homepage. It was available for download via the website and will be discussed at a publicly noticed study session of the County's Board of Commissioners when it is time to adopt the plan. The plan draft includes the result of public input during the drafting of the plan, specifically the public survey process mentioned below.

Public Participation Survey

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 2.2-1. As noted above, meeting agendas and minutes for the public meetings are provided in Appendix 2. Input from approximately 90 citizens of the County were collected. Some key findings are provided below:

- Most respondents are aware of potential vulnerability of their home but do not know if their business is located within an area of risk.
- Most respondents are using one or more types of mitigation actions to reduce their risk of damage to hazards.
- Most respondents believe that their homeowners insurance is adequate for their vulnerability to natural hazards.

Results of the public survey are provided at the end of this section and indicate that about 60% of the respondents would like to be involved in future activities. Future planning efforts will be made to link hazard mitigation outreach activities to other community outreach that have a history of good participation.

2.2 HISTORY OF MITIGATION PLANNING IN DEKALB COUNTY

The 2016 plan update began in January 2015 with the assistance of Dewberry. This update consolidates, updates, and streamlines content from the 2011 and 2008 plan update, reviewed and modified community goals, added new mitigation actions to address vulnerabilities identified in the risk assessment phase, and reflects the current local conditions and needs of DeKalb County and its participating jurisdictions. The 2016 update includes a revised hazard ranking methodology and included several new hazards based on MAC input. Hazard profiles were updated, and new analysis

performed using NCDC Storm Events data since 2011 as well as utilizing new critical facilities data provided by DeKalb County GIS for the vulnerability analysis.

2.3 LIST OF PARTICIPATING AND NON-PARTICIPATING JURISDICTIONS

The following jurisdictions participated in the development of this Plan:

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

Non-Participating:

- Tucker (Tucker is a new city incorporated in November of 2015 at the end of this planning update cycle)

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.

2.3.1 Description of Each Jurisdiction's Participation in the 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 Consultants (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. Sign-in sheets and contact information is provided at the end of this section.

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 Appendix 5 – Goals, Objectives, and Actions.

MAC members also participated in the workshops held at the Stonecrest Public Library on January 25th and September 10th 2015 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.

The remaining participating jurisdictions, through their LPGs, completed their Mitigation Strategies (Appendix 5) during late 2015 and are submitting for review and approval.

2.4 DESCRIPTION OF PLANNING COMMITTEE FORMATION

The planning process began with the regrouping of the Countywide Mitigation Advisory Committee (MAC) to guide the County and city jurisdictions through the planning process. In order to work directly with the jurisdictions, Local Planning Groups consisting of city staff were established. The MAC was led by DeKalb County Fire Department and facilitated by the consultants. A list of participants and sign-in sheets for the jurisdiction-specific meetings as well as the countywide meetings, which included at least one member of each jurisdiction are provided at the end of this section. Invitations for participation in the MAC kickoff meeting were distributed via email to the agencies listed below (contact information is also provided within the Planning Process Appendix):

- Federal Agencies
 - Federal Bureau of Investigations (location within the County)
- State/Regional Agencies
 - DeKalb Regional Youth Development Center – Department of Juvenile Justice
 - Department of Health – Office of Emergency Preparedness
 - Georgia Department of Transportation
 - Georgia Emergency Management Agency
 - State Emergency Medical Services Office
- Schools, Colleges, and Universities
 - Agnes Scott
 - DeKalb Board of Education
 - Emory Corridor (Emory Hospital, Egleston Hospital, Emory University, and Center for Disease Control)
 - Perimeter College
- Local Government
 - DeKalb County
 - Chamber of Commerce, Code Compliance, Executive Office, Emergency Management, Fire Rescue, GIS, Library, Medical Examiner, Airport, Police, Public Works, Risk Management, Sheriff's Office
 - Avondale Estates
 - Brookhaven
 - Chamblee
 - Clarkston
 - Decatur
 - Doraville
 - Dunwoody
 - Lithonia
 - Pine Lake
 - Stone Mountain
- Other Agencies
 - American Red Cross
 - DeKalb ARES (Amateur Radio)
 - Dewberry Consultants LLC
 - Hospitals (DeKalb Medical, Emory, Georgia Medical Hospital)
 - Joseph Network
 - Metropolitan Atlanta Rapid Transit Authority (MARTA)
 - Norfolk Southern

2.5 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 2.2-1 identifies dates of and topics covered during the MAC and LPG meetings. The meetings were 1 to 2 hours each in length with the exception of countywide meetings and the DeKalb County working session.

Table 2.2-1
Mitigation Advisory Committee and Local Planning Group Meetings Summary

Meeting Dates	Summary of Discussions
1/28/15	<u>MAC Kick-Off Meeting.</u> A formal meeting of the MAC was held to review the previous plan elements, present this cycle’s planning process, establish participation on the Committee, introduce the need for local subcommittees, and collect data. Dewberry representatives presented a planning process and emphasized participation requirements and clarified their role to support the development of the hazard identification and risk assessment while assisting the county in facilitating the plan development.
8/12/15	<u>DeKalb County working session.</u> A meeting with unincorporated county stakeholders in order to preview the results of the risk assessment, collect additional data, contribute to overall MAC goals and objectives; including initial ranking of hazards for the jurisdiction; discuss the development of outreach strategies; and, begin developing strategies and projects. Information was also gathered on critical facilities for the county. The group also discussed ways to utilize GIS capabilities to promote risk communication and mitigation plan results.
8/13/15	<u>Decatur LPG 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. Some of the greater concerns involved the many aging trees on public and private property that exacerbate impacts of severe weather events.
8/13/15	<u>Brookhaven LPG working session.</u> A meeting of the full LPG for the City of Brookhaven 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.

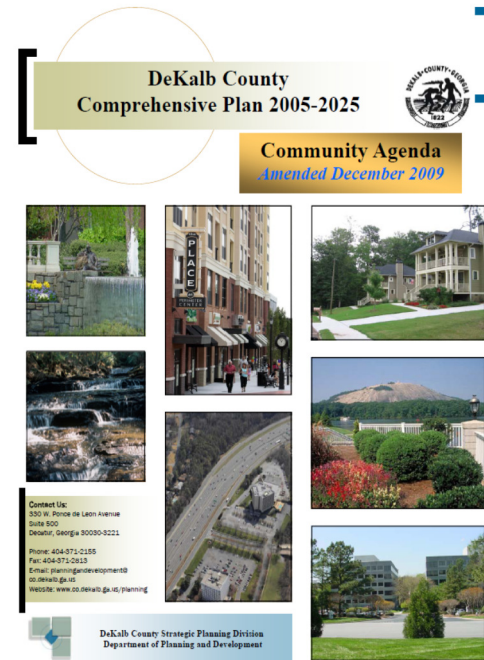
Meeting Dates	Summary of Discussions
	Brookhaven is a newly-incorporated city that did not participate in the previous plan update so part of the meeting was also orienting the staff to the overall mitigation planning process.
8/13/15	<u>Dunwoody LPG working session</u> . A meeting of the full LPG for the City of Dunwoody 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. Dunwoody was incorporated towards the end of the previous update planning cycle so part of the meeting was also orienting the staff to the overall mitigation planning process.
8/13/15	<u>Chamblee LPG working session</u> . A meeting with members 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. Discussions focused on new annexations, the DeKalb Peachtree Airport, and potential new government facilities.
9/10/15	<u>Meeting 2 for the Countywide MAC</u> . A meeting of the full MAC was held at the public library to review the final ranking of hazards, risk assessment results, results of the public survey, finalizing of countywide goals and objectives, and begin the countywide strategy via potential actions. A request was made to communities to update the status of actions from the previous plan. The MAC decided to retain the previous countywide goals and discussed potential new actions that the communities may implement to meet those goals. The meeting closed with the need to finalize actions, discussion of opportunities for more public input, and requirements for final, local adoption of the plan by each jurisdiction.
9/22/15	<u>Pine Lake LPG working session</u> . A meeting with members of the 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. The LPG also discussed recent improvements to the lake, including dredging, that have reduced vulnerability by adding additional storage capacity.
10/6/15	<u>Avondale Estates LPG 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.

Meeting Dates	Summary of Discussions
	Avondale is working with DeKalb County to improve the drainage system which is the main cause of concern to the community.
10/9/15	<u>Stone Mountain LPG 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.
10/14/15	<u>Clarkston LPG Working Session.</u> A meeting with members of the 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.

2.6 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 Zoning Code Update (Draft April 2015)
- DeKalb County Emergency Management Plan
- DeKalb County Fire Rescue response statistics
- 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
- FEMA RiskMAP 2015
- DeKalb County Risk Analysis Report April 2015



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. Plans with vulnerability results, such as the FEMA RiskMAP reports, were incorporated into this plan update. Appropriate tables and maps were placed into the risk assessment portion of the plan and the associated appendix, Appendix 4. Many of the planning documents, particularly the community comprehensive plans, were in the process of being updated or approved during this update. Items of particular interest for each community are included in the main plan as well as Appendix 5 covering the community goals, objectives, and actions. For instance, a community was in the process of creating a new downtown master plan which may move the government administration and fire administration offices and thus these potential changes to the location of critical infrastructure were noted in the main plan document.

Appendix 2 – Additional Documentation

- List of Mitigation Advisory Committee Members
 - Public Survey and Advertisement
- Meeting Minutes, Presentations, Sign-in Sheets, Etc.
 - Participation by Adjacent Communities

DeKalb County Countywide Hazard Mitigation Plan Update
County and City Participants

Name	Title	Affiliation	Email	Phone #	Primary Contact?
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Ken Turner	Director of Finance	City of Avondale Estates	kturner@avondaleestates.org	404-294-5400	
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Brandon Gurley	Major Uniform Patrol Div. Commander	City of Brookhaven	brandon.gurle@brookhavenga.gov	404-637-0610	
J. Bennett White, PE	Director of Public Works/City Engineer	City of Brookhaven	bennett.white@brookhavenga.gov	404-637-0576 770-853-4720	Primary
Gregory Anderson	City Engineer/Stormwater Utility Manager	City of Brookhaven	gregory.anderson@brookhavenga.gov	404-637-0528	Primary
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Donald Chase	Police Major	City of Brookhaven	donald.chase@brookhavenga.gov		
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Jennifer Rackley	Director, Parks and Recreation	City of Chamblee	jrackley@chambleega.gov		

DeKalb County Countywide Hazard Mitigation Plan Update
County and City Participants

Name	Title	Affiliation	Email	Phone #	Primary Contact?
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Jim Tavenner	Director Public Works	City of Stone Mountain	publicworks@stonemountaincity.org	770.498.8984x134	Primary
Shirlee Manning	Police Lt.	Cit of Stone Mountn	smanning@stonemountaincity.org	(404) 975-9211	Primary
Larry Williams		City of Lithonia	larry.williams@lithoniacity.org		Primary
Tonya Peterson		City of Lithonia	tonya.peterson@lithoniacity.org	(770) 482 - 8136	
Al Crace	Chief of Police	City of Lithonia	Al.Crace04@gmail.com	(678) 795 - 9323	

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DeKalb Emergency Management Agency Seeks Public Input

The DeKalb Emergency Management Agency ([DEMA](#)) is re-visiting its five-year All Hazards Mitigation Plan.

Input from citizens is welcomed, as it ensures an accurate depiction of potential dangers faced by residents countywide and how DeKalb can proactively address these issues.

Click [here](#) to take the 10-minute survey.

DeKalb Parks & Rec. Hosts Photo Contest

Are you Following DeKalb County on Twitter?

For the latest County news and updates, follow us at [@ItsInDeKalb](#).

Join Us at the 2015 Neighborhood Summit

On **Saturday, Sept. 26**, The Community Foundation for Greater Atlanta will convene the 2015 Regional Neighborhood Summit

2015 DeKalb County Hazard Mitigation Plan Survey

Q1 Please provide the ZIP code of your home.

Answered: 91 Skipped: 0

#	Responses	Date
1	30038	8/23/2015 1:43 PM
2	30340	8/23/2015 8:49 AM
3	30032	8/22/2015 7:18 PM
4	30088	8/22/2015 11:11 AM
5	30294	8/21/2015 4:34 PM
6	30030	8/21/2015 11:25 AM
7	30033	8/21/2015 9:53 AM
8	30345	8/20/2015 9:06 PM
9	30034	8/20/2015 12:28 PM
10	30034	8/20/2015 9:46 AM
11	30033	8/20/2015 7:53 AM
12	30094	8/19/2015 11:19 PM
13	30033	8/19/2015 9:11 PM
14	30038	8/19/2015 9:09 PM
15	30084	8/19/2015 7:48 PM
16	30033	8/19/2015 7:22 PM
17	30033	8/19/2015 1:49 PM
18	30033	8/19/2015 1:22 PM
19	30033	8/19/2015 1:18 PM
20	30083	8/19/2015 12:24 PM
21	30033	8/19/2015 11:21 AM
22	30033	8/19/2015 11:13 AM
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2015 DeKalb County Hazard Mitigation Plan Survey

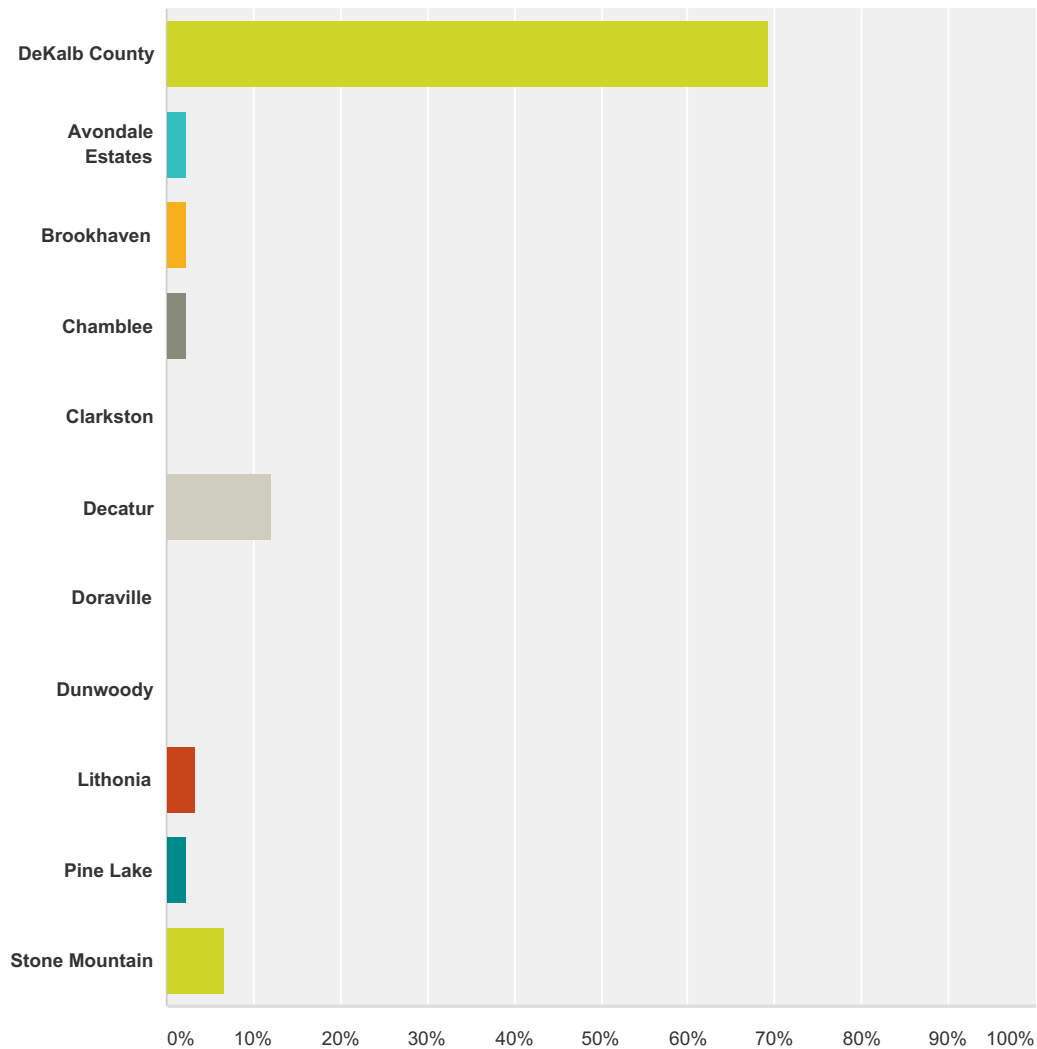
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2015 DeKalb County Hazard Mitigation Plan Survey

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91	30033	8/17/2015 9:06 AM

Q2 Please select the jurisdiction in which you live:

Answered: 91 Skipped: 0



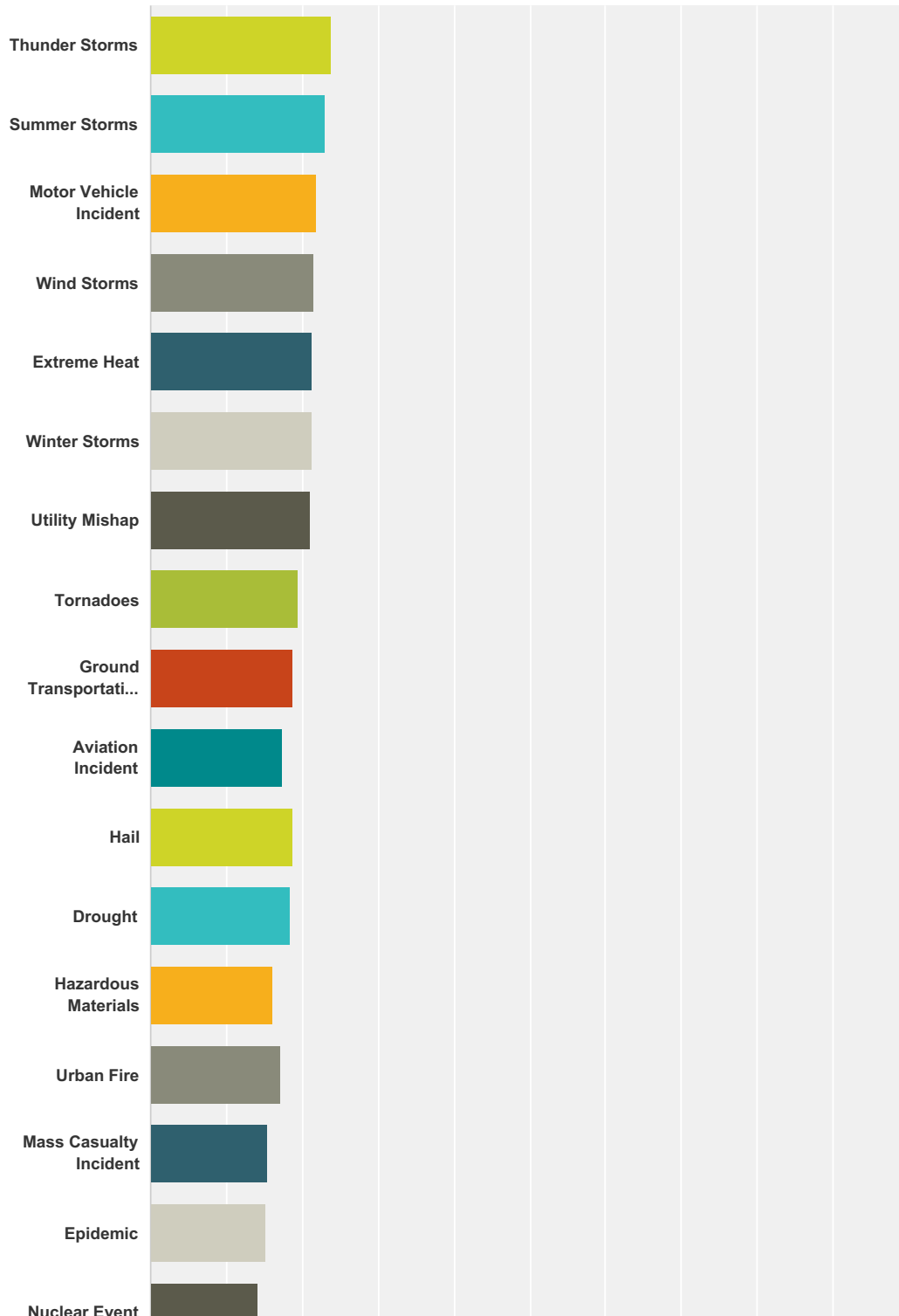
Answer Choices	Responses
DeKalb County	69.23% 63
Avondale Estates	2.20% 2
Brookhaven	2.20% 2
Chamblee	2.20% 2
Clarkston	0.00% 0
Decatur	12.09% 11
Doraville	0.00% 0
Dunwoody	0.00% 0
Lithonia	3.30% 3

2015 DeKalb County Hazard Mitigation Plan Survey

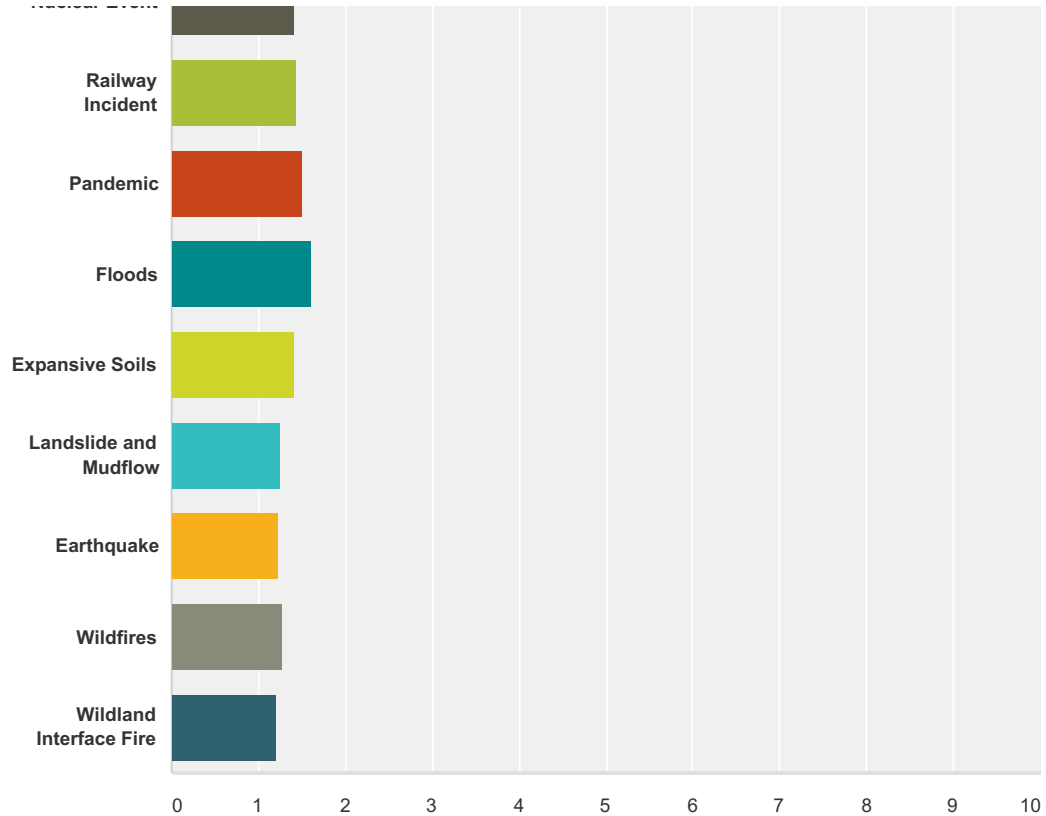
Pine Lake	2.20%	2
Stone Mountain	6.59%	6
Total		91

Q3 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)

Answered: 83 Skipped: 8



2015 DeKalb County Hazard Mitigation Plan Survey



	1. Low Threat	2. Moderate Threat	3. High Threat	Total	Weighted Average
Thunder Storms	11.11% 9	39.51% 32	49.38% 40	81	2.38
Summer Storms	17.50% 14	35.00% 28	47.50% 38	80	2.30
Motor Vehicle Incident	21.25% 17	38.75% 31	40.00% 32	80	2.19
Wind Storms	19.51% 16	45.12% 37	35.37% 29	82	2.16
Extreme Heat	21.95% 18	42.68% 35	35.37% 29	82	2.13
Winter Storms	21.69% 18	44.58% 37	33.73% 28	83	2.12
Utility Mishap	23.75% 19	42.50% 34	33.75% 27	80	2.10
Tornadoes	32.53% 27	40.96% 34	26.51% 22	83	1.94
Ground Transportation Incident	40.26% 31	32.47% 25	27.27% 21	77	1.87
Aviation Incident	52.56% 41	20.51% 16	26.92% 21	78	1.74
Hail	32.93% 27	46.34% 38	20.73% 17	82	1.88
Drought	33.33% 27	49.38% 40	17.28% 14	81	1.84

2015 DeKalb County Hazard Mitigation Plan Survey

Hazardous Materials	57.32% 47	25.61% 21	17.07% 14	82	1.60
Urban Fire	44.74% 34	38.16% 29	17.11% 13	76	1.72
Mass Casualty Incident	60.53% 46	23.68% 18	15.79% 12	76	1.55
Epidemic	61.04% 47	24.68% 19	14.29% 11	77	1.53
Nuclear Event	73.08% 57	12.82% 10	14.10% 11	78	1.41
Railway Incident	69.23% 54	16.67% 13	14.10% 11	78	1.45
Pandemic	65.28% 47	19.44% 14	15.28% 11	72	1.50
Floods	50.62% 41	38.27% 31	11.11% 9	81	1.60
Expansive Soils	65.22% 45	27.54% 19	7.25% 5	69	1.42
Landslide and Mudflow	81.69% 58	11.27% 8	7.04% 5	71	1.25
Earthquake	83.54% 66	10.13% 8	6.33% 5	79	1.23
Wildfires	78.21% 61	16.67% 13	5.13% 4	78	1.27
Wildland Interface Fire	83.33% 60	12.50% 9	4.17% 3	72	1.21

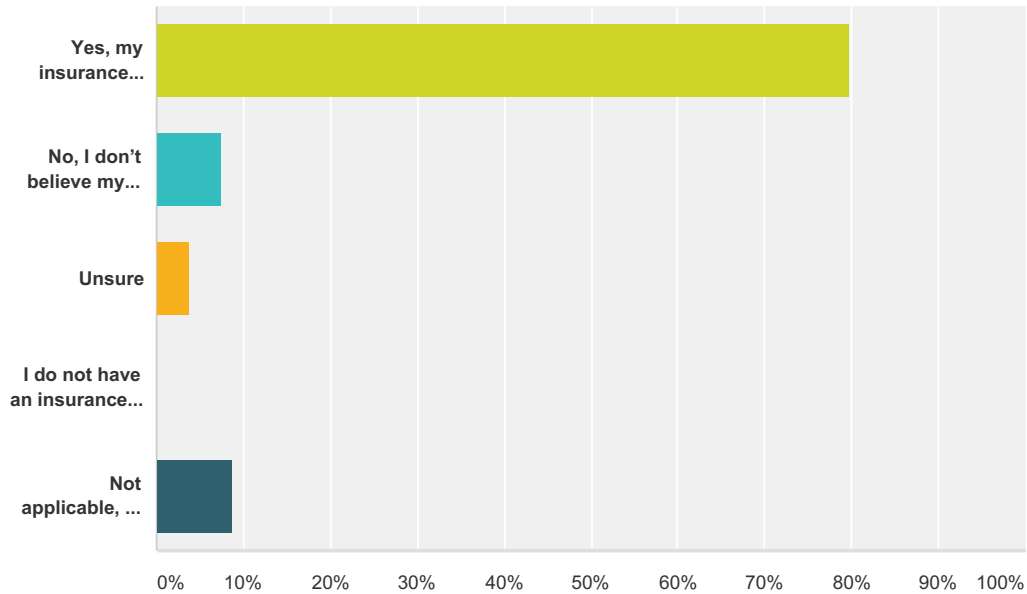
#	Please list any additional hazards that present a threat to your neighborhood or home.	Date
1	Crime	8/23/2015 8:52 AM
2	discarded trash along street and main artery - Redan Road	8/22/2015 11:17 AM
3	Electrical Failures, Crime, and Pollution	8/20/2015 12:31 PM
4	drainage/water	8/20/2015 9:50 AM
5	CRIME and using the unincorp Stn Mtn as a dumping ground to build low housing and ignore code violations	8/19/2015 10:08 AM
6	Clogged storm drains and street flooding	8/19/2015 9:06 AM
7	arson, burglary, riot	8/19/2015 12:23 AM
8	Blind spots due to common areas(Grass) not being cut	8/18/2015 9:53 PM
9	Contaminated water, sanitation issues with trash ,	8/18/2015 9:50 PM
10	Trees falling	8/18/2015 8:47 PM
11	Greedy public servants	8/18/2015 8:42 PM
12	water main break, coyotes, deer collision with motor vehicle,distracted driver	8/18/2015 6:33 PM
13	crime	8/18/2015 5:26 PM
14	Community as a whole uses too much water. Many individual neighbors do not recycle.	8/18/2015 4:41 PM
15	Human Sex Trafficking, Gang Violence, Home Invasions	8/18/2015 3:34 PM
16	riot	8/18/2015 3:19 PM
17	power outages (is that under utility mishap?), communications outages	8/18/2015 2:57 PM
18	Old Tree damage from age and corrosion	8/18/2015 2:04 PM

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19	Crime crime and more crime.	8/18/2015 1:57 PM
20	The newly installed natural gas relay stations are too easy to access	8/18/2015 1:56 PM
21	Break in / vandalism - low	8/18/2015 1:49 PM
22	Only one way in and out -- needs another outlet	8/18/2015 1:12 PM

Q4 If you are a homeowner, do you have adequate basic homeowners insurance to cover the hazards that could impact your home?

Answered: 79 Skipped: 12



Answer Choices	Responses	
Yes, my insurance coverage should be adequate	79.75%	63
No, I don't believe my insurance coverage would be adequate for a major disaster	7.59%	6
Unsure	3.80%	3
I do not have an insurance policy	0.00%	0
Not applicable, I rent my current residence	8.86%	7
Total		79

Q5 Do you have any other insurance? (flood, sinkhole, etc.)

Answered: 45 Skipped: 46

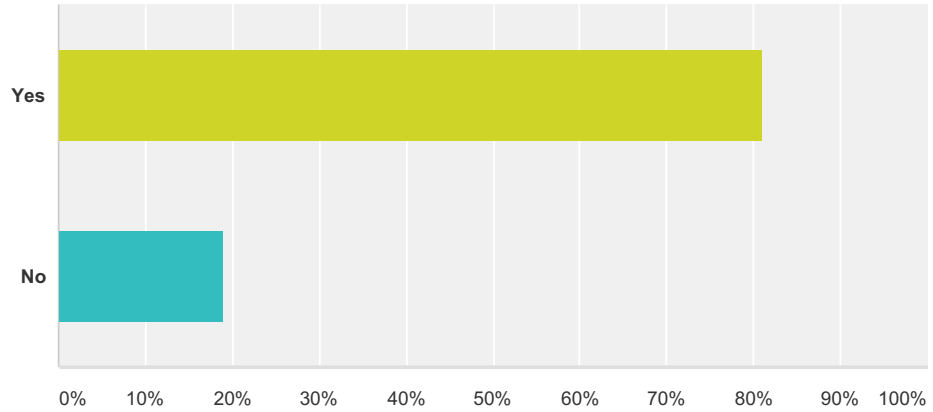
#	Responses	Date
1	earthquake	8/23/2015 8:55 AM
2	No.	8/22/2015 7:22 PM
3	no	8/22/2015 11:18 AM
4	No	8/21/2015 4:38 PM
5	No	8/21/2015 9:56 AM
6	No	8/20/2015 12:32 PM
7	No	8/20/2015 9:52 AM
8	Flood	8/20/2015 7:55 AM
9	Carries Flood Insurance	8/19/2015 11:22 PM
10	Earthquake	8/19/2015 9:15 PM
11	No	8/19/2015 9:14 PM
12	no	8/19/2015 7:51 PM
13	Flood	8/19/2015 1:20 PM
14	Flood	8/19/2015 11:55 AM
15	no	8/19/2015 11:23 AM
16	No	8/19/2015 11:07 AM
17	no	8/19/2015 10:47 AM
18	Flood	8/19/2015 9:08 AM
19	No.	8/19/2015 8:59 AM
20	I am now being required to get flood insurance.	8/19/2015 8:01 AM
21	no	8/19/2015 7:23 AM
22	No	8/18/2015 11:00 PM
23	no	8/18/2015 9:57 PM
24	no	8/18/2015 8:44 PM
25	no	8/18/2015 8:25 PM
26	No	8/18/2015 7:43 PM
27	no	8/18/2015 5:28 PM
28	No	8/18/2015 4:42 PM
29	no	8/18/2015 3:35 PM
30	yes, flood	8/18/2015 3:26 PM
31	no	8/18/2015 3:20 PM
32	no	8/18/2015 2:56 PM
33	no	8/18/2015 2:44 PM
34	no	8/18/2015 2:27 PM

2015 DeKalb County Hazard Mitigation Plan Survey

35	No	8/18/2015 2:12 PM
36	no	8/18/2015 2:05 PM
37	no	8/18/2015 1:59 PM
38	No	8/18/2015 1:59 PM
39	none	8/18/2015 1:52 PM
40	no	8/18/2015 1:51 PM
41	na	8/18/2015 1:32 PM
42	floog	8/18/2015 1:15 PM
43	No	8/18/2015 1:14 PM
44	No	8/18/2015 1:11 PM
45	Renter's insurance	8/17/2015 10:21 AM

Q6 Did you know that most standard homeowner's insurance policies do not cover rising water (flooding) or minor subsidence (sinkhole)?

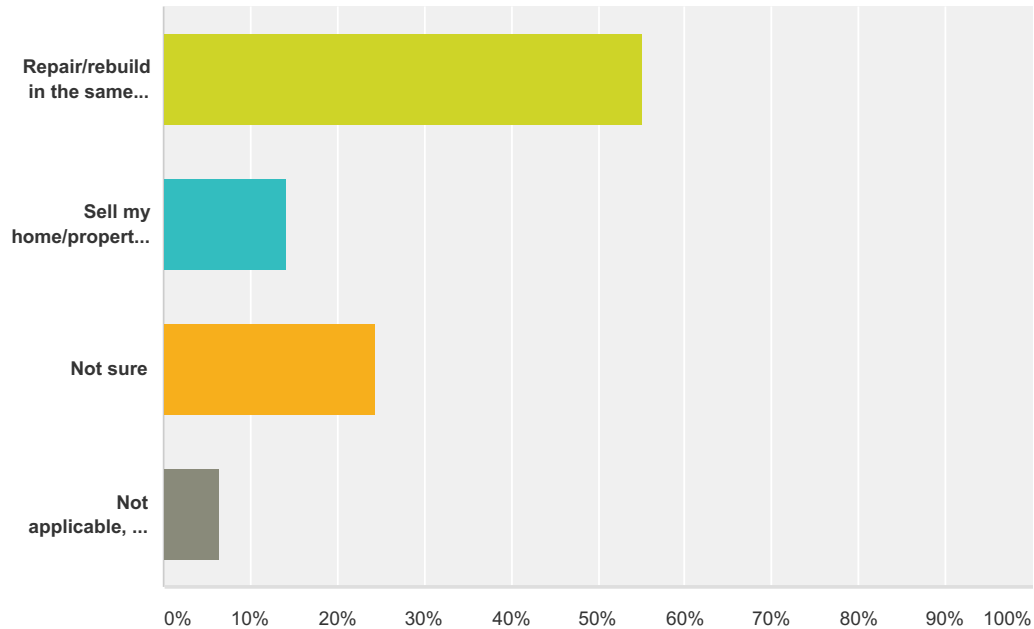
Answered: 79 Skipped: 12



Answer Choices	Responses	
Yes	81.01%	64
No	18.99%	15
Total		79

Q7 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?

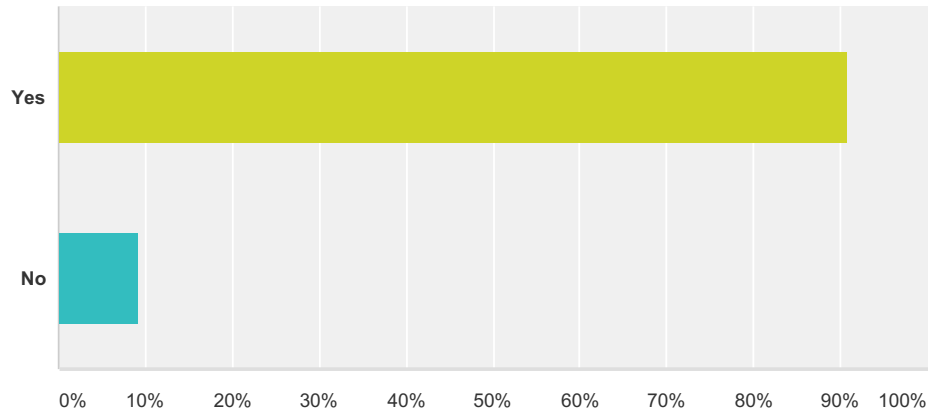
Answered: 78 Skipped: 13



Answer Choices	Responses	
Repair/rebuild in the same location to current building code standards	55.13%	43
Sell my home/property and relocate	14.10%	11
Not sure	24.36%	19
Not applicable, I rent my current residence	6.41%	5
Total		78

Q8 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?

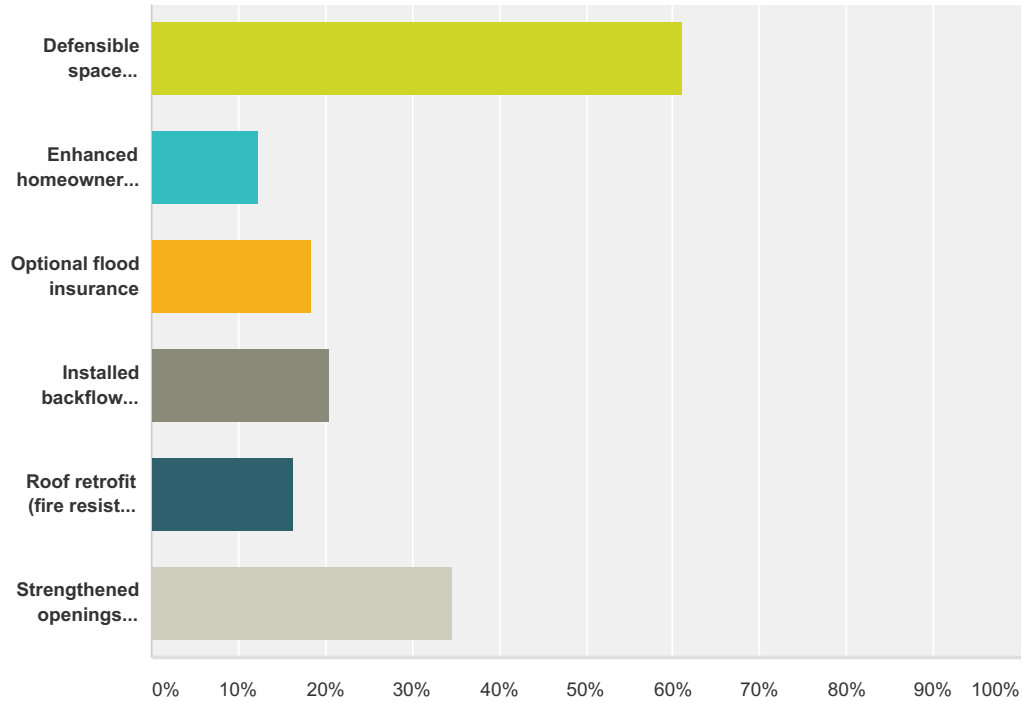
Answered: 76 Skipped: 15



Answer Choices	Responses	
Yes	90.79%	69
No	9.21%	7
Total		76

Q9 What are you doing to reduce risk of damage from natural and human-caused hazards? (choose all that apply)

Answered: 49 Skipped: 42

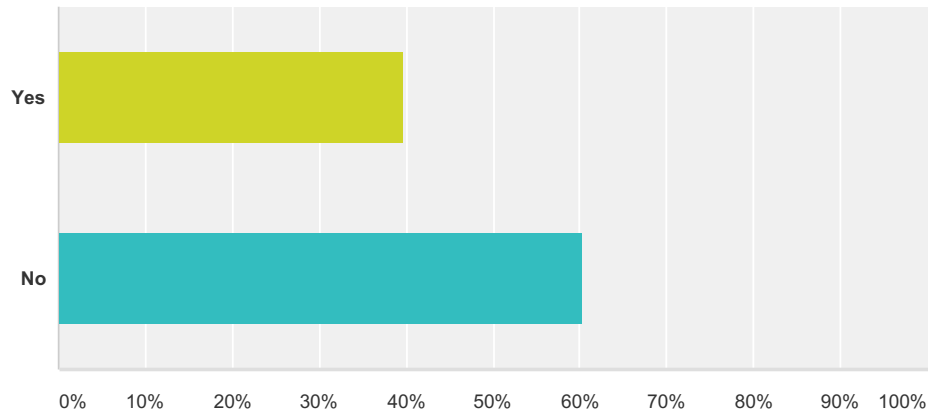


Answer Choices	Responses
Defensible space landscaping (clear vegetation around house to reduce wildfire risk)	61.22% 30
Enhanced homeowner insurance coverage (sinkhole, additional wind coverage)	12.24% 6
Optional flood insurance	18.37% 9
Installed backflow prevention device(s)	20.41% 10
Roof retrofit (fire resistant shingles, hurricane brackets, etc)	16.33% 8
Strengthened openings (Doors, windows, and/or garage door to reduce high-hazard wind risk)	34.69% 17
Total Respondents: 49	

#	Other (please specify)	Date
1	I have been trying to get Watershed to tell me for two months about back flow prevention but I can't get anyone to call me back and answer my questions.	8/19/2015 12:26 AM
2	xx	8/18/2015 8:44 PM
3	Added waterproofing system to basement. Plans to replace windows and siding.	8/18/2015 2:12 PM
4	Removed pine and other softwood trees in my yard that could be blown over and hit the house.	8/18/2015 1:59 PM
5	Security pins in all windows at ground level or that are easily accessible. House security system with cameras. Double locks on doors leading to the outside.	8/18/2015 1:42 PM

Q10 Do you work in DeKalb County?

Answered: 78 Skipped: 13



Answer Choices	Responses
Yes	39.74% 31
No	60.26% 47
Total	78

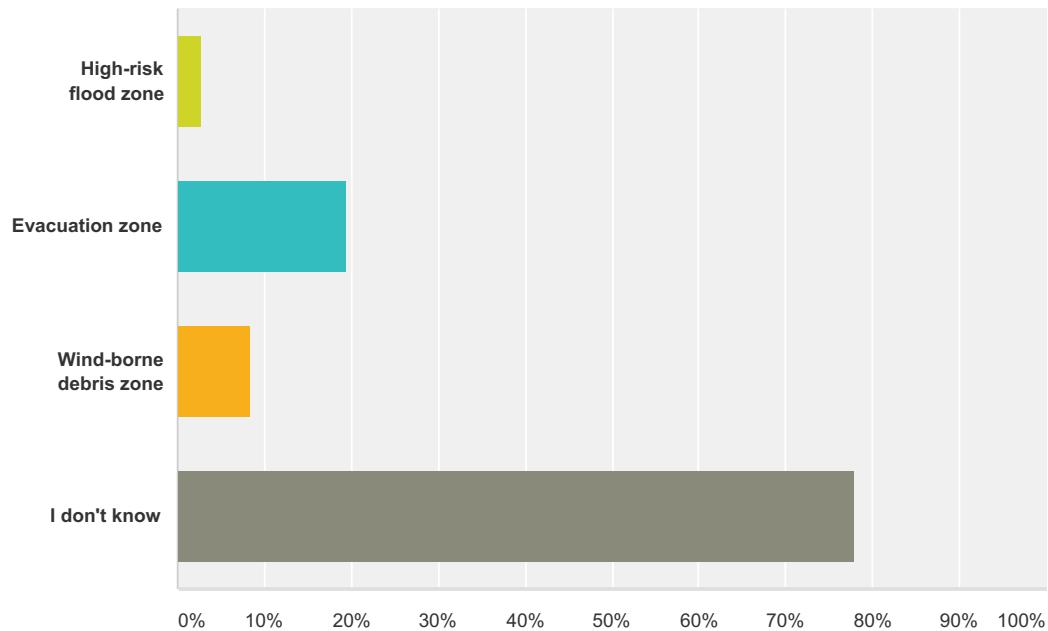
#	If yes, please provide your workplace zip code. If no, please skip to #13.	Date
1	30034	8/23/2015 1:52 PM
2	30032	8/21/2015 4:39 PM
3	30326	8/21/2015 9:57 AM
4	30030	8/20/2015 12:33 PM
5	30084	8/19/2015 7:53 PM
6	30319	8/19/2015 1:52 PM
7	30084	8/19/2015 10:48 AM
8	30322	8/19/2015 10:10 AM
9	30032	8/19/2015 7:58 AM
10	30084	8/19/2015 7:23 AM
11	30002	8/19/2015 12:27 AM
12	30087	8/18/2015 9:55 PM
13	30033	8/18/2015 9:14 PM
14	30033	8/18/2015 8:44 PM
15	30030	8/18/2015 3:36 PM
16	30253	8/18/2015 3:20 PM
17	30084	8/18/2015 3:16 PM
18	30032	8/18/2015 3:10 PM
19	30033	8/18/2015 3:09 PM
20	30032	8/18/2015 2:57 PM

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21	30084	8/18/2015 2:40 PM
22	30030	8/18/2015 2:29 PM
23	30032	8/18/2015 2:27 PM
24	Retired	8/18/2015 2:19 PM
25	30346	8/18/2015 2:13 PM
26	30088	8/18/2015 2:06 PM
27	30021	8/18/2015 2:04 PM
28	30033	8/18/2015 2:00 PM
29	30030	8/18/2015 1:53 PM
30	30340	8/18/2015 1:41 PM
31	30341	8/18/2015 1:33 PM
32	30341	8/18/2015 1:26 PM
33	30346	8/18/2015 1:11 PM
34	30030	8/17/2015 10:22 AM

Q11 Is your place of work in a hazardous location? (select all that apply)

Answered: 36 Skipped: 55



Answer Choices	Responses
High-risk flood zone	2.78% 1
Evacuation zone	19.44% 7
Wind-borne debris zone	8.33% 3
I don't know	77.78% 28
Total Respondents: 36	

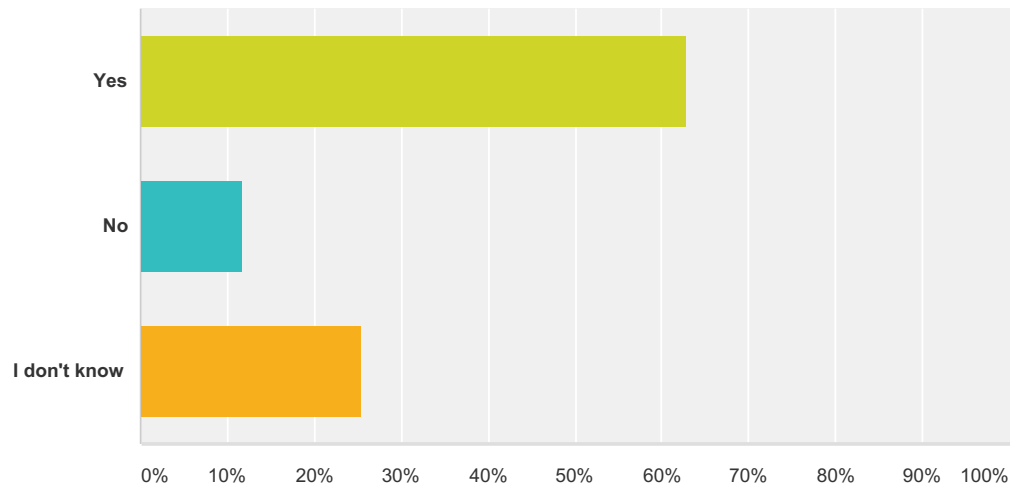
#	Other (please specify)	Date
1	Retired.	8/22/2015 7:22 PM
2	Retired	8/20/2015 7:56 AM
3	work from home but profession takes me to all areas in DeKalb and surrounding counties..self employed	8/19/2015 7:53 PM
4	Retired	8/19/2015 7:25 PM
5	rail accident, threat from public	8/19/2015 7:23 AM
6	xx	8/18/2015 8:44 PM
7	n/a	8/18/2015 8:26 PM
8	NA	8/18/2015 7:44 PM
9	Work at home	8/18/2015 3:16 PM
10	work from home	8/18/2015 2:46 PM
11	Work from home office	8/18/2015 2:00 PM
12	Airport	8/18/2015 2:00 PM

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13	NA retired	8/18/2015 1:52 PM
14	Centers for Disease Control & Prevention	8/18/2015 1:33 PM

Q12 Does your employer have a plan for disaster recovery in place?

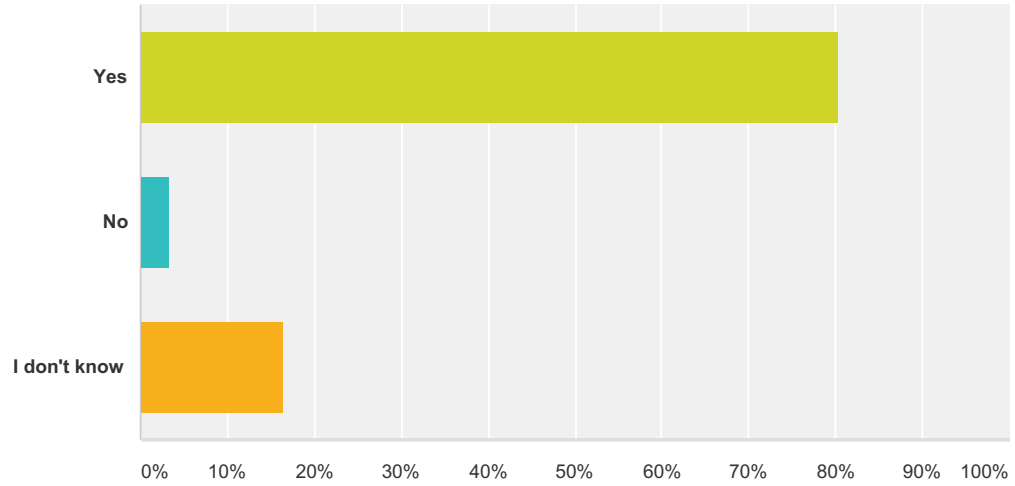
Answered: 51 Skipped: 40



Answer Choices	Responses	
Yes	62.75%	32
No	11.76%	6
I don't know	25.49%	13
Total		51

Q13 Does your employer have a means of getting in touch with you following a disaster?

Answered: 61 Skipped: 30



Answer Choices	Responses	
Yes	80.33%	49
No	3.28%	2
I don't know	16.39%	10
Total		61

Q14 Please list any studies you are aware of conducted within your community or the county regarding natural or manmade hazards.

Answered: 17 Skipped: 74

#	Responses	Date
1	Zero	8/20/2015 9:09 PM
2	Not aware of any plans for DeKalb County.	8/19/2015 11:30 PM
3	Na	8/19/2015 9:21 PM
4	Unknown	8/19/2015 1:27 PM
5	None	8/19/2015 11:08 AM
6	unaware	8/19/2015 10:16 AM
7	hot weather and cold weather safety zones	8/19/2015 7:25 AM
8	None	8/19/2015 12:35 AM
9	xx	8/18/2015 8:45 PM
10	not aware of any	8/18/2015 8:31 PM
11	None	8/18/2015 7:46 PM
12	None	8/18/2015 4:49 PM
13	FEMA FIRM Maps	8/18/2015 3:38 PM
14	EPA Hazardous materials website	8/18/2015 3:10 PM
15	None	8/18/2015 2:41 PM
16	not knowledgeable of any	8/18/2015 2:02 PM
17	None Known	8/18/2015 1:16 PM

Q15 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)?

Answered: 23 Skipped: 68

#	Responses	Date
1	Continue efforts to upgrade building codes and permitting process; present changes at community and business meetings; provide updates online and online processing of payments; conduct regular DCTV EMS talk show with community guests and ER personnel	8/20/2015 12:45 PM
2	Ensure that local EMAs are properly supplied and staff are well trained for hazardous events. Also - is there a local/county assessment that is conducted at facilities that are RMP and/or FRP facilities? This is a main source for localized haz responses - where facilities do not comply with SQG regulations for storage of haz waste.	8/19/2015 9:21 PM
3	Have a good web site for people to use to gather necessary information	8/19/2015 1:27 PM
4	Upgrade codes and increase code enforcement to ensure that the physical appearance is improving. DeKalb County should not have parts that looks extraordinarily well and parts that look extraordinarily rundown. If code enforcement was expanded, Stn Mtn Unincorp would look a lot better than it does now. Stop building low income housing in our area. We need homes and townhomes with land. Why are we not attracting medium to large businesses to invest in our area. We don't need retail and food shops, we need businesses that will demand better quality schools in the area for their employees and quality restaurants and coffee shops. Who decided our area should deteriorate?	8/19/2015 10:16 AM
5	Take better care of its waterways to help prevent flooding. This is especially true for the Stoneview Creek that courses through Stoneview subdivision.	8/19/2015 8:05 AM
6	I don't have any base information to give any suggestions.	8/19/2015 12:35 AM
7	iWork with utility companies to avoid accidents	8/18/2015 9:17 PM
8	xx	8/18/2015 8:45 PM
9	upgrade surface roads and drainage systems as well as improve infrastructure and building codes. Building codes should not change in mid stream of building and builders should not be allowed to change once building has begun (particularly if the code allows them to lower their standards)	8/18/2015 8:31 PM
10	Will think about.	8/18/2015 7:46 PM
11	I believe that CDC buildings are a potential terrorist target.	8/18/2015 6:11 PM
12	Building codes should match the international standard codes. Holes in the ceilings for lights need to be sealed. Water usage must be curtailed (some people flush every hour).	8/18/2015 4:49 PM
13	retrofit infrastructure and increase stream buffers	8/18/2015 3:38 PM
14	1.Keep the streets and roadways serviceable and expand transportation plan 2.Fund EMS and essential services more robustly 3.Cultivate community-based organizations and volunteers to assist as much as possible during a disaster	8/18/2015 3:26 PM
15	Update the infrastructure	8/18/2015 3:18 PM
16	Continued CERT training for citizens and a policy to better identify and ensure the safety of those with disabilities.	8/18/2015 2:29 PM
17	Keep up with the great information online, in emails, and other public forums. Also have better inspections and more inspectors. Also a mitigating process for complaints and issues when identified.	8/18/2015 2:08 PM
18	Incentivize the upgrading of older homes with tax credits or rebates Offer some services through the government to reduce the cost of expensive upgrades	8/18/2015 2:07 PM
19	As previously mentioned, the new Atlanta Gas Light relay stations on the Eastside Pipeline project are much too exposed to potential vandalism or worse sabotage.	8/18/2015 2:06 PM
20	Prioritization: Updating water infrastructure	8/18/2015 2:06 PM

2015 DeKalb County Hazard Mitigation Plan Survey

21	county wide alarms to warn of probable emergency....tornadoes, hurricanes, criminals being chased by police, etc.	8/18/2015 2:02 PM
22	Upgrade codes re: pressure on water flow . Bill has increased tremendously and not sure why ! ALSO Add more lighting in certain areas to deter crime (know it has nothing to do w/weather related :building code hazards)	8/18/2015 1:17 PM
23	Not informed enough to make recommendations.	8/18/2015 1:16 PM

Q16 Please recommend any companies or local associations that should be involved in the DeKalb County hazard mitigation planning process.

Answered: 9 Skipped: 82

Answer Choices	Responses
#1 Company/Association Name:	100.00% 9
Contact Name:	55.56% 5
Contact Email:	11.11% 1
Contact Phone Number:	33.33% 3
#2 Company/Association Name:	44.44% 4
Contact Name:	22.22% 2
Contact Email:	0.00% 0
Contact Phone Number:	22.22% 2

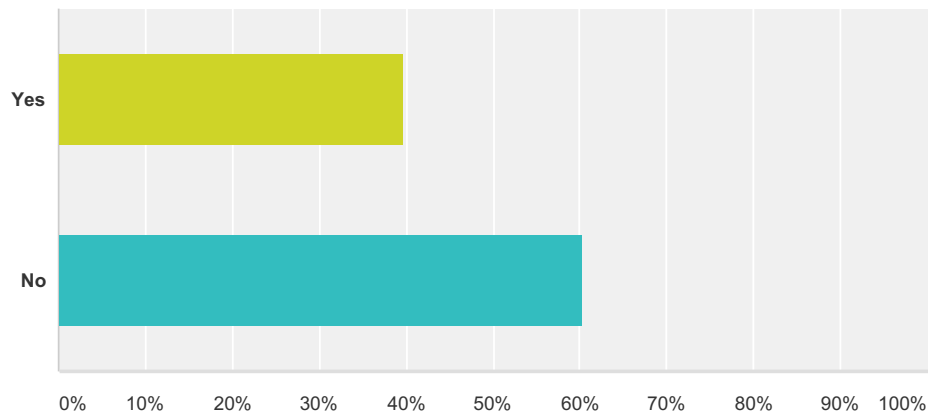
#	#1 Company/Association Name:	Date
1	DeKalb School District	8/20/2015 12:45 PM
2	GDOT	8/19/2015 9:21 PM
3	Intown Builders	8/19/2015 7:26 PM
4	DeKalb County Police Department	8/19/2015 7:25 AM
5	DeKalb Medical	8/18/2015 9:17 PM
6	Safety MD LLC	8/18/2015 4:39 PM
7	FEMA	8/18/2015 3:38 PM
8	Cove Lake Estates Home Owners Assoc.	8/18/2015 3:35 PM
9	US Army Reserves	8/18/2015 3:26 PM
#	Contact Name:	Date
1	Dr. R. Green, Superintendent	8/20/2015 12:45 PM
2	Rudy castorini	8/18/2015 9:17 PM
3	Michelle Dawkins	8/18/2015 4:39 PM
4	Rufus Fields	8/18/2015 3:35 PM
5	Lesile Johnson	8/18/2015 3:26 PM
#	Contact Email:	Date
1	micdaw2000@gmail.com	8/18/2015 4:39 PM
#	Contact Phone Number:	Date
1	678-676-1200	8/20/2015 12:45 PM
2	678-577-3744	8/18/2015 4:39 PM
3	404-664-3620	8/18/2015 3:26 PM
#	#2 Company/Association Name:	Date
1	Leadership DeKalb	8/20/2015 12:45 PM

2015 DeKalb County Hazard Mitigation Plan Survey

2	DeKalb County Fire Department	8/19/2015 7:25 AM
3	EPA	8/18/2015 3:38 PM
4	Cove Lake Estates Home Owners Assoc.	8/18/2015 3:35 PM
#	Contact Name:	Date
1	Maria Balias	8/20/2015 12:45 PM
2	Antoinette Beyah	8/18/2015 3:35 PM
#	Contact Email:	Date
	There are no responses.	
#	Contact Phone Number:	Date
1	404-373-2491	8/20/2015 12:45 PM
2	(404) 207-8026	8/18/2015 3:35 PM

Q17 Would you like to attend a DeKalb County Mitigation Strategy Meeting?

Answered: 63 Skipped: 28



Answer Choices	Responses
Yes	39.68% 25
No	60.32% 38
Total	63

#	If yes, please provide your name, email address, and phone number.	Date
1	Dot Jenkins, djdotyj@aol.com, 404 241-3231	8/21/2015 4:40 PM
2	Beverly Sharp - 3147 Flat Shoals Rd. - Decatur, Ga. 30034 - ispeak@aol.com	8/20/2015 9:57 AM
3	Dianna Milhollin, broadwaydianna@gmail.com, 770-380-0213	8/20/2015 7:57 AM
4	Dr. Wayman Duane Williams, princeton101st@yahoo.com, 4049365705	8/19/2015 11:30 PM
5	Amanda von Oldenburg amiolen@gmail.com 751 Willivee Drive Decatur, GA 30033 706-459-0396	8/19/2015 9:21 PM
6	Shannon Ridley 770-634-5236 shandrid@gmail	8/19/2015 8:05 AM
7	erin_m_gibbs@yahoo.com	8/19/2015 7:25 AM
8	I would like to but this would attach my personal information to the survey. Which should be anonymous. Please ask this question again in another email.	8/19/2015 12:35 AM
9	Curtis Davis cdavii@aol.com 6787688115	8/18/2015 9:57 PM
10	Shirley Hill 3693 Brandeis Ct Decatur 30034	8/18/2015 7:46 PM
11	Sandy G Johnson sandygjohnson72@gmail.com 404-273-5566	8/18/2015 5:31 PM
12	David Warlick, 1516 Davis Oaks Way, Decatur, 30033-1748-16. Telephone 404-325-4300.	8/18/2015 4:49 PM
13	Sharon Turner 1188 Autumn Hill Ct, Stone Mountain GA 30083 404-964-0191 sharoncturner@yahoo.com	8/18/2015 4:39 PM
14	Ruth Stringer rmstringer@myway.com	8/18/2015 2:57 PM
15	Kerri Gibson kgibson@southernco.com 770-621-2417	8/18/2015 2:41 PM
16	Keith Long Keith.m.long@dhs.gov 980-722-2888	8/18/2015 2:08 PM
17	Ted Daniel tedaniel@mindspring.com 404-315-7833	8/18/2015 2:06 PM
18	Grant Knox knox.g@att.net 770-908-5669	8/18/2015 2:02 PM
19	Raymond Lampe bgandrl@gmail.com 978-939-1296	8/18/2015 1:54 PM

2015 DeKalb County Hazard Mitigation Plan Survey

20	Antoinette Henry Antoinette.s.henry@hud.gov	8/18/2015 1:16 PM
21	M.C. Moore; mcmoorej@hotmai.com; 404.660.1740	8/18/2015 1:13 PM

Q18 Please provide us with any additional comments/suggestions that you have regarding hazard risk and the DeKalb County Hazard Mitigation Plan.

Answered: 13 Skipped: 78

#	Responses	Date
1	Create an emergency app for parents and kids; one that is fun interactive and able to track kids; promote or create an app for residents to keep all insurance and related important contact numbers in one place	8/20/2015 12:45 PM
2	1. Identify concentrated areas where materials have been dumped throughout the county that could feed natural fire and prioritize recycling and removal. 2. Identify old growth that can be a hazard to homes and traffic and prioritize recycling and removal AND replanting of urban forests. 3. Identify electrical hazards in aging electrical connections and prioritize recycling materials and replacement. 4. Identify flood zones near homes and prioritize for forest replanting with native plants and relocation of home owners via government strategies to mitigate high costs in the event of disaster. 5. Identify resources to respond to aviation accidents within neighborhoods near Peachtree DeKalb Airport.	8/19/2015 11:30 PM
3	See above notes. Main concern is with assessment of RMP/FRP facilities within the outskirts of downtown Decatur and surrounds - programs to ensure compliance with storage and mitigation regulations	8/19/2015 9:21 PM
4	It would be interesting to see if there will be any changes in our community (Stn Mtn Unincorp).	8/19/2015 10:16 AM
5	I don't have any base information to give any suggestions.	8/19/2015 12:35 AM
6	Cut down dead trees. Create and distribute escape route. Know the procedure and timeline for getting national guard services.	8/18/2015 10:10 PM
7	xx	8/18/2015 8:45 PM
8	The problem with Atlanta is that we use too much fresh water. Consumption has to be cut so the aquifers stay filled.	8/18/2015 4:49 PM
9	The streets and roads in our area are a hazard. Very little, if anything has been done to improve streets and roads in our area in the 30 years that we have lived on this side (south) of DeKalb County. Cedar Grove Road, Bouldercrest Rd., River Road, Moreland Ave. and surrounding streets. A few potholes were filled this year, but major improvements need to be made.	8/18/2015 3:35 PM
10	I am less concerned about natural disasters than man made.	8/18/2015 3:18 PM
11	Look to successful cities and counties to share successes. Also utilize the many university resources available. Free talent (interns) that are in emergency management courses (PHD programs UGA) or grants or outside the box resources that are cheap and have the up to date info needed to be the leader in GA.	8/18/2015 2:08 PM
12	A program to inspect and remove pine and other trees that seem to be particularly vulnerable during ice storms to knocking down power lines would be a positive step.	8/18/2015 2:06 PM
13	If you have a citizens committee for this important program, I would like to volunteer to serve on the committee. I am retired and have sufficient time to serve. I am educated, BS and MS degrees. I am eager to serve in a position of significant value. Grant Knox 3760 Sutton Place Court Tucker, GA 30084 home phone = 770-908-5669	8/18/2015 2:02 PM

Hazard Mitigation Plan Update - Meeting

Tue 1/6/2015 1:11 PM

Porter, Denise M. <DMPorter@dekalbcountyga.gov>

Hazard Mitigation Plan Update

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i We couldn't find this meeting in the calendar. It may have been moved or deleted.

When Thursday, January 29, 2015 10:00 AM-12:00 PM

Location DeKalb County Fire Rescue HQ 1950 W. Exchange Place Tucker GA 30084 1st floor conference room

Meeting cannot be found in the Calendar

10 ^{AM}	
11	
12 ^{PM}	

Good afternoon,

DEMA has contracted with Dewberry to assist with the update of the Hazard Mitigation Plan. Updating the Mitigation plan is your opportunity to prepare for "disastrous" days. It allows you to prioritize loss reduction activities with limited resources in the present and lets you plan to prioritize for potentially very large amounts of funding in a post-disaster.

It's also required

- Creating a plan pursuant to Section 322 of the Disaster Mitigation Act of 2000 (Public Law 106-390) keeps communities eligible for the following:

Denise Porter RE: Draft DeKalb Hazard Mitigation Plan - Brookhaven Gaps

DeKalb County Kickoff Invite – January 6, 2015
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Carol Reed Volunteer Manager <powernap3050@att.net>;

DeKalb County Hazard Mitigation Plan (HMP)

Development of the Update to the Countywide HMP

Today's Activities

- Introductions
- Orientation to Mitigation Planning
- The DeKalb HMP (2010)
- Function of this Mitigation Advisory Committee
- Homework
- Next Steps

Introductions

Welcome to the team

Mitigation Advisory Committee

(Members Participating in the Previous Update)

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

Mitigation Advisory Committee

(Members Participating in the Previous Update)

Names	Organization
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

MAC – Who Could Be Added?

- Business Sector (Large employers, Chamber of Commerce, etc.)
- Academic Sector (Colleges, School District, etc)
- Volunteer Organizations (Red Cross, United Way, etc)
- Healthcare Sector (Hospitals, Dept of Health, etc)
- General Public (Activists, HOA's impacted by disasters, etc)
- County or Regional Planning Groups
- *Consideration: If using the Mitigation Plan as the Floodplain Management Plan for CRS, then need to also meet those requirements for the MAC membership*

Orientation to Hazard Mitigation Planning

What is it and why do we do it

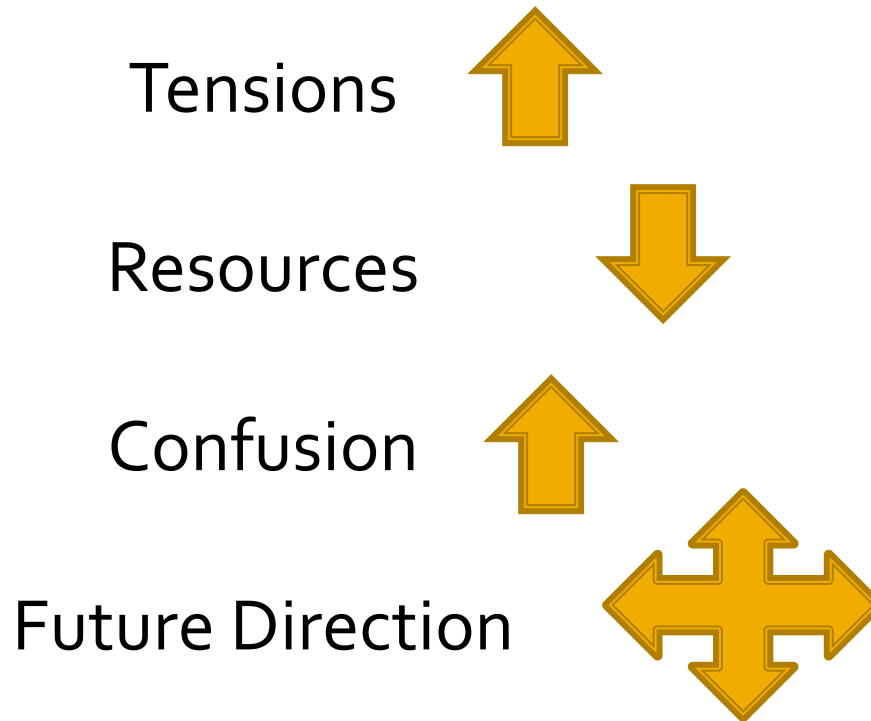
Why Do We Plan?

- It's required
 - Creating a plan pursuant to Section 322 of the Disaster Mitigation Act of 2000 (Public Law 106-390) keeps communities eligible for the following:
 - The **Hazard Mitigation Grant Program** (HMGP)
 - The **Pre-Disaster Mitigation** Grant Program (PDM)
 - The **Flood Mitigation Assistance** Program (FMA)

Why Should We Plan?

Because...Disasters are not fun

After a Disaster...



Orientation to Hazard Mitigation Planning

MAC Meeting - 1/29/2015

Developing a mitigation plan is your opportunity to **“blue-sky” plan for bad days.**

It allows you to **prioritize loss reduction activities with limited resources in the present** and let's you plan to **prioritize for potentially very large amounts of funding in a post-disaster environment.**



DeKalb County HMP (2011)

The 15-minute version of what was done for the previous plan...and how it varied from the plan before that.

Chapter 1 - Introduction

Chapter	Section	Content
1		Introduction
	1.1	Plan Description/Purpose of Plan
	1.2	Authority
	1.3	Community Descriptions

Hazard mitigation focuses attention and resources on jurisdictional policies and actions that will produce successive benefits over time.

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.

Chapter 2 – Multi-Jurisdictional Participation

Chapter	Section	Content
2		Regulatory Requirements
	2.1	List of Participating Jurisdictions
	2.2	Description of Each Jurisdiction's Participation in the Planning Process


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

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.








Chapter 3 – Planning Process

Chapter	Section	Content
3		Planning Process
	3.1	Description of Planning Committee Formation
	3.2	Mitigation Advisory and Working Group Meetings
	3.3	Planning Process
	3.4	Public Involvement
	3.5	Existing Plans or Studies Reviewed



DeKalb County
Comprehensive Plan 2005-2025

Community Agenda
Amended December 2009

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DeKalb County Strategic Planning Division
Department of Planning and Development

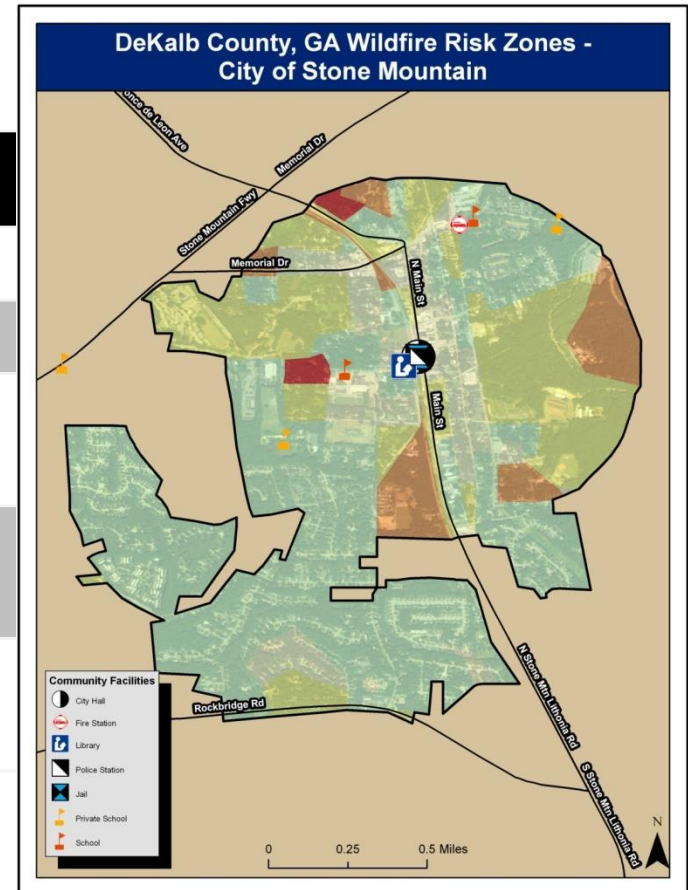
Chapter 3 – Planning Process

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.**

Chapter 4 – Risk and Vulnerability Assessment

Chapter	Section	Content
4		Risk and Vulnerability Assessment
	4.1	Overview of the Risk Assessment Process
	4.2	Hazard Identification, Screening, and Ranking
	4.3	Hazard Profiling, Risk, and Vulnerability Assessment
	4.4	Analysis of Land Use and Development Trends



Chapter 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.

Chapter 4 – Risk and Vulnerability Assessment

avalanche	earthquake ✓	house/building fire	tornado ✓
coastal storm	expansive soils	land subsidence	tsunami
coastal erosion	extreme heat ✓	landslide	wildfire ✓
dam failure ✓	flooding ✓	liquefaction	windstorm ✓
drought/water supply ✓	hailstorm	severe winter storm ✓	volcano

Chapter 4 – Risk and Vulnerability Assessment

Significant Changes to this Section from Previous 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 SHELUS databases and defaulting to HAZUS databases where applicable.

Chapter 5 – Goals, Objectives, and Actions

Chapter	Section	Content
5		Risk Assessment
	5.1	Overview
	5.2	Regional Considerations
	5.3	DeKalb County Overarching Mitigation Plan
	5.4	City of Avondale Estates
	5.5	City of Chamblee
	5.6	City of Clarkston
	5.7	City of Decatur
	5.8	City of Doraville
	5.9	City of Dunwoody
	5.10	City of Lithonia
	5.11	City of Pine Lake
	5.12	City of Stone Mountain

For each community:

Capabilities Assessment

- Existing Plans, Policies, and Ordinances
- Administrative and Technical Capacity
- Legal and Regulatory Capability
- Fiscal Resources and Capability

Goals, Objectives and Actions

- Mitigation Goal(s)
- Mitigation Objective(s)
- Prioritization and Implementation of Mitigation Action Items

Chapter 5 – Goals, Objectives, and Actions

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.

Chapter 5 – Goals, Objectives, and Actions

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.

Chapter 5 – Goals, Objectives, and Actions

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.

Chapter 5 – Goals, Objectives, and Actions

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.

Chapter 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.

Chapter 6 – Plan Maintenance

Chapter	Section	Content
6		Plan Maintenance
	6.1	Monitoring, Evaluating, and Updating the Plan
	6.1.1	Plan Monitoring <i>(Yearly)</i>
	6.1.2	Plan Evaluation <i>(Every 2 Years)</i>
	6.1.3	Plan Update <i>(Every 5 Years)</i>
	6.1.4	Implementation through Existing Programs
	6.1.5	Continued Public Involvement
	6.1.6	Increased Stakeholder Involvement <i>(Twice per Year by MAC or LPG)</i>

Break

Time to check email, status updates, tweets, etc

Function of the MAC

What you are expected to do for the project

Responsibilities

- Provide input to plan
- Reach consensus on items
 - Prioritization of hazards and risk assessment
 - Develop mitigation actions
- Support outreach and plan buy-in from a cross-section of the community
- Approve draft and final Mitigation Plan
- Support local adoption of the Mitigation Plan
- Support maintenance of the Mitigation Plan

MAC Sharepoint for Coordination

The screenshot shows a web browser window with the URL <https://projects2.dewberry.com/sites/DeKalbHMP2015/SitePages/Home.aspx>. The page title is "DeKalbHMP2015 Home". The user is logged in as "Chris Zambito". The page features a "Welcome to the DeKalb Hazard Mitigation Plan 2015 Update Site" message, stating it is the home page for project documents and contact lists. A "Shared Documents" section lists three files: "2011 DeKalb Plan Documents", "MAC_Kickoff_072214" (marked NEW), and "PLAN REVIEW GUIDE FINAL_9-30-11" (marked NEW). A sidebar on the left contains navigation links for Libraries, Lists, Discussions, and Recycle Bin. A search bar is located at the top right of the main content area.

Site Actions Browse Page Chris Zambito

DeKalbHMP2015 Home

Home Search this site...

Libraries
Site Pages
Shared Documents

Lists
Calendar
Tasks

Discussions
Team Discussion

Recycle Bin
All Site Content

Welcome to the DeKalb Hazard Mitigation Plan 2015 Update Site

This is the home page for where we will save project documents and contact lists for the project over the next year.

Shared Documents

Type	Name
	2011 DeKalb Plan Documents
	MAC_Kickoff_072214
	PLAN REVIEW GUIDE FINAL_9-30-11

Add document

Shared Documents

<input type="checkbox"/>	Type	Name	Modified
		DeKalb Co GA APA-DR Letter 03-22-11	1/27/2015 10:08 AM
		DeKalb_Crosswalk_3_04_2011_updated	1/27/2015 10:08 AM
		DeKalbAdoption_3_22_11	1/27/2015 10:07 AM
		DeKalbHMP_Update_03_21_2011	1/27/2015 10:09 AM

MAC Homework

Activities to work on until next milestone meeting

What To Do Before Next Meeting

- Provide any plans and staff information to support a capabilities assessment
- Get access to the project sharepoint
- Reach out to other potential MAC members
- Work with your communications or PIO representative for how to interact with public

Next Steps

Milestones for rest of the project

Rest of the Process

- Schedule next meeting (#2) to prioritize hazards
- Schedule meeting (#3) to review risk assessment and reach consensus on goals and objectives
- May want to present results to public via a meeting or online with an opportunity for comment
- Develop and agree on any mitigation actions
- Develop draft plan, receive comments, revise
- Hold 2nd public outreach meeting
- Submit to GEMA for approval (revise if necessary)
- Adopt DeKalb HMP (County and Municipalities)
- Coordinate with FEMA on update to DeKalb HMP

THE END



DEKALB COUNTY EMERGENCY MANAGEMENT AGENCY (DEMA)

HAZARD MITIGATION PLAN KICKOFF Stonecrest Library, Lithonia, GA

SIGN IN SHEET

Meeting: Hazard Mitigation Plan Kickoff

Date: 01/29/15 Time: 10:00 am - 12:00 pm

2-9-15

	Name:	Agency	Contact #	Email address	Time In	Time Out	FEMA request approximate monthly wage due to incident contribution	Signature
1	D. M. Parker	DeKalb EMA / FR	7-774-7572	dmparker@dekalbcountyga.gov	9 am	11:30	16.00 hr	X
2	DB CATHOUN	DEKALB ME	4-508-3510	DBLATHOUN@DEKALBCOUNTYGA.GOV	9 AM	11:23	16.25 hr	X
3	N. Funny	DeKalb County PW	404-8773721	nsfunny@dekalbcountyga.gov		11:23	17.51	
4	Shane Dobson	DeKalb Fire Rescue	770-778-7582		9:40	11:23		
5	Jacqueline L. Kneib	DeKalb County Library	404-508-7190	Kimbrgj@dekalblibrary.org	9:36	11:23		
6	Chris Zambito	Dewberry	813-421-8639	czambito@dewberry.com	9:50	11:23		✓
7	OLIVER FLADRICH	DUNWOODY P.D.	678-491-6559	oliver.fladrich@dunwoodyga.gov	09:50	11:23		
8	PEGGY AUB	DEKALB				11:23		
9	R.K. de Graaf	DKPD	770-724-7660	rkdagraaf@dekalbga.gov	0950	1130		
10	BRIAN SHAW	DEKALB FLOOD	404-371-2012	bshawne@dekalbga.gov	10 am	11:23		
11	LINDA JAMES	MARTA	404-848-5716	ljerry@itsmarta.com	10 AM	11:23		
12	Rosecutt Smith	Lithonia P.D.	770-2-8947	Rosecutt.Smith@lithoniapd.org	10 am	11:23		
13	Alvin A. Asante	DEKALB GIS	404-371-6372	alvin.asante@dekalbcountyga.gov	10:05 am	11:23		
14	DENN ASGAR	MARTA	404-848-3155	dsgar@itsmarta.com	10:10	11:23		3789
15	Mike Yoder	VOAD	404-597-2137	YoderTme@yoder.com	10:10	11:23		
16	GARY CARTER	MARTA	404-848-6525	gcarter@itsmarta.com	10:10			
17	GARY YAMMURA	BROOKHAVEN PD	4-637-0590	GARY.YAMMURA@BROOKHAVENGA.GOV	10:10			
18	DON DODDARD	MARTA	4-848-6802	DDODDARD@ITSMARTA.COM	10:50	11:30		
19	Laura Radford	GEMIA	4-635-7517	laura.radford@gemia-ga.gov		11:30		
20	Bernard Hicks	DEBOTH	678-207-2077	bernard.hicks@debothga.gov	10:10	11:34		

Participants will need to sign in at meetings and also indicate their time (sign out) and approximate wage.



DEKALB COUNTY EMERGENCY MANAGEMENT AGENCY (DEMA)

HAZARD MITIGATION PLAN KICKOFF

Stonecrest Library, Lithonia, GA

SIGN IN SHEET

Meeting: Hazard Mitigation Plan Kickoff

Date: 01/29/15 Time: 10:00 am - 12:00 pm

	Name:	Agency	Contact #	Email address	Time In	Time Out	DEMA request approximate monthly wage due to in-kind contribution	Primary Contact (Mark X)
1	PAULELLE BRELLEY	MEDECAL EVANGEL	6249-4701	PAULELLE@DEKALBCOUNTYGA.GOV	9:40	11:23		
2	Scott Sellers	DeKalb County Fire	77318-2110	fsellers@dekalbcountyga.gov	9:40	11:23		
3	Royce Bottoms	GRHA	41623-8554	Royce.bottoms@DBHDD.ga.gov		11:23		
4	Meredith Roark	City of Decatur	41370-4102	Meredith.Roark@decaturga.com		11:23		
5	Chris Malle	DKPD	77724-7807	cmalle@dekalbcountyga.gov		11:23		
6	Deonta Crawford	DeKalb RyDC	404-635-4439	Deonta.Crawford@dkrydc.com		11:23		624-246
7	Samuel Chaney	MARTA	41848-4770	SACHANEY@marta.com	10:4	11:23		8904
8	RANDY ANDERSON	CITY OF CHAMBLEE	77986-5040	randerson@chambleega.com	9:50	11:20		X
9	Tiffany Bonner	DeKalb Police	61406-7815	tlbonner@dekalbcountyga.gov	9:55	11:23		
10	Darryl Scott	DeKalb Police	61406-7835	dscott@dekalbcountyga.gov	9:56	11:23		
11	Ella Martin-Lee	MARTA	41848-4485	emartin@marta.com		11:23		
12	XAVIER TODD	Lithonia P.D.	678-467-2911	XAVIER.TODD@lithoniamd.com	7:56	11:23		
13	G Tolan	Lithonia PD	78759593	gole.tolan@lithoniamd.com		11:23		
14	Paul Conroy	Avondale Estates PD	41787-2226	pconroy@avondalepesta.com		11:23		
15	Antonio Burden	DCFR - FMD	41371-2776	aburden@dekalbcountyga.gov	10:00	11:23		
16	MARLENE	DCFR	41662-5039	POWERNAP3450@AET.NC	10:10	11:23		
17	DAVID	DCFR	41662-5039	DAVID	10:10	11:23		
18	ANTHONY MCCAIG	MARTA	404-848-4778	apmccaig@marta.com	10:00	11:23		
19						11:23		
20						11:23		

Participants will need to sign in at meetings and also indicate their time (sign out) and approximate wage.



DEKALB COUNTY EMERGENCY MANAGEMENT AGENCY (DEMA)

HAZARD MITIGATION PLAN KICKOFF
Stonecrest Library, Lithonia, GA

SIGN IN SHEET

Meeting: Hazard Mitigation Plan Kickoff

Date: 01/29/15 Time: 10:00 am - 12:00 pm

	Name:	Agency	Contact #	Email address	Time In	Time Out	SEMA request approximate monthly wage due to incident contribution	Primary Contact (Mark X)
1	Matt Pilski	Pine Lake	4-666-3808	mpilski@bmi1.com	0945	11:25		X
2	Charles Lambert	DeKalb Watershed	770-621-7231	CLLAMBERT@dekalbcountyga.gov	947	1125		X
3	Toni Washington	Decatur Fire	770-865-6411	toni.washington@decaturga.com		11:23		X
4	Sherbey Philpot	MARTA	4848-3128	Sherbey.Sphilpot@itsmarta.com	950	11:23		X
5	Meredith Green	Dunwoody	678-537-8446	mgreen@dunwoodyga.com	9:50	11:23		X
6	Nargath Waldice	DJI	404-693-4052	nargathwaldice@dj.state.ga.us	0950	11:25		X
7	ROY LANGRIS, JR	DJI	404-509-1076	ROY.Langris@DJI.state.ga.us	0950	1125		X
8	Ronald Andrews	MARTA	41421-0180	rmandrew@itsmarta.com	0955	11:21	Warren Taylor	X
9	GREGORY ANDERSON	BROOKHAVEN	41637-0528	gregory.anderson@brookhaven.ga.gov	0956	11:23		X
10	Queen Jefferson Gailther	MARTA	41848-4387	QJefferson@itsmarta.com	0956	11:23		X
11	Robert Gordon	DeKalb Fleet	41913-9823	rgordon@dekalbcountyga.gov	10:00	1123		X
12	Michael Smith	Dunwoody	61382-6852	michaelsmith@dunwoodyga.gov	10:00			
13	Greg Brake	Fleet	4277-3280	gbrake@dekalbcountyga.gov	12:00			X
14	Kelly Reeves	GEMA	41635-2125	kelly.reeves@gema.ga.gov	10:00			X
15	Reginald Stubbs	DCBOH	41508-7829	reginald.stubbs@dph.ga.gov	1000	1125		✓
16	Eric Linton	Dunwoody	61382-6704	eric.linton@dunwoodyga.gov	10:00			
17	Satt Thomsen	Emory U.	41727-1349	satt.thomsen@emory.edu	10:00			X
18	India Jackson	Risk mang	71402-8293	injackson@dekalbcountyga.gov	10:00			
19	Brandon Gurley	Brookhaven Police	41637-0600	brandon.gurley@brookhaven.ga.gov	10:15			X
20					11:23			



DEKALB COUNTY EMERGENCY MANAGEMENT AGENCY (DEMA)

HAZARD MITIGATION PLAN KICKOFF Stonecrest Library, Lithonia, GA

SIGN IN SHEET

Meeting: Hazard Mitigation Plan Kickoff

Date: 01/29/15 Time: 10:00 am - 12:00 pm

	Name:	Agency	Contact #	Email address	Time In	Time Out	DEMA request approximate monthly wage due to the kind contribution	Primary Contact (Mark X)
1	Alisa Jackson	MARTA	404 804 1717	ajackson2@itsmarta.com	10:10	11:23		
2	Stanley Drake	MARTA	404 848-4352	sdrake@itsmarta.com		11:23	Primary	X
3	Thomas Gaskin	MARTA	404 848-5873	tgaskin@itsmarta.com		11:23	Primary	X
4								
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DeKalb County Hazard Mitigation Plan (HMP)

Development of the Update to the Countywide HMP

Today's Activities

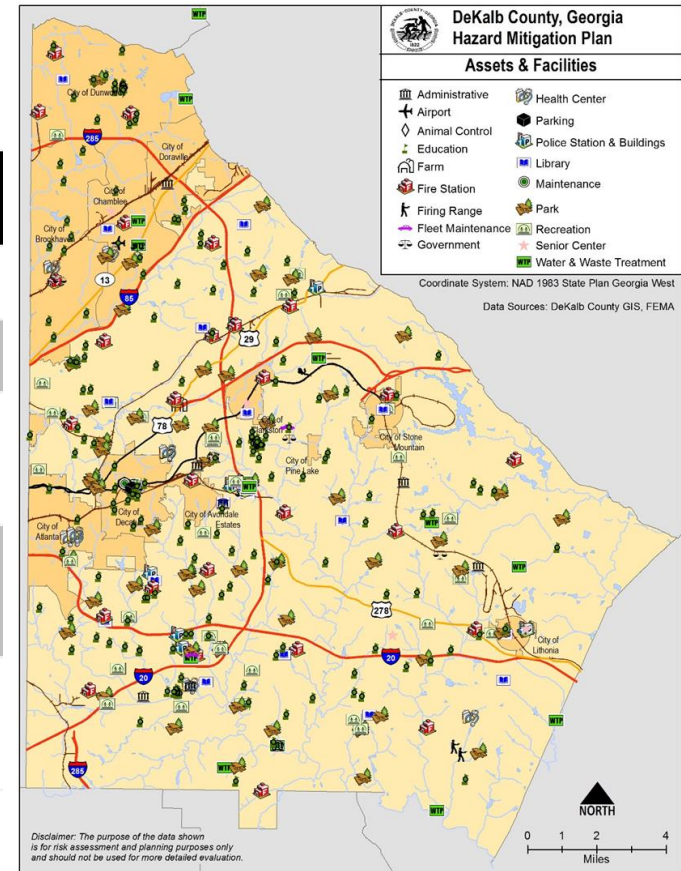
- Introductions
- Recent Activities
 - Hazard Identification
 - Risk Assessment
 - Capabilities Assessment
- Public Survey
- Selection of Countywide Goals/Objectives
- Next Steps

Introductions

Welcome back and hello to any new faces

Chapter 4 – Risk and Vulnerability Assessment

Chapter	Section	Content
4		Risk and Vulnerability Assessment
	4.1	Overview of the Risk Assessment Process
	4.2	Hazard Identification, Screening, and Ranking
	4.3	Hazard Profiling, Risk, and Vulnerability Assessment
	4.4	Analysis of Land Use and Development Trends



Chapter 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.

Chapter 4 – Risk and Vulnerability Assessment

Hazard Identification & Risk Assessment

Purpose: Provides a factual basis for prioritizing hazard mitigation activities

Major components:

- Identify and profile natural hazards affecting the county
- Describe vulnerability to critical facilities and estimate losses
- Vulnerability in terms of current and future land use and development

Chapter 4 – Risk and Vulnerability Assessment

- Description of all hazards that affect the planning area & rationale for omitting recognized hazards from analysis
- Hazard Profiles
 - Location
 - Extent
 - Previous occurrences
 - Probability of future events
- Vulnerability Assessment
 - Summary of the County's vulnerability to each hazard
 - Summary of potential impacts of each hazard
 - Summary of repetitive loss properties

Chapter 4 – Risk and Vulnerability Assessment

Table 19. Hazard Ranking Index

Ranking Category	Degree of Risk			Assigned Weighting Factor
	Level	Criteria	Index Value	
Probability <i>Based on estimated likelihood of occurrence from</i>	Unlikely	Less than 1% annual probability	1	2.0
	Somewhat Likely	Between 1 and 10% annual	2	
	Likely	Between 10 and 100% annual	3	
	Highly Likely	100% annual probability	4	
Affected Area <i>Based on size of geographical area of community affected</i>	Isolated	Less than 1% of area affected	1	0.8
	Small	Between 1 and 10% of area affected	2	
	Medium	Between 10 and 50% of area affected	3	
	Large	Between 50 and 100% of area	4	
Primary Impact <i>Based on percentage of damage to typical</i>	Negligible	Less than 10% damage	1	0.7
	Limited	Between 10% and 25% damage	2	
	Critical	Between 25% and 50% damage	3	
	Catastrophic	More than 50% damage	4	
Secondary Impacts <i>Based on estimated secondary impacts to community at large considering economic impacts, health impacts, and crop losses</i>	Negligible	No loss of function, downtime, and/or evacuations	1	0.5
	Limited	Minimal loss of function, downtime, and/or evacuations	2	
	Moderate	Some loss of function, downtime, and/or evacuations	3	
	High	Major loss of function, downtime, and/or evacuation	4	

Chapter 4 – Risk and Vulnerability Assessment

Hazard Section	Hazard Type	Probability	Impact			Hazard Planning Consideration 2011	Hazard Planning Consideration 2016
			Affected Area	Primary Impact	Secondary Impacts		
Flooding	FLOODING	Highly Likely	Medium	Critical	High	Significant	Significant
	DAM FAILURE	Unlikely	Isolated	Critical	High	Limited	Limited
Wind	WIND (STRAIGHTLINE)	Highly Likely	Large	Limited	Moderate	Significant	Significant
	TORNADO	Highly Likely	Isolated	Critical	Moderate	Moderate	Significant
	THUNDERSTORMS/LIGHTNING	Highly Likely	Isolated	Limited	Negligible	Limited	Moderate
	HURRICANE	Likely	Medium	Critical	High	Moderate	Moderate
WINTER STORM	WINTER STORM	Likely	Large	Negligible	Moderate	Moderate	Significant
DROUGHT	DROUGHT	Likely	Large	Negligible	Limited	Limited	Moderate
EXTREME HEAT	EXTREME HEAT	Likely	Medium	Negligible	Limited	Limited	Moderate
WILDFIRE	WILDFIRE	Somewhat Likely	Small	Catastrophic	High	Limited	Limited
EARTHQUAKE	EARTHQUAKE	Unlikely	Medium	Negligible	Negligible	Limited	Limited

Chapter 4 – Risk and Vulnerability Assessment

Only 1 Federally
Declared
Disaster since
the previous
plan update

Disaster Type	Disaster Number	Incident Type	Title	Incident Begin Date	IH Program	IA Program	PA Program	HM Program
EM	3368	Severe Ice Storm	SEVERE WINTER STORM	2/10/2014			√	
DR	1858	Severe Storm(s)	SEVERE STORMS AND FLOODING	9/18/2009	√		√	√
DR	1750	Severe Storm(s)	SEVERE STORMS AND TORNADOES	3/14/2008	√	√	√	√
EM	3218	Hurricane	HURRICANE KATRINA EVACUATION	8/27/2005			√	
DR	1554	Hurricane	HURRICANE IVAN	9/14/2004	√	√	√	√
DR	1311	Severe Storm(s)	SEVERE WINTER STORM	1/22/2000			√	√
DR	1209	Severe Storm(s)	SEVERE STORMS AND FLOODING	2/14/1998		√	√	
DR	1071	Hurricane	HURRICANE OPAL	10/4/1995		√	√	√
EM	3097	Snow	SEVERE SNOWFALL, WINTER STORM	3/13/1993			√	√
EM	3044	Drought	DROUGHT	7/20/1977			√	√
DR	370	Tornado	TORNADOES & FLOODING	4/4/1973		√	√	√

Chapter 4 – Risk and Vulnerability Assessment

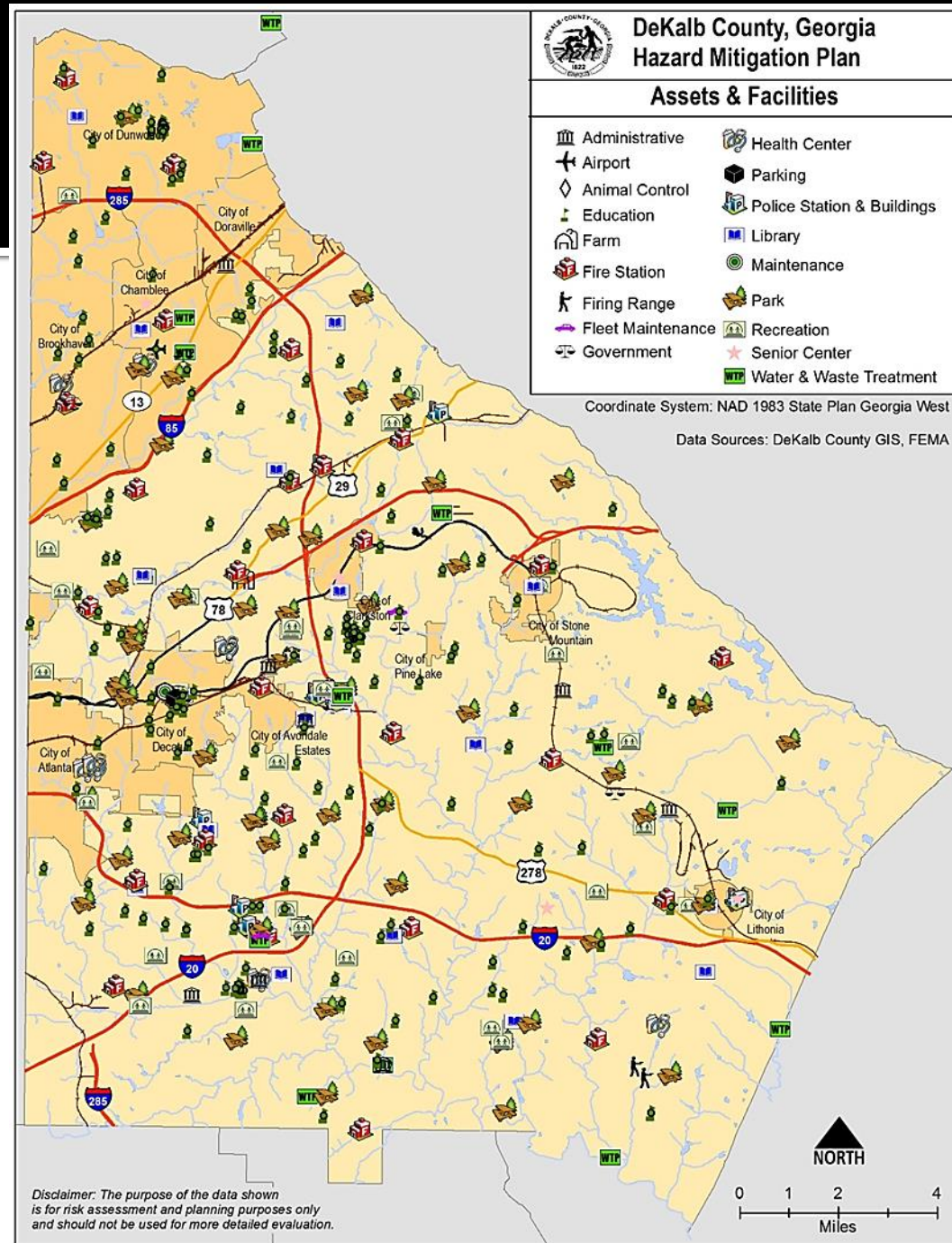
Hazard	Number of Events	Property Damage (Inflated)	Crop Damage (Inflated)	Deaths	Injuries
Wind	167	\$2,242,455	\$0	2	4
Hail	113	\$17,399,913	\$0		
Flash Flood	39	\$9,536,843	\$0		
Winter Weather	22	\$611,600	\$0		
Drought	21	\$0	\$328,980		
Lightning	15	\$1,132,864	\$0	1	6
Flood	14	\$10,241,342	\$0		
Hurricane	14	\$0	\$0		
Extreme Cold	13	\$0	\$0		
Extreme Heat	11	\$0	\$0		
Tornado	9	\$51,365,382	\$0	1	2
Ice Storm	5	\$1,410,745	\$0		
Fog	2	\$0	\$0		

Historical Summary of Damages By Hazard Type

Essential Infrastructure

Type	Count
Education	169
Park	61
Recreation	46
Fire Station	28
Water & Waste Water Treatment	22
Library	20
Administrative	15
Maintenance	15
Police Station & Support Bldgs	13
Government	12
Fleet Maintenance	10
Health Center	10
Senior Center	10
Animal Control	2
Firing Range	2
Parking	2
Farm	1
Airport	1

439 Facilities



Flood Risk Database

Facility Type	Facility Name	Address	Building Value	Flood Zone
Fire Station	DeKalb County Fire Services Station 24	4154 Redan Rd	\$545,900	AE
Elementary School	Woodward Elementary School	3034 Curtis Drive, NE	\$2,479,700	AE w FW
Public Two-Year College	GPC SH Building	3251 Panthersville Road	\$47,628	AE
Public Two-Year College	GPC SI Building	3251 Panthersville Road	\$45,360	AE
Public Two-Year College	GPC SJ Building	3251 Panthersville Road	\$45,360	AE
Public Two-Year College	GPC SK Building	3251 Panthersville Road	\$45,360	AE
Public Two-Year College	GPC SD Building	3251 Panthersville Road	\$453,600	AE
Public Two-Year College	GPC SF Building	3251 Panthersville Road	\$81,000	AE
Private School	Learning Institute (The)	3900 Memorial College Ave.	\$243,300	0.2% Annual Chance
Wastewater Treatment Plant	Dekalb County-Snapfinger Creek WPCP	4124 Flakes Mill Rd	\$22,967,600	0.2% Annual Chance
Public Two-Year College	GPC SE Building	3251 Panthersville Road	\$77,760	0.2% Annual Chance
Police Station	Decatur Police Department	420 W Trinity Place	-	0.2% Annual Chance
Public Two-Year College	GPC SC Building	3251 Panthersville Road	\$12,096,000	0.2% Annual Chance

County Supplied Facilities

Facility Type	Facility Name	Address	Flood Zone
Park	Stoneview Park	850 Dunleith Court	AE with FW
Water & Waste Water Treatment	Snapfinger Plant, Water & Sewer	4124 Flakes Mill Road	AE with FW
Maintenance	Snapfinger Maint Shop W&S	4124 Flakes Mill Road	AE with FW
Administrative	Snapfinger Laboratory	4124 Flakes Mill Road	AE with FW
Recreation	Truelove Park/ Softball Complex	3510 Oakvale Road	AE with FW
Fire Station	Fire Station No. 24	4154 Redan Road	AE with FW
Park	Buena Vista Park	2300 McAfee Road	AE with FW
Park	Medlock Park	854 Galemond Road	AE with FW
Park	Shoal Creek Park II	3643 Glenwood Road	AE with FW
Park	Shoal Creek Park I	3642 Glenwood Road	AE with FW
Recreation	Medlock Pool	854 Galemont Road	AE
Park	Meadowdale Park	3569 Larkspur Road	AE
Park	Fisher Trail	2230 Fisher Trail	AE
Park	Longdale Park	1830 Longdale Drive	AE
Park	Washington Park	2830 Arborcrest	0.2% Annual Chance
Senior Center	North DeKalb Senior Center	3393 Malone Drive	0.2% Annual Chance
Health Center	Clifton Springs Health Center	3100 Clifton Springs Road	0.2% Annual Chance
Administrative	Fox Recovery Center	3110 Clifton Springs Road	0.2% Annual Chance

Chapter 4 – Risk and Vulnerability Assessment

Table 1. Building Footprint and Parcel Data

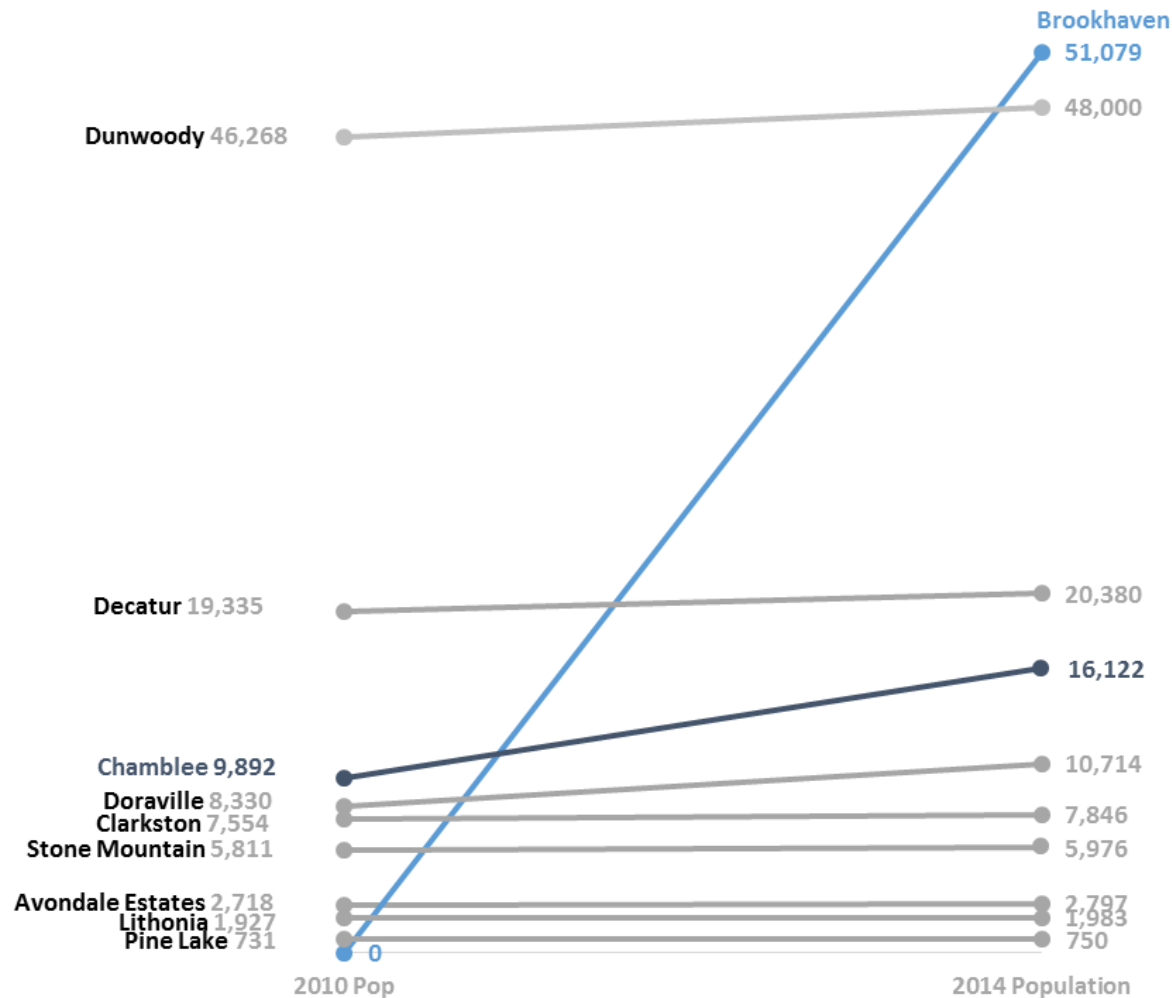
Municipality	Number of Building Footprints	Number of Parcels	Total Improvement Value
Avondale Estates	2,574	1,753	\$385,906,984
Brookhaven	22,200	14,297	\$6,290,786,516
Chamblee	10,901	6,784	\$2,603,733,739
Clarkston	2,499	1,288	\$201,815,902
Decatur	12,293	8,350	\$2,824,921,368
Doraville	5,616	3,055	\$950,918,011
Dunwoody	22,748	13,249	\$6,840,520,969
Lithonia	1189	730	\$51,711,363
Pine Lake	656	446	\$34,639,872
Stone Mountain	3,373	2,307	\$156,081,436
DeKalb County Unincorporated	296,615	170,672	\$26,753,237,549

Chapter 4 – Risk and Vulnerability Assessment

Existing Property Values by Land Use Type

Jurisdiction	Residential	Commercial	Other	Total
City of Avondale Estates	\$273,403,906	\$85,909,990	\$46,818,863	\$406,132,758
City of Chamblee	\$994,713,806	\$1,145,995,678	\$481,169,723	\$2,621,879,207
City of Clarkston	\$393,038,143	\$65,678,442	\$34,287,186	\$493,003,770
City of Decatur	\$1,888,051,671	\$800,034,443	\$461,850,591	\$3,149,936,704
City of Doraville	\$563,559,474	\$488,890,547	\$158,207,940	\$1,210,657,961
City of Dunwoody	\$4,878,595,168	\$1,945,996,659	\$750,651,222	\$7,575,243,048
City of Lithonia	\$136,921,482	\$64,664,926	\$31,338,845	\$232,925,253
City of Pine Lake	\$76,401,235	\$9,755,277	\$11,759,524	\$97,916,036
City of Stone Mountain	\$460,981,874	\$132,120,573	\$56,783,394	\$649,885,841
DeKalb County Unincorporated Areas	\$46,559,700,000	\$13,669,500,000	\$6,946,843,169	\$67,176,000,000
Countywide Total	\$56,225,366,759	\$18,408,546,535	\$8,979,710,457	\$83,613,580,578

Population Changes within DeKalb Municipalities (2010 to Estimated 2014 Values)



Risk and Vulnerability Assessment

Flood Hazard



Risk and Vulnerability Assessment

Flood Hazard

Table 16. Flood Building Footprint Analysis Building and Content Loss

Municipality	Number of Building Footprints	100- year Flood Event Building Loss	100- year Flood Event Contents Loss	500- year Flood Event Building Loss	500- year Flood Event Contents Loss
Avondale Estates	2,574	\$0	\$0	\$27,290	\$9,097
Brookhaven	22,200	\$17,143,323	\$20,787,532	\$13,141,810	\$16,898,912
Chamblee	10,901	\$847,438	\$2,240,144	\$107,088	\$190,139
Clarkston	2,499	\$2,704,163	\$1,625,884	\$2,466,088	\$1,410,553
Decatur	12,293	\$23,535	\$7,845	\$0	\$0
Doraville	5,616	\$126,033	\$323,434	\$149,336	\$853,682
Dunwoody	22,748	\$0	\$0	\$0	\$0
Lithonia	1189	\$0	\$0	\$0	\$0
Pine Lake	656	\$0	\$0	\$115,733	\$453,985
Stone Mountain	3,373	\$0	\$0	\$288,577	\$133,091
DeKalb County Unincorporated	296,615	\$22,948,681	\$24,871,785	\$25,294,816	\$29,302,792
Total		\$43,793,173	\$49,856,624	\$41,590,739	\$49,252,252

Risk and Vulnerability Assessment

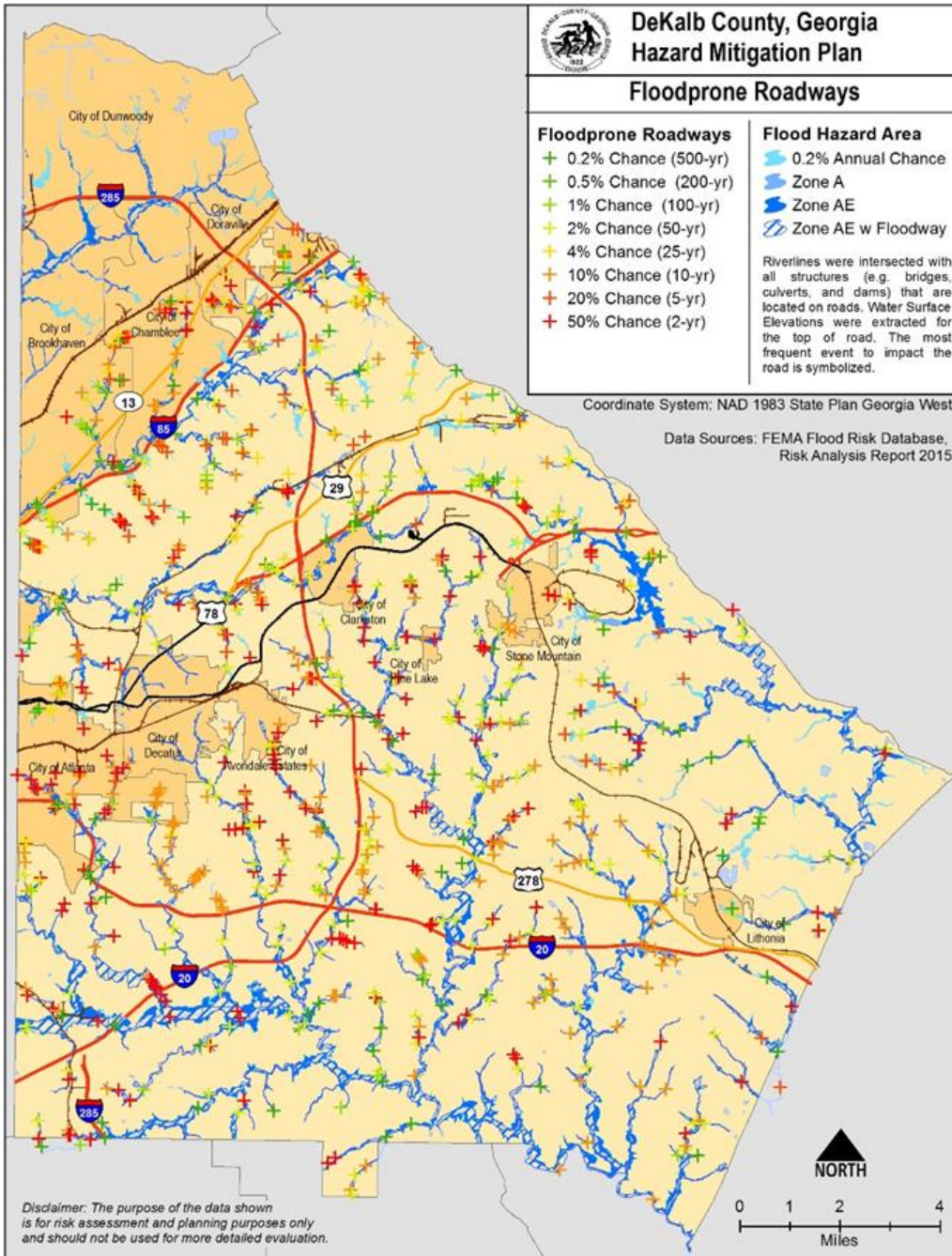
Flood Hazard

Table 12: Floodprone Roadways by Recurrence Interval

Municipality	50% Chance Event (2-yr)	20% Chance Event (5-yr)	10% Chance Event (10-yr)	4% Chance Event (25-yr)	2% Chance Event (50-yr)	1% Chance Event (100-yr)	0.5% Chance Event (200-yr)	0.2% Chance Event (500-yr)	Unassigned Frequency	Grand Total
Atlanta	16	1	13	3	1	4	1	3	1	43
Avondale Estates	2		1		1					4
Brookhaven	2	2	3	4	1	4	5	3	1	25
Chamblee	7	5	7	4		1		4		28
Clarkston	3		1	2	1			6		13
Decatur			1							1
Doraville	5	8		3	1	1	2			20
Lithonia					1			1		2
Pine Lake	1		1							2
Stone Mountain	2		2		1					5
DeKalb County Unincorporated	155	64	172	47	130	47	15	75	50	755
Grand Total	193	80	201	63	137	57	23	92	52	898

Risk and Vulnerability Assessment

Flood Hazard



Streams with the highest number of floodprone roadway structures include:

- Snapfinger (24 floodprone structures)
- NFPC Main (20 floodprone structures)
- SM Creek (18 floodprone structures)
- Sugar Sugar (18 floodprone structures)
- NFPC TA Main (15 floodprone structures)
- Pole Bridge Creek (15 floodprone structures)

Risk and Vulnerability Assessment Flood Hazard

Table 13: NFIP Policy and Claim Information

Community Name	Policy Statistics (as of 9/2015)			Claim Statistics (as of 9/2015)	
	Policies In-Force	Total Coverage	Total Premium	Total Claims since 1978	Total Paid since 1978
De Kalb County	1,458	\$ 688,651,300	\$ 2,380,846	1,250	\$ 20,147,568
Avondale Estates	9	\$ 2,870,000	\$ 4,357	0	\$0
Brookhaven	--	--	--	--	--
Chamblee	43	\$ 9,760,900	\$ 46,531	21	\$ 161,988
Clarkston	12	\$ 1,473,500	\$ 7,798	4	\$ 11,042
Decatur	233	\$ 45,595,700	\$ 186,224	142	\$ 1,041,197
Doraville	49	\$ 12,290,800	\$ 53,090	8	\$ 141,644
Dunwoody	110	\$ 28,774,400	\$ 52,713	0	\$0
Lithonia	--	--	--	--	--
Pine Lake	11	\$ 2,572,200	\$ 6,600	9	\$ 129,427
Stone Mountain	16	\$ 3,871,800	\$ 9,838	17	\$ 417,293
Total	1,941	795,860,600	2,747,997	1,451	22,050,159



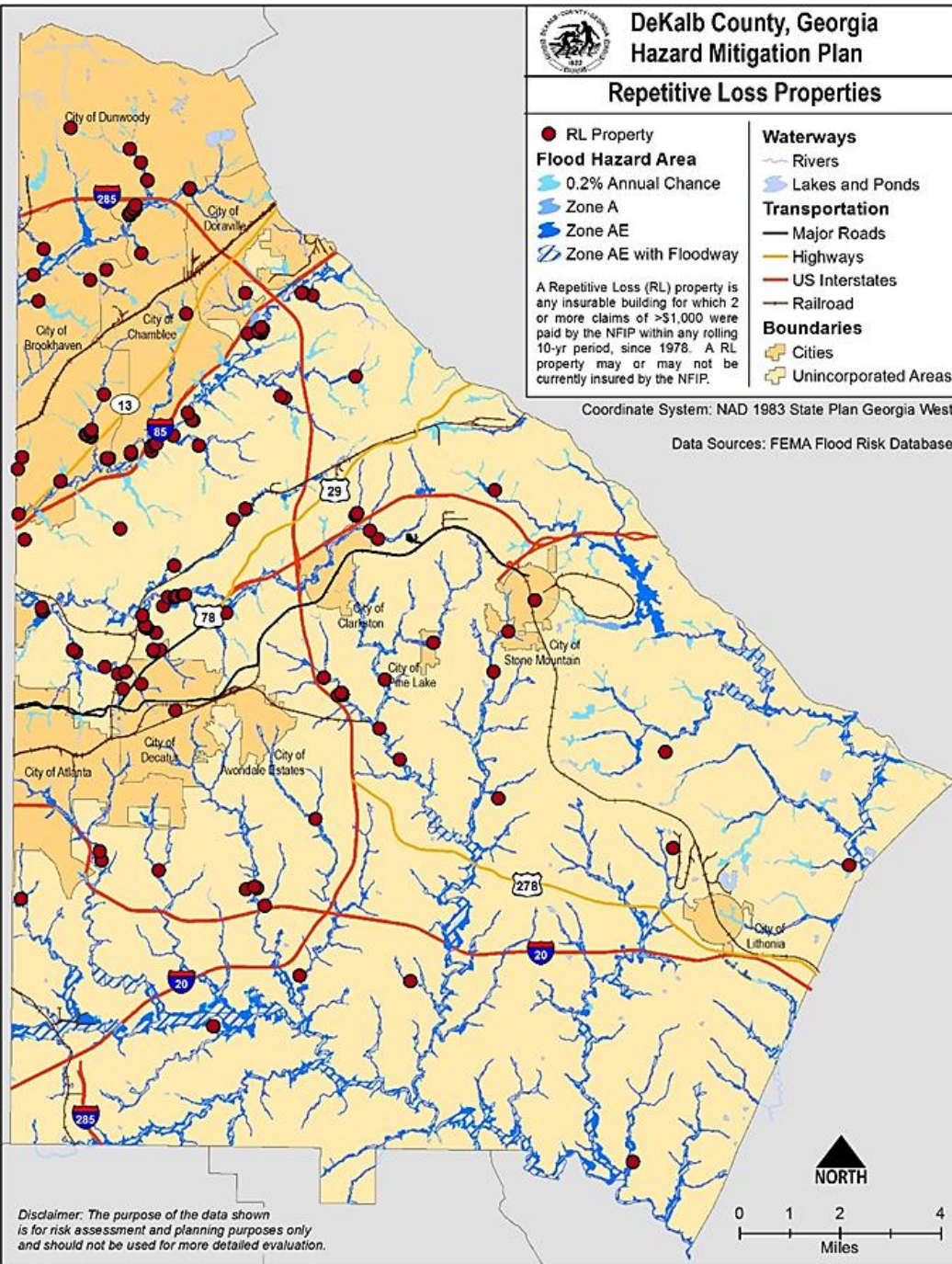
DeKalb County, Georgia Hazard Mitigation Plan

Repetitive Loss Properties

- RL Property
 - Flood Hazard Area**
 - 0.2% Annual Chance
 - Zone A
 - Zone AE
 - Zone AE with Floodway
 - Waterways**
 - Rivers
 - Lakes and Ponds
 - Transportation**
 - Major Roads
 - Highways
 - US Interstates
 - Railroad
 - Boundaries**
 - Cities
 - Unincorporated Areas
- A Repetitive Loss (RL) property is any insurable building for which 2 or more claims of >\$1,000 were paid by the NFIP within any rolling 10-yr period, since 1978. A RL property may or may not be currently insured by the NFIP.

Coordinate System: NAD 1983 State Plan Georgia West

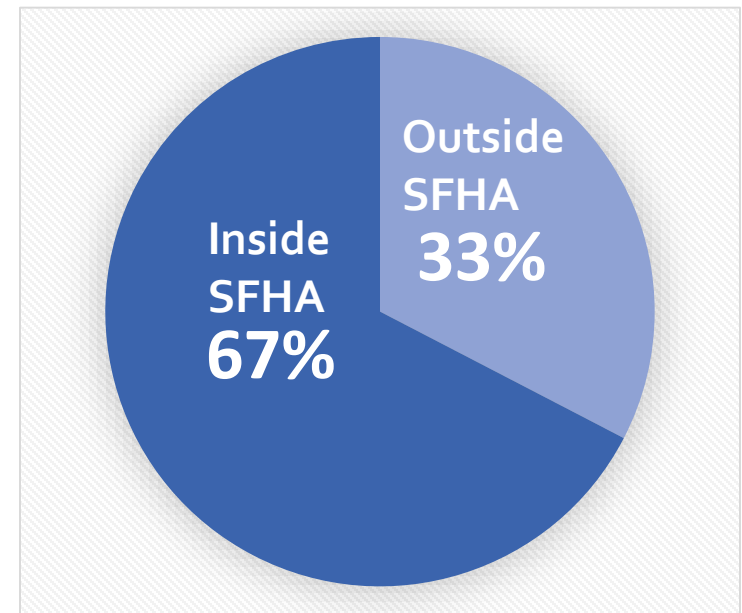
Data Sources: FEMA Flood Risk Database



Risk and Vulnerability Assessment Flood Hazard

Repetitive Loss Information
279 Properties Countywide

Location of Repetitive Loss Properties Relative to the Special Flood Hazard Area (SFHA)



Risk and Vulnerability Assessment Flood Hazard

Table 14: Repetitive Losses and Claims within Zones BCX

Community Name	Number of Repetitive Losses	Number of Claims in BCX Zones	Total Area Population	LOMCs
De Kalb County	214	72	660,000	801
Avondale Estates	--	--	--	--
Brookhaven	0	0	7,231	9
Chamblee	19	7	10,000	23
Clarkston	--	--	--	--
Decatur	35	8	18,127	55
Doraville	2	2	9,039	33
Dunwoody	--	--	--	--
Lithonia	0	0	2,200	10
Pine Lake	3	0	901	3
Stone Mountain	6	2	6,494	14
Total	279	91	713,992	948

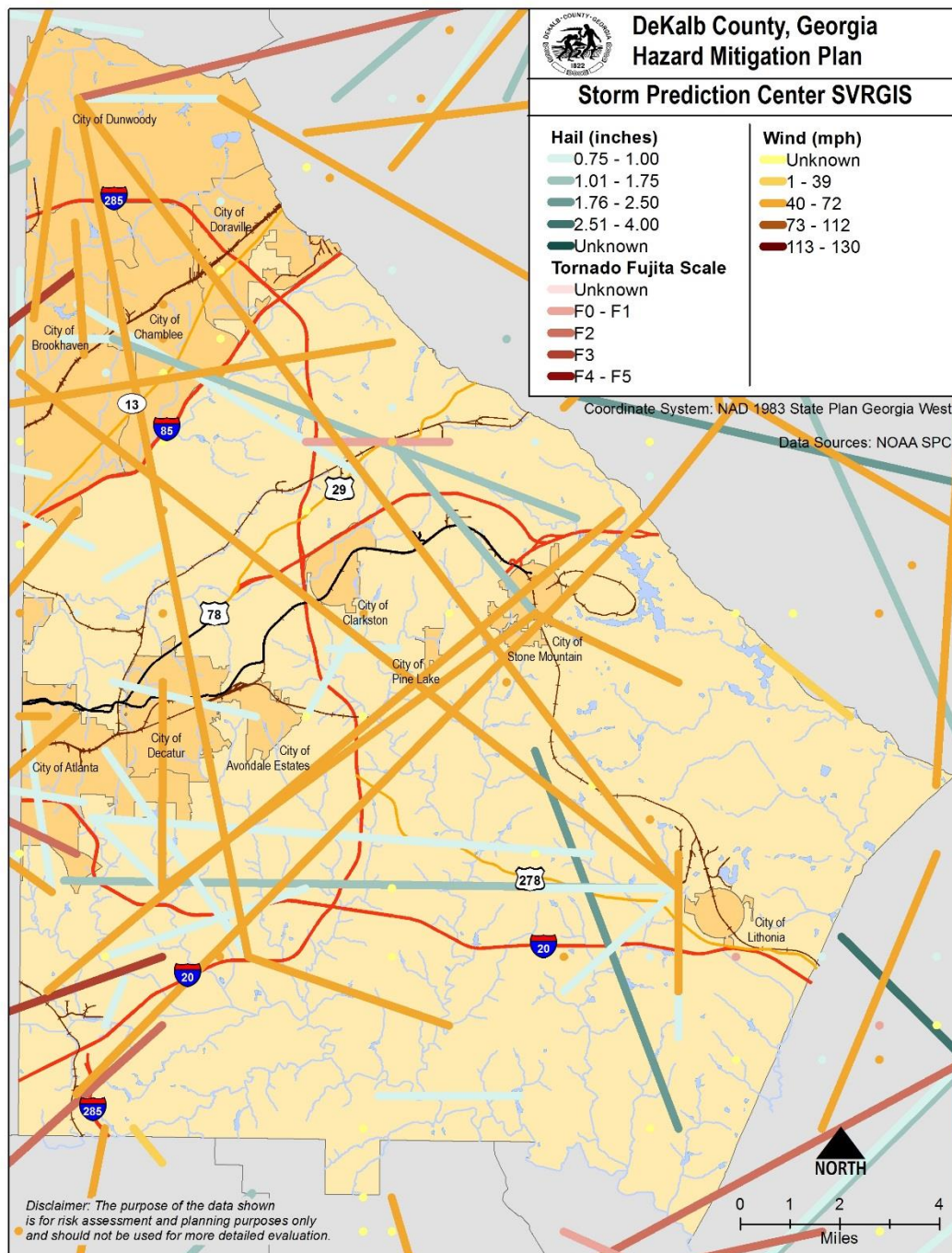
Risk and Vulnerability Assessment

Wind Hazard



Risk and Vulnerability Assessment

Wind Hazard



Risk and Vulnerability Assessment Wind Hazard

Table 13: Wind related Hazard Rankings

Hazard	Probability	Impact			Hazard Planning Consideration 2011	Hazard Planning Consideration 2016
		Affected Area	Primary Impact	Secondary Impacts		
WIND (STRAIGHTLINE)	Highly Likely > 1/100 or 1% annual occurrence	Large > 25% of community impacted	Limited 10% to 25% of facility damage	Moderate Some loss of function, downtime, and/or evacuations	Significant	Significant
TORNADO	Highly Likely > 1/100 or 1% annual occurrence	Isolated < 1% of community impacted	Critical 25% to 50% of facility damage	Moderate Some loss of function, downtime, and/or evacuations	Moderate	Significant
THUNDERSTORMS /LIGHTNING	Highly Likely > 1/100 or 1% annual occurrence	Isolated < 1% of community impacted	Limited 1% to 10% of facility damage	Negligible No loss of function, downtime, and/or evacuations	Limited	Moderate
HURRICANE	Likely 1/1000 to 1/100 or 0.1% to 1% annual	Medium 5% to 25% of community impacted	Critical 25% to 50% of facility damage	High Major loss of function, downtime, and/or evacuations	Moderate	Moderate

Table 27: NCDC annualized events and damages.

Hazard	Period of Record	Annualized Events	Annualized Property Damage	Annualized Crop Damage
Wind	1955-2015	2.737704918	\$36,761.56	\$0
Hail	1955-2015	1.852459016	\$285,244.48	\$0
Lightning	1993-2015	0.652173913	\$49,254.97	\$0
Hurricane	1955-2015	0.229508197	\$0.00	\$0
Tornado	1950-2015	0.136363636	\$778,263.36	\$0

Risk and Vulnerability Assessment

Winter Storm Hazard



Risk and Vulnerability Assessment

Winter Storm Hazard

Table 28: Winter Storm Hazard Ranking

Probability	Impact			Hazard Planning Consideration 2011	Hazard Planning Consideration 2016
	Affected Area	Primary Impact	Secondary Impacts		
Likely 1/1000 to 1/100 or 0.1% to 1% annual	Large > 25% of community impacted	Negligible < 10% of facility damage	Moderate Some loss of function, downtime, and/or	Moderate	Significant

Table 29: NCDC annualized events and damages.

Hazard	Period of Record	Annualized Events	Annualized Property Damage	Annualized Crop Damage
Winter Weather	1993-2015	0.956521739	\$26,591.32	\$0
Ice Storm	1993-2015	0.217391304	\$61,336.73	\$0

Risk and Vulnerability Assessment

Fire Hazard





DeKalb County, Georgia Hazard Mitigation Plan

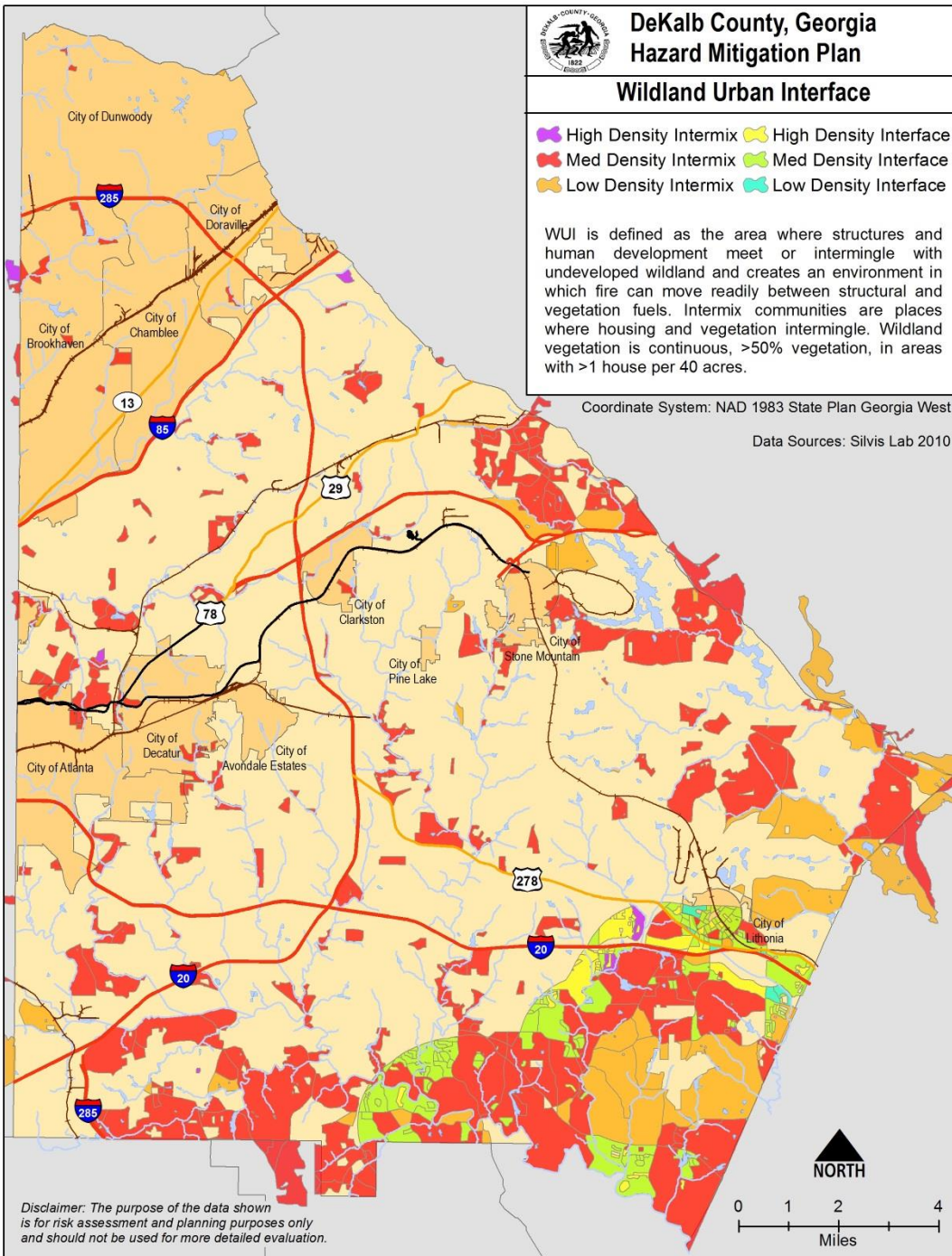
Wildland Urban Interface

- High Density Intermix
- Med Density Intermix
- Low Density Intermix
- High Density Interface
- Med Density Interface
- Low Density Interface

WUI is defined as the area where structures and human development meet or intermingle with undeveloped wildland and creates an environment in which fire can move readily between structural and vegetation fuels. Intermix communities are places where housing and vegetation intermingle. Wildland vegetation is continuous, >50% vegetation, in areas with >1 house per 40 acres.

Coordinate System: NAD 1983 State Plan Georgia West

Data Sources: Silvix Lab 2010



Disclaimer: The purpose of the data shown is for risk assessment and planning purposes only and should not be used for more detailed evaluation.

Risk and Vulnerability Assessment Fire Hazard

- Fire statistics provided by Chief Norman Augustin
- Wildfire Plan underway

Chapter 5 – Goals, Objectives, and Actions

Chapter	Section	Content
5		Risk Assessment
	5.1	Overview
	5.2	Regional Considerations
	5.3	DeKalb County Overarching Mitigation Plan
	5.4	City of Avondale Estates
	5.5	City of Brookhaven
	5.6	City of Chamblee
	5.7	City of Clarkston
	5.8	City of Decatur
	5.9	City of Doraville
	5.10	City of Dunwoody
	5.11	City of Lithonia
	5.12	City of Pine Lake
	5.13	City of Stone Mountain

For each community:

Capabilities Assessment

- Existing Plans, Policies, and Ordinances
- Administrative and Technical Capacity
 - Legal and Regulatory Capability
 - Fiscal Resources and Capability

Goals, Objectives and Actions

- Mitigation Goal(s)
- Mitigation Objective(s)
- Prioritization and Implementation of Mitigation Action Items

Chapter 5 – Goals, Objectives, and Actions

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.

Chapter 5 – Goals, Objectives, and Actions

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.

Chapter 5 – Goals, Objectives, and Actions

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.

Chapter 5 – Goals, Objectives, and Actions

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.

Chapter 5 – Goals, Objectives, and Actions

2010/2011 Plan Actions – 78 Total

Hazard Mitigated	Count	Very High Priority
Dam	1	0 (all medium)
Drought	3	0 (all medium)
Earthquake	2	0 (all low)
Extreme Heat	2	0 (all medium)
Flood	71	17
General	11	3
Lightning	3	0 (1 high)
Wildfire	5	2
Wind	9	2
Winter Storm	6	1

Chapter 6 – Plan Maintenance

Chapter	Section	Content
6		Plan Maintenance
	6.1	Monitoring, Evaluating, and Updating the Plan
	6.1.1	Plan Monitoring <i>(Yearly)</i>
	6.1.2	Plan Evaluation <i>(Every 2 Years)</i>
	6.1.3	Plan Update <i>(Every 5 Years)</i>
	6.1.4	Implementation through Existing Programs
	6.1.5	Continued Public Involvement
	6.1.6	Increased Stakeholder Involvement <i>(Twice per Year by MAC or LPG)</i>

Break

Time to check email, status updates, tweets, etc

Public Participation

Input for the Plan & Comments on the Draft

Public Survey – 91 Responses

campaign.r20.constantcontact.com/render?ca=2675632e-e3b8-4532-936e-57cdfae1b9d9

Having trouble viewing this email? [Click here](#)



DeKalb Emergency Management Agency Seeks Public Input

The DeKalb Emergency Management Agency ([DEMA](#)) is re-visiting its five-year All Hazards Mitigation Plan.

Input from citizens is welcomed, as it ensures an accurate depiction of potential dangers faced by residents countywide and how DeKalb can proactively address these issues.

Click [here](#) to take the 10-minute survey.

Are you Following DeKalb County on Twitter?

For the latest County news and updates, follow us at [@ItsInDeKalb](#).

Join Us at the 2015 Neighborhood Summit

MAC Homework

Activities to work on until next milestone meeting

What To Do Before Next Meeting

- Provide any plans and staff information to support a capabilities assessment
- Get access to the project sharepoint
- Reach out to other potential MAC members
- Work with your communications or PIO representative for how to interact with public

MAC Sharepoint for Coordination

Site Actions Browse Page Chris Zambito

DeKalbHMP2015 > Home

Home Search this site...

Libraries
Site Pages
Shared Documents

Lists
Calendar
Tasks

Discussions
Team Discussion

Recycle Bin
All Site Content

Welcome to the DeKalb Hazard Mitigation Plan 2015 Update Site

This is the home page for where we will save project documents and contact lists for the project over the next year.

Shared Documents

Type	Name
	2011 DeKalb Plan Documents
	MAC_Kickoff_072214
	PLAN REVIEW GUIDE FINAL_9-30-11

Add document

Shared Documents

<input type="checkbox"/>	Type	Name	Modified
		DeKalb Co GA APA-DR Letter 03-22-11	1/27/2015 10:08 AM
		DeKalb_Crosswalk_3_04_2011_updated	1/27/2015 10:08 AM
		DeKalbAdoption_3_22_11	1/27/2015 10:07 AM
		DeKalbHMP_Update_03_21_2011	1/27/2015 10:09 AM

Next Steps

Milestones for rest of the project

Rest of the Process

- Schedule meeting to review risk assessment and reach consensus on goals and objectives
- May want to present results to public via a meeting or online with an opportunity for comment
- Develop and agree on any mitigation actions
- Develop draft plan, receive comments, revise
- Hold 2nd public outreach meeting
- Submit to GEMA for approval (revise if necessary)
- Adopt DeKalb HMP (County and Municipalities)
- Coordinate with FEMA on update to DeKalb HMP

THE END

DEKALB HAZARD MITIGATION PLAN – MAC MEETING #2 - MEETING AGENDA

Date: September 9, 2015

Time: Change the time: 10:00am – 11:45am

Location: DeKalb Fire Rescue; 1st Floor Classroom; 1950 W. Exchange Place; Tucker, GA, 30084

Meeting Leads: Denise Porter, Chris Zambito

Purpose: Project Status and Plan Goal Setting

Attendees: DeKalb Mitigation Advisory Committee (MAC) participants

Agenda Items

10:00 A.M. – 10:10 A.M.	INTRODUCTION AND WELCOME	Denise Porter
10:10 A.M. – 11:40 A.M.	PROGRESS TO DATE AND GOAL SETTING	Chris Zambito
30 minutes	HAZARD ID AND RISK ASSESSMENT	Chris Zambito
15 minutes	FEEDBACK FROM CITIES AND PUBLIC Survey results and capability assessment meetings	Chris Zambito
30 minutes	GOALS, OBJECTIVES, AND ACTIONS Review existing language and provide new direction, if necessary	Chris Zambito
15 minutes	REMAINING SCHEDULE Incorporate changes and review drafts	Chris Zambito
11:40 A.M. – 11:45 A.M	CLOSING Any remaining questions and suggestions for next meeting	Denise Porter



DEKALB COUNTY EMERGENCY MANAGEMENT AGENCY (DEMA)

HAZARD MITIGATION PLAN KICKOFF
Stonecrest Library Lithonia GA

SIGN IN SHEET

Meeting: Hazard Mitigation Plan Meeting

Date: ⁰⁹02/10/15 Time: 1:00 pm - 4:00 pm

	Name:	Agency	Contact #	Email address	Time In	Time Out
1	D.M. Porter ✓	DEMA DeKalb		dporter@dellabearcountyga.gov	12:46	
2	Araya D. Araya	DeKalb GIS	404-371-2189	Araya@dekalbcountyga.gov	12:56	
3	Toni Washington	Decatur Fire	678-553-6582	toni.washington@decaturga.com	12:57	
4	OLIVER FLADRICH	Dunwoody Police	678-491-6559	oliver.fladrich@dunwoodyga.gov	12:57	
5	RHONDA JOYNER	DeKalb GIS	404-687-2715	R RASOYNER@dekalbcountyga.gov	1:01	
6	Brian Shom	DeKalb Flood	404 371 2012	bshom@dekalbcountyga.gov	1:03	
7	REGINALD ANDERSON	CITY OF CHAMBLEE	770 986-5019	rander@chambleega.gov	1:06	
8	CD Atkinson	CITY OF DORAVILLE PD	(770) 455-1000	CHUCK.ATKINSON@DORAVILLEGA.US	12:55	
9	Bennett White	City of Brookhaven	404 637 0576	bennett.white@brookhavenga.gov	1:10	
10	Chris Zambito	Dewberry	813 421-8639	C.Zambito@dewberry.com	12:45	
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

Print

Sign

Email

Decatur

STEPHANIE BURTON

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Toni Washington

Toni Washington

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Justin M. Young

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DONALD CHASE

D. Chase

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CFM

Seth Yurman

Seth Yurman

seth.yurman@brookhavenga.gov

CES Coordinator

Bennett White

Bennett White

bennett.white@brookhavenga.gov

Dunwoody

Michael Smith

Michael Smith

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OLIVER FLADRICH

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Chamblee

Jim Summerbell

Jim Summerbell

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REGINALD ANDERSON

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Danny Williams

D. Williams

dwilliams@chambleega.gov

Jennifer Rackley

J. Rackley

jrackley@chambleega.gov



DEKALB COUNTY EMERGENCY MANAGEMENT AGENCY (DEMA)

HAZARD MITIGATION CAPABILITIES ASSESSMENT FOR DEKALB COUNTY

SIGN IN SHEET

Meeting: Hazard Mitigation Capabilites Assessment for DeKalb County

Date: 08/12/15 **Time:** 1:30 pm - 2:30 pm

C2

	Name:	Agency	Contact #	Email address
1	D. M. Parker	EMA	7-724-7572	dmparker@dekalbcountyga.gov
2	Antoinette Williams	Police	7-724-7989	alwilliams1@dekalbcountyga.gov
3	RHONDA JOYNER	GIS	404-687-2715	RAJOYNER@DEKALBCOUNTYGA.GOV
4	J. McWhorter	DEMA	678-406-7822	jhmcwhor@dekalbcountyga.gov
5	Brian Snow	Flood (Roads + Drainage)	404 371-2012	bsnow@dekalbcountyga.gov
6	Chris Zambito	Dewberry	813 421-8639	CZambito@dewberry.com
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Participation by Adjacent Communities

DeKalb County Hazard Mitigation Plan Review to other jurisdictions - Message (HTML)

FILE MESSAGE MIMECAST ATTACHMENT TOOLS ATTACHMENTS

File name: DeKalb County multi-jurisdictional hazard mitigation plan
Size: 8 KB
Last changed: Tuesday, August 30, 2016

Message

- DeKalb County multi-jurisdictional hazard mitigation plan (8 KB)
- DeKalb County multi-jurisdictional hazard mitigation plan (8 KB)
- FW: DeKalb County multi-jurisdictional hazard mitigation plan (9 KB)
- Automatic reply: DeKalb County multi-jurisdictional hazard mitigation plan (20 KB)

Tue 8/30/2016 11:52 AM

Porter, Denise M. <DMPorter@dekalbcountyga.gov>
DeKalb County multi-jurisdictional hazard mitigation plan

To: gregory.swanson@gwinnettkcounty.com

DeKalb County is in the process of updating its multi-jurisdictional hazard mitigation plan. This version of the plan updates the communities' vulnerabilities to natural hazards, revises strategies and capabilities for reducing those vulnerabilities, and ensures that the County remains compliant with Georgia Emergency Management Agency and Federal Emergency Management Agency guidance in order to stay eligible for federal disaster funding. The plan is available for review at the following location:

<ftp://ftp.dewberry.com/DeKalbHMP/Resubmittal081916/>
Login: bmassey
Password: R2Q88U (case-sensitive)

The FTP site will automatically clear files after 5 days if not accessed.

Please contact Denise Porter at (dmpor@dekalbcountyga.gov) with any comments regarding the plan. Thanks for your participation in the planning process.

Respectfully,

Captain D. M. Porter
DeKalb Emergency Management Agency
1950 W. Exchange Place
Tucker, GA 30084
Office: (770) 724-7572
Email: dmpor@dekalbcountyga.gov

Denise Porter Change on the contact list

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Tue 8/30/2016 11:52 AM

Porter, Denise M. <DMPorter@dekalbcountyga.gov>
DeKalb County multi-jurisdictional hazard mitigation plan

To: matthew.kallmyer@fultoncountyga.gov

Greetings,

DeKalb County is in the process of updating its multi-jurisdictional hazard mitigation plan. This version of the plan updates the communities' vulnerabilities to natural hazards, revises strategies and capabilities for reducing those vulnerabilities, and ensures that the County remains compliant with Georgia Emergency Management Agency and Federal Emergency Management Agency guidance in order to stay eligible for federal disaster funding. The plan is available for review at the following location:

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Office: (770) 724-7572

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Participation by Adjacent Communities

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Tue 8/30/2016 11:54 AM

Porter, Denise M. <DMPorter@dekalbcountyga.gov>
DeKalb County multi-jurisdictional hazard mitigation plan

To: sbroomfield@co.henry.ga.us

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Respectfully,

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DeKalb Emergency Management Agency
1950 W. Exchange Place
Tucker, GA 30084
Office: (770) 724-7572
Email: dmpporter@dekalbcountyga.gov

Denise Porter Change on the contact list

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DeKalb County multi-jurisdictional hazard mitigation plan (8 KB)
DeKalb County multi-jurisdictional hazard mitigation plan (8 KB)

Tue 8/30/2016 11:56 AM

Porter, Denise M. <DMPorter@dekalbcountyga.gov>
DeKalb County multi-jurisdictional hazard mitigation plan

To: Dan.morgan@rockdalecountyga.gov

DeKalb County is in the process of updating its multi-jurisdictional hazard mitigation plan. This version of the plan updates the communities' vulnerabilities to natural hazards, revises strategies and capabilities for reducing those vulnerabilities, and ensures that the County remains compliant with Georgia Emergency Management Agency and Federal Emergency Management Agency guidance in order to stay eligible for federal disaster funding. The plan is available for review at the following location:

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Respectfully,

Captain D. M. Porter
DeKalb Emergency Management Agency
1950 W. Exchange Place
Tucker, GA 30084
Office: (770) 724-7572
Email: dmpporter@dekalbcountyga.gov

Denise Porter Change on the contact list

Planning by Adjacent Communities

ATTACHMENT TOOLS


DeKalb County Hazard Mitigation Plan Review to other jurisdictions - Message (HTML)

FILEMESSAGEMIMECASTATTACHMENTS

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Size: 7 KB
Last changed: Tuesday, August 30, 2016

Message

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- DeKalb County multi-jurisdictional hazard mitigation plan (8 KB)
- DeKalb County multi-jurisdictional hazard mitigation plan (8 KB)
- DeKalb County multi-jurisdictional hazard mitigation plan (8 KB)



Tue 8/30/2016 12:00 PM

Porter, Denise M. <DMPorter@dekalbcountyga.gov>

DeKalb County multi-jurisdictional hazard mitigation plan

To dash@co.henry.ga.us

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Respectfully,

Captain D. M. Porter
DeKalb Emergency Management Agency
1950 W. Exchange Place
Tucker, GA 30084
Office: (770) 724-7572
Email: dmporter@dekalbcountyga.gov

Denise Porter Change on the contact list



SECTION 3 COMMUNITY PROFILES

Significant Changes to this Section from Previous Plan

The “Community Profiles” was previously part of the introductory section and is now its own section within the countywide plan. DeKalb County now has ten incorporated cities as opposed to nine in the previous plan (As of November 2015, the new City of Tucker was incorporated making it 11 cities, but only the 10 municipalities incorporated during the planning process were covered under this Countywide Plan Update). A new city, Brookhaven, was incorporated in 2012 (note that in the previous plan update, another city, Dunwoody, had been incorporated in 2008). The countywide population has increased from an estimated 691,893 in 2010 to an estimated 722,161 residents in 2014 (latest estimate available). Each of the incorporated cities indicated a slight population increase since the 2011 plan, however the unincorporated county population has decreased by 5% due to the incorporation of Brookhaven as well as large annexations in Doraville and Chamblee. Employment and demographic data has been updated to the most current resources available. No major changes to land use were reported, although there are continuous, significant annexations occurring for multiple cities. A description and map of the critical facilities is also presented within this section as they are considered assets of the communities.

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.

DeKalb County has been greatly influenced by the growth of the Atlanta metropolitan area because of its close proximity to Fulton County and Atlanta. 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. Figure 1 shows the base map features for DeKalb County.

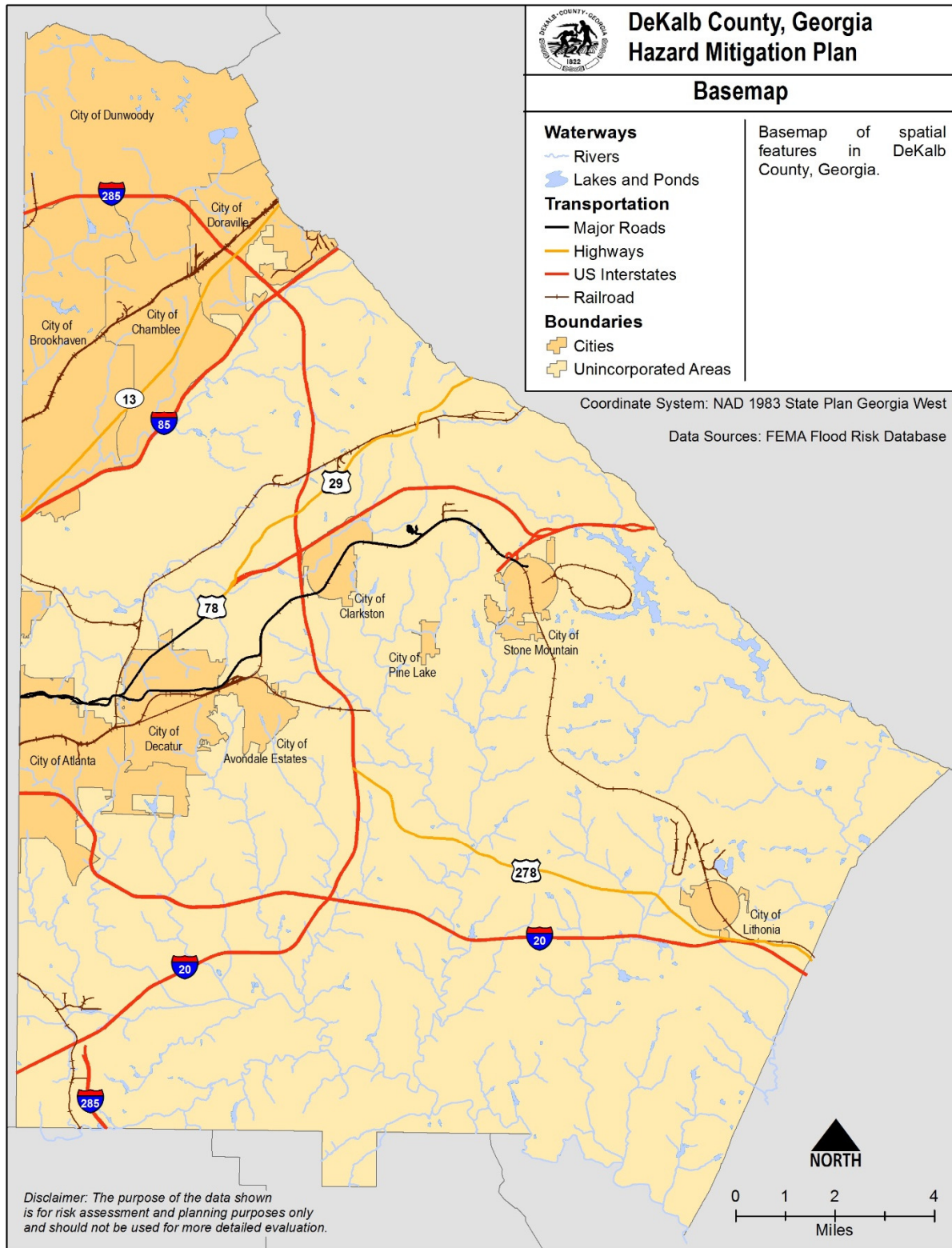


Figure 1: DeKalb County Basemap

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.

Employment

In 2012, the professional and business services industry was the largest employment sector in the county. However, the education and health services sector is the fastest growing per the County's 2014 Comprehensive Economic Development Strategy¹. According to the Bureau of Labor Statistics, DeKalb County's unemployment rate is similar to the state and national average as of December 2015 (5.2% compared to 5.2% at the state level and 4.8% nationally), DeKalb County had a higher than average median household income in 2014, at \$50,799 (compared to \$49,342 and \$53,482 statewide and nationally). More DeKalb residents lived below the poverty level during these years compared to the rest of the country. In 2014, 20.4% of the county's population lived below the poverty level, compared to Georgia's rate of 18.3% and the national rate of 14.8%, although the US Census data indicates that it is not best to compare results across different geographies as the sampling error estimates vary and information utilized to create the estimate involve different geographical basis.

3.1.2 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

¹ Information obtained from the DeKalb County Market Assessment as part of the Comprehensive Economic Development Strategy http://www.co.dekalb.ga.us/pdf/2014_02_17_dekalb_county_market_assessment_report.pdf.

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.

Annual average precipitation in the region is 51.6 inches, with an additional 1 inch of average annual snowfall. The average precipitation distribution throughout the year in this region ranges from 3.4 inches in October to nearly 5.3 inches in July (<https://weather.com/weather/monthly/l/30030>). The highest monthly average high temperature of 89 degrees Fahrenheit occurs in July, while the lowest monthly average low of 34 degrees Fahrenheit occurs in January.

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 (refer to the risk assessment in Appendix 4 for mapped floodplains and streams).

3.1.3 Assets, Critical Facilities and Infrastructure

As part of the April 2015 Risk Analysis Report created for DeKalb County as part of FEMA's Risk MAP program, building footprints were updated using aerial imagery and impervious surface data. Additional building footprints were digitized and added where not depicted on the building footprint layer. Table 1 summarizes the number of building footprints for each locality and the parcel improvement value totals. There are 296,615 buildings located within the county, while the largest amount of municipal buildings are within Dunwoody (22,748 buildings) and Brookhaven (22,200 buildings).

Table 2 summarizes the building exposure for each municipality by building type. DeKalb County has a total of \$67 billion in building value exposure, of which \$46.5 billion is classified as residential and \$13.6 billion as commercial. The City of Dunwoody has \$7.5 billion in exposure, with \$4.8 billion classified as residential and \$1.9 billion as commercial. As shown, the City of Brookhaven has been included as part of the unincorporated county total due to when the analysis was completed and the changing municipal boundaries.

Table 1. Building Footprint and Parcel Data (Source RiskMAP)

Municipality	Number of Parcels	Parcel Total Appraisal	Number of Building Footprints
Avondale Estates	1,753	\$385,906,984	2,574
Brookhaven	14,297	\$6,290,786,516	22,200
Chamblee	6,784	\$2,603,733,739	10,901
Clarkston	1,288	\$201,815,902	2,499

Municipality	Number of Parcels	Parcel Total Appraisal	Number of Building Footprints
Decatur	8,350	\$2,824,921,368	12,293
Doraville	3,055	\$950,918,011	5,616
Dunwoody	13,249	\$6,840,520,969	22,748
Lithonia	730	\$51,711,363	1189
Pine Lake	446	\$34,639,872	656
Stone Mountain	2,307	\$156,081,436	3,373
DeKalb County Unincorporated	170,672	\$26,753,237,549	296,615

Table 2. Building type exposure (source: RiskMAP)

Jurisdiction	Residential	Commercial	Other	Total
City of Avondale Estates	\$273,403,906	\$85,909,990	\$46,818,863	\$406,132,758
City of Brookhaven	*	*	*	*
City of Chamblee	\$994,713,806	\$1,145,995,678	\$481,169,723	\$2,621,879,207
City of Clarkston	\$393,038,143	\$65,678,442	\$34,287,186	\$493,003,770
City of Decatur	\$1,888,051,671	\$800,034,443	\$461,850,591	\$3,149,936,704
City of Doraville	\$563,559,474	\$488,890,547	\$158,207,940	\$1,210,657,961
City of Dunwoody	\$4,878,595,168	\$1,945,996,659	\$750,651,222	\$7,575,243,048
City of Lithonia	\$136,921,482	\$64,664,926	\$31,338,845	\$232,925,253
City of Pine Lake	\$76,401,235	\$9,755,277	\$11,759,524	\$97,916,036
City of Stone Mountain	\$460,981,874	\$132,120,573	\$56,783,394	\$649,885,841
DeKalb County Unincorporated Areas	\$46,559,700,000	\$13,669,500,000	\$6,946,843,169	\$67,176,000,000

* Due to when the analysis was completed and the changing municipal boundaries, the City of Brookhaven is included in the Unincorporated County totals.

A list of critical community facilities were provided by the MAC for the 2016 plan update. The critical assets provided included 445 facilities that were geocoded and mapped. Airports and schools were supplemented using Risk MAP products. Figure 2 shows the location and general facility type. The majority of the facilities provided for this update are classified as parks, followed by recreation facilities. There are 169 schools within the county, 28 fire stations, 13 police stations, and 10 health care facilities. Table 3 shows the critical facilities within each municipality. DeKalb County has 341 critical facilities, followed by Dunwoody with 38 and Decatur with 24 facilities.

Table 3. Critical facilities by municipality

Facility Type	DeKalb	Avondale Estates	Brookhaven	Chamblee	Clarkston	Decatur	Doraville	Dunwoody	Lithonia	Pine Lake	Stone Mountain
Administrative	11					3	1				
Animal Control	2										
Farm	1										
Fire Station	20	1	1	1	1			3			1
Firing Range	2										
Fleet Maintenance	10										
Government	7		1	1		2					
Health Center	5		1	1							
Library	13			1	1	1		1	2		1
Maintenance	12					2			1		
Park	53		1	1				1	2		
Parking						2					
Police Station & Support Buildings	10					1			2		
Recreation	40					2		1	2		1
Senior Center	6			1	1				1		
Water & Waste Water Treatment	19			2				1			
Schools	130	1	10	3		11	4	21	1		2
Airports				1							
Total	341	2	14	12	3	24	5	28	11	0	5

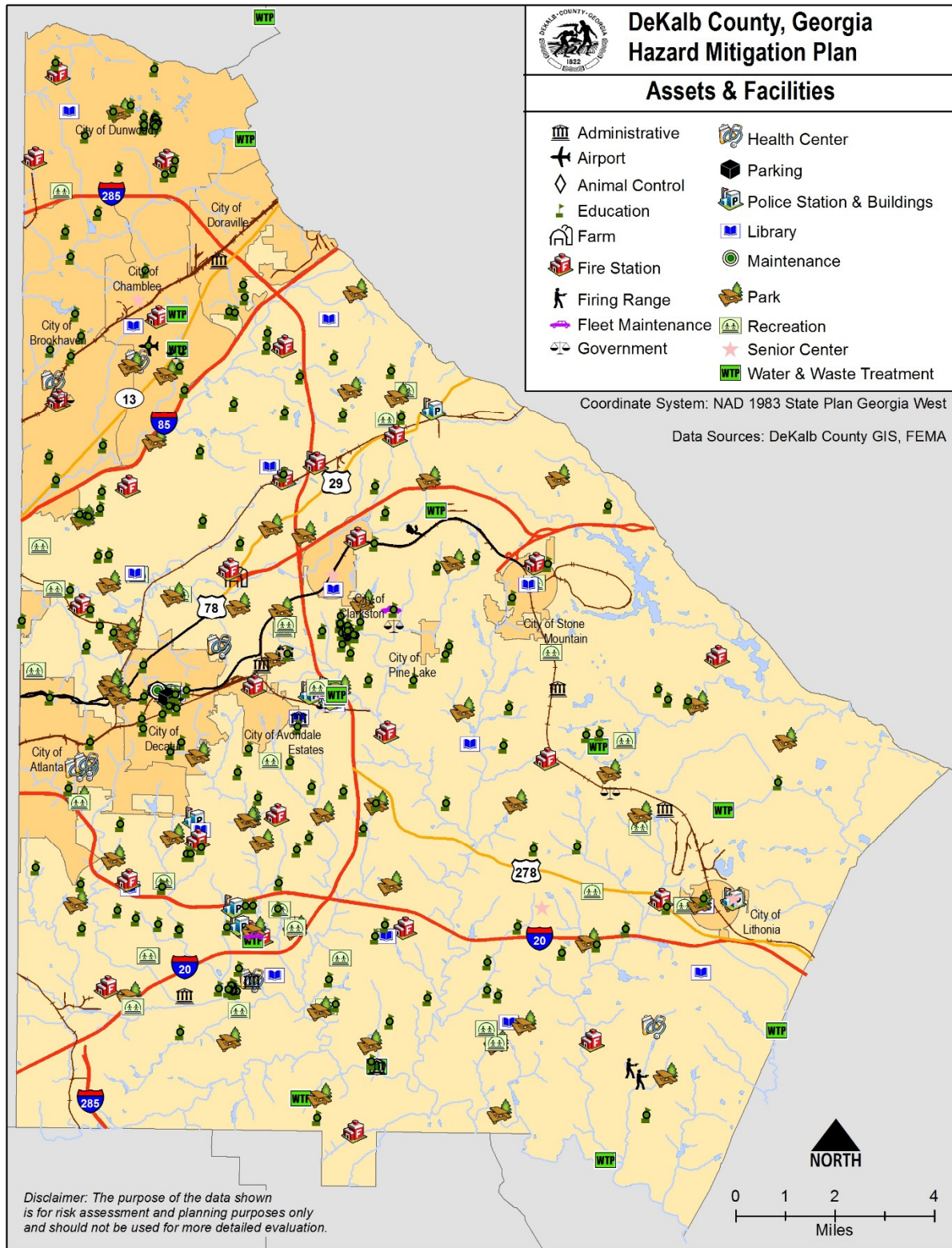


Figure 2: Location and type of critical facilities and assets.

3.1.4 Land Use and Development

The DeKalb County Comprehensive Plan 2005 – 2025 is the County’s Land Use policy document. The Community Assessment (May 2007) outlines issues and opportunities to address the needs in DeKalb County. Natural Resources, Historic and Cultural Resources, Housing, Economic Development, Community Facilities, Transportation, and Land Use categories provide a framework for discussing the areas identified within the community. The intergovernmental coordination noted frequent changes to the future land use plan, need for improved relationships for regional coordination, and the establishment of the Community Council to share proposed plans with citizens.

The DeKalb County April 14, 2015 final draft of the Zoning Code was reviewed for the plan update. The 2015 Zoning Code includes a conversion of new zoning districts within the County (Figure 3). The DeKalb County GIS department provided parcel data including future land use attributes. Current land use GIS data was not available for the county, the following section is based on information from the DeKalb County Comprehensive Plan “Analysis of Existing Development Patterns”.

Old District	New District by Type	District Name
Residential Single-Family Districts		
R-200	Residential Estate	RE
R-150		
R-30,000	Residential Large Lot	RLG
R-20,000		
R-100	Residential Medium Lot	R-100
R-85	Residential Medium Lot	R-85
R-75	Residential Medium Lot	R-75
R-60	Residential Small Lot	R-60
R-50		
MHP	Mobile Home Park	MHP
R-NCD	Neighborhood Conservation	RNC
Medium and High Density Residential Districts		
A	Small Lot Residential Mix	RSM
R-A5		
R-A8		
R-CH		
R-CD		
R-DT		
TND		
RM-150		
RM-100	Medium Density Residential-1	MR-1
RM-85	Medium Density Residential-2	MR-2
RM-75		
New	High Density Residential-1	HR-1
RM-HD	High Density Residential-2	HR-2
New	High Density Residential-3	HR-3

Old District	New District by Type	District Name
Mixed Use Districts		
PC-1	Mixed Use Low Density	MU-1
New	Mixed Use Low-Medium Density	MU-2
New	Mixed Use Medium Density	MU-3
OCR	Mixed Use High Density	MU-4
PC-2, PC-3	Mixed Use Very High Density	MU-5
Non-Residential Districts		
NS	Neighborhood Shopping	NS
C-1	Local Commercial	C-1
C-2	General Commercial	C-2
O-I-T	Office-Institutional-Transitional	OIT
O-I	Office-Institutional	OI
O-D	Office-Distribution	OD
M	Light Industrial	M
M-2	Heavy Industrial	M-2

Figure 3: Zoning code conversion

Existing Land Use

The existing land use can differ from the counties official land use and zoning designation of a property. For example, a parcel can be zoned residential even though it is currently undeveloped. The existing land use map is based on the analysis of aerial photography conducted by the Atlanta Regional Commission.

The land use categories are based on the recommended Georgia DCA Standard Categories. The land use categories do not match the current official county land use categories, but provide the most accurate and descriptive representation of the counties current land uses.

The largest land use in DeKalb County is Medium Density Residential, followed by Forested/Undeveloped (Figure 4), Commercial, and High Density Residential. This reflects the counties development pattern which is predominately single-family residential with commercial and multifamily uses located along major roadway corridors and intersections. The majority of the county follows an automobile oriented decentralized suburban development pattern. This development pattern, which is very common within the Atlanta Region, has high building and land use separation resulting in low pedestrian orientation and accessibility. The current pace of residential development is expected to greatly reduce the amount of Forest/Undeveloped land as the county approaches build out. Most of the counties remaining large tracts undeveloped land are found in the far southern and eastern portions of the county outside of I-285 while many smaller tracts still exist within developed areas.

Table 1 lists the number of parcels, the estimated number of buildings and the total assessed value of improvements for all of DeKalb County in addition to those located in the unincorporated areas (study area of vulnerability assessment). All of the information contained in this section has been revised and expanded in the 2016 update. Table 4 summarizes the total number of parcels and acres by land use classification.

Based on the “new” zoning in Dekalb County, the majority of the parcels within DeKalb the unincorporated area. Of the parcels, over half are zoned as residential medium lot, followed by 20% for small lot residential mixed. Brookhaven and Dunwoody have the largest number of parcels outside of the unincorporated areas with 22% of the total assessment within Brookhaven and 19% within Dunwoody.

Table 4: Land Use in DeKalb County (Source: DeKalb GIS parcel data)

Land Use Code	Number of Parcels	Total Acres
0	1	0.38
COS	237	3,339.24
CRC	4,296	1,683.98
HC	874	403.98
HDR	1	-
IND	222	3,673.33
INS	216	1,689.23
LDR	1	0.37
LIND	2,253	5,273.43
MDR	1	8.50
NC	3,649	1,490.00
OP	667	305.12
OPR	1	0.52
RC	999	1,078.80
RR	892	1,414.55
SUB	150,855	40,093.10

Land Use Code	Number of Parcels	Total Acres
TC	4,064	2,757.58
TN	10,104	897.68
Unclassified	-	26,933.09
Total	179,333	91,042.88

Analysis of existing development patterns identified areas requiring specific attention that were used to formulate future development strategies in the Comprehensive Plan. Character Areas related to this HMP include:

Character Area	Description	Development Strategy
Conservation Area / Green Space	Undeveloped, natural lands with significant natural features including views, coast, steep slopes, floodplains, wetlands, watersheds, wildlife management areas and other environmentally sensitive areas not suitable for development of any kind.	Maintain natural, rural character by not allowing any new development and promoting use of conservation easements. Widen roadways in these areas only when absolutely necessary and carefully design the roadway alterations to minimize visual impact. Promote these areas as passive-use tourism and recreation destinations.
Agricultural Area	Lands in open or cultivated state or sparsely settled, including woodlands and farm lands.	Maintain rural character by strictly limiting new development and protecting farmland and open space. Protect farmland and open space by maintaining large lot sizes (at least 10 acres) and promoting use of conservation easements by land owners. Residential subdivisions should be severely limited, but if minor exceptions are made, they should be required to follow a rural cluster zoning or conservation subdivision design. Any new development should be required to use compatible architecture styles that maintain the regional rural character, and should not include “franchise” or “corporate” architecture. Widen roadways only when absolutely necessary and carefully design the roadway alterations to minimize visual impact. Promote these areas as passive-use tourism and recreation destinations.



DeKalb County Comprehensive Plan 2005-2025
Community Assessment

ANALYSIS OF EXISTING DEVELOPMENT PATTERNS

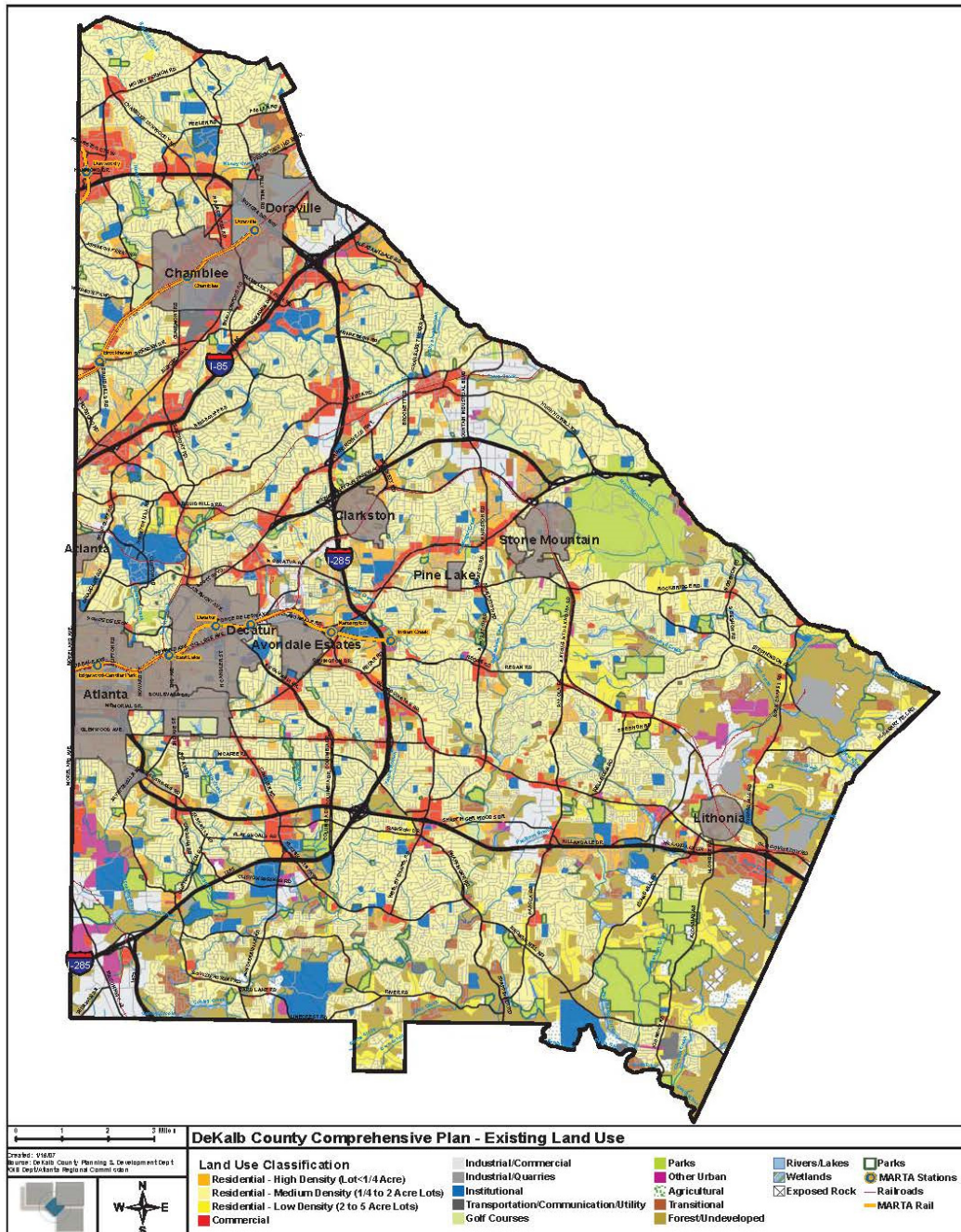


Figure 4. DeKalb County Land Development – Existing Land Use

3.1.5 Analysis of Land Use and Development Trends*DeKalb County*

Currently the County is largely built out with limited 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.

Brookhaven

The City of Brookhaven is primarily built out and unable to annex additional land. The majority of growth in Brookhaven currently is via redevelopment activities.

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.

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. There is no developable land available in Doraville

Dunwoody

The land area of the City of Dunwoody is 12.1 square miles. 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. There is no developable land available in Stone Mountain.

3.1.6 Demographics

DeKalb County is comprised of ten incorporated cities, a portion of the City of Atlanta, and several unincorporated communities. According to the U.S. Census Bureau, the County's total population in 2014 was estimated to be 722,161 representing a 4.4% increase in population since 2010. The incorporation of the City of Brookhaven in 2012 moved approximately 9% of the unincorporated county into the new municipality. Refer to Figure 5 for population information. Note that Chamblee (+63%) and Doraville (+29%) grew at a higher rate than the other cities due to annexations. Although the Countywide total grew by 30,000 people since the last plan, the unincorporated portion of the county shrunk by 5.6% due to the newly incorporated city and the municipal annexations.

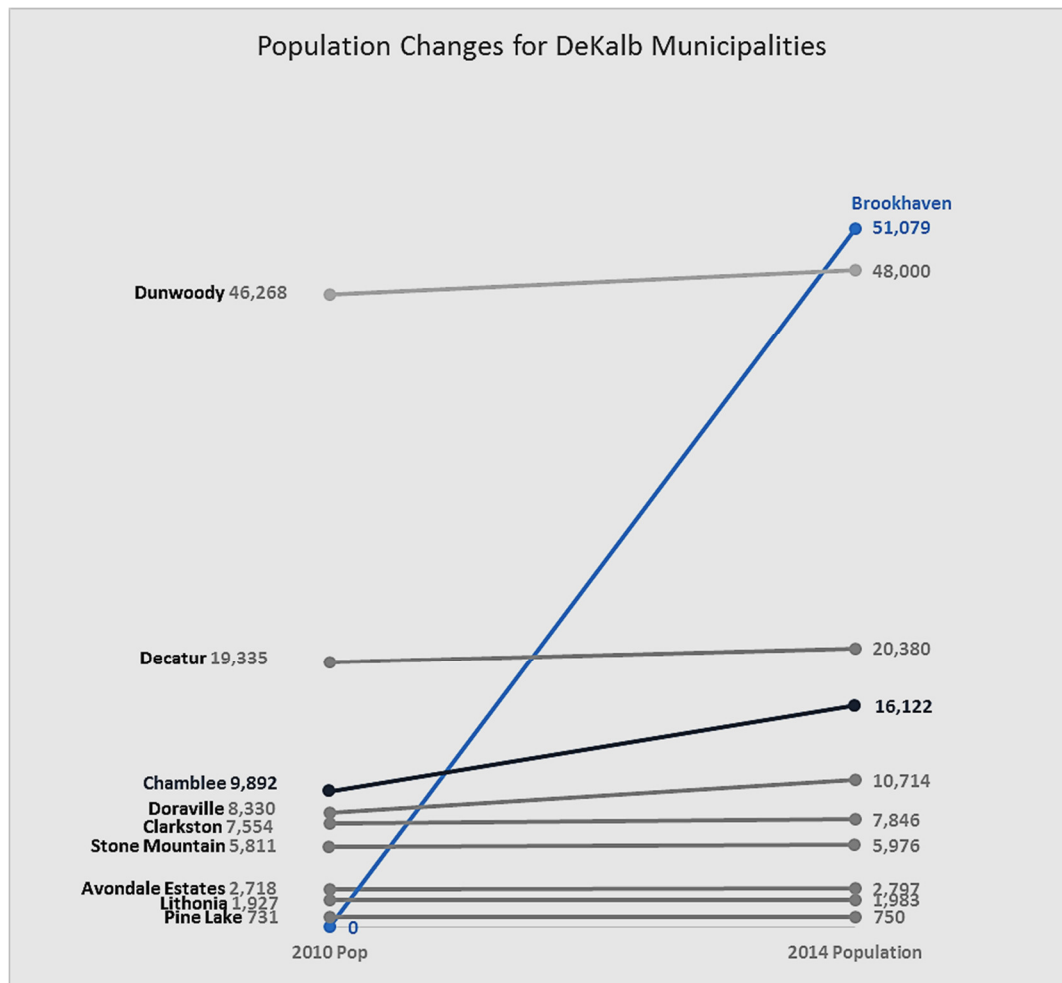


Figure 5: Population Change of Municipalities from 2010 to 2014

Housing Units

The median year built of housing stock in DeKalb County, from ACS 2013 building estimates, averages 1977, with the oldest stock from 1942 and the newest stock from 2002.

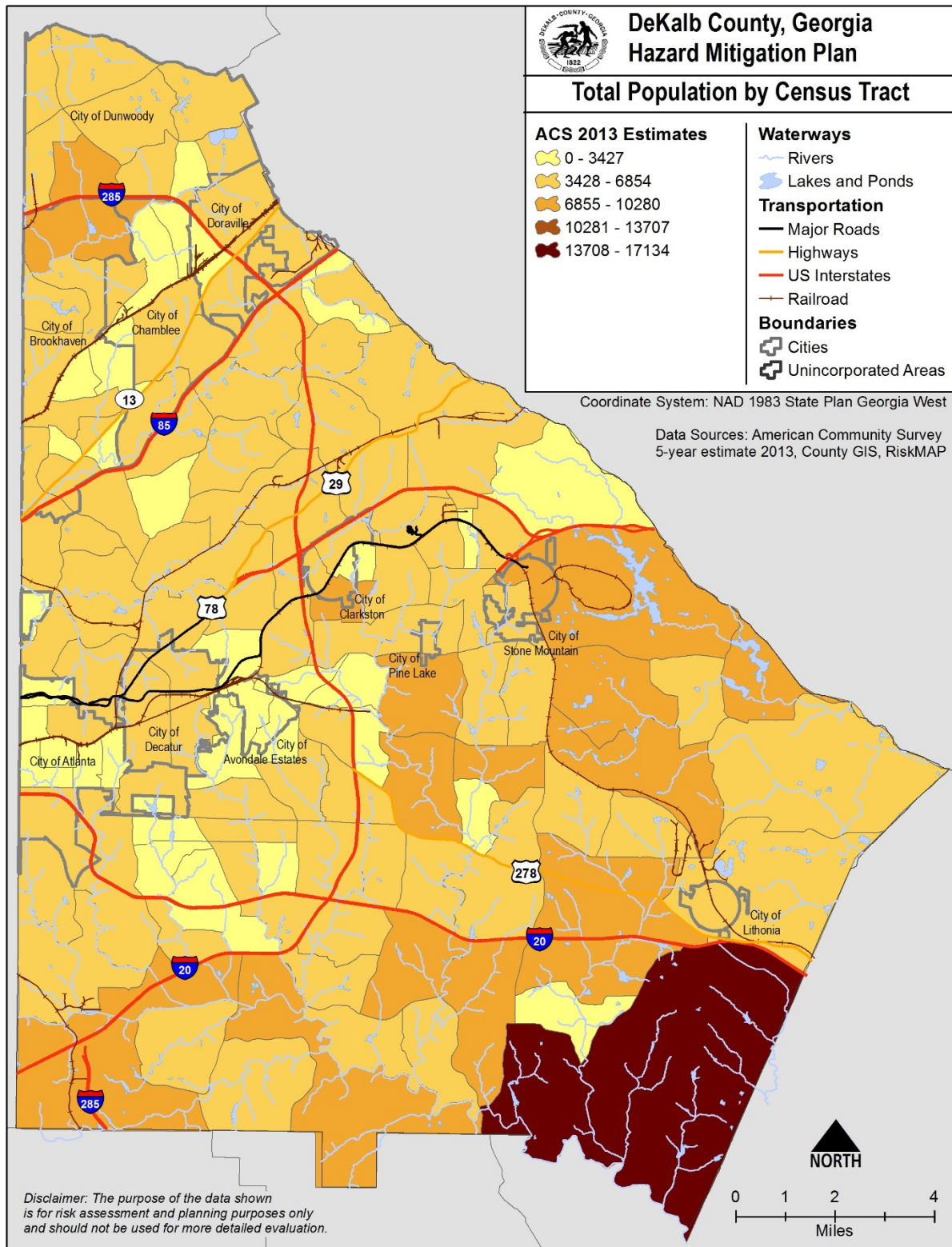


Figure 6. DeKalb County total population (2013 ACS estimates)

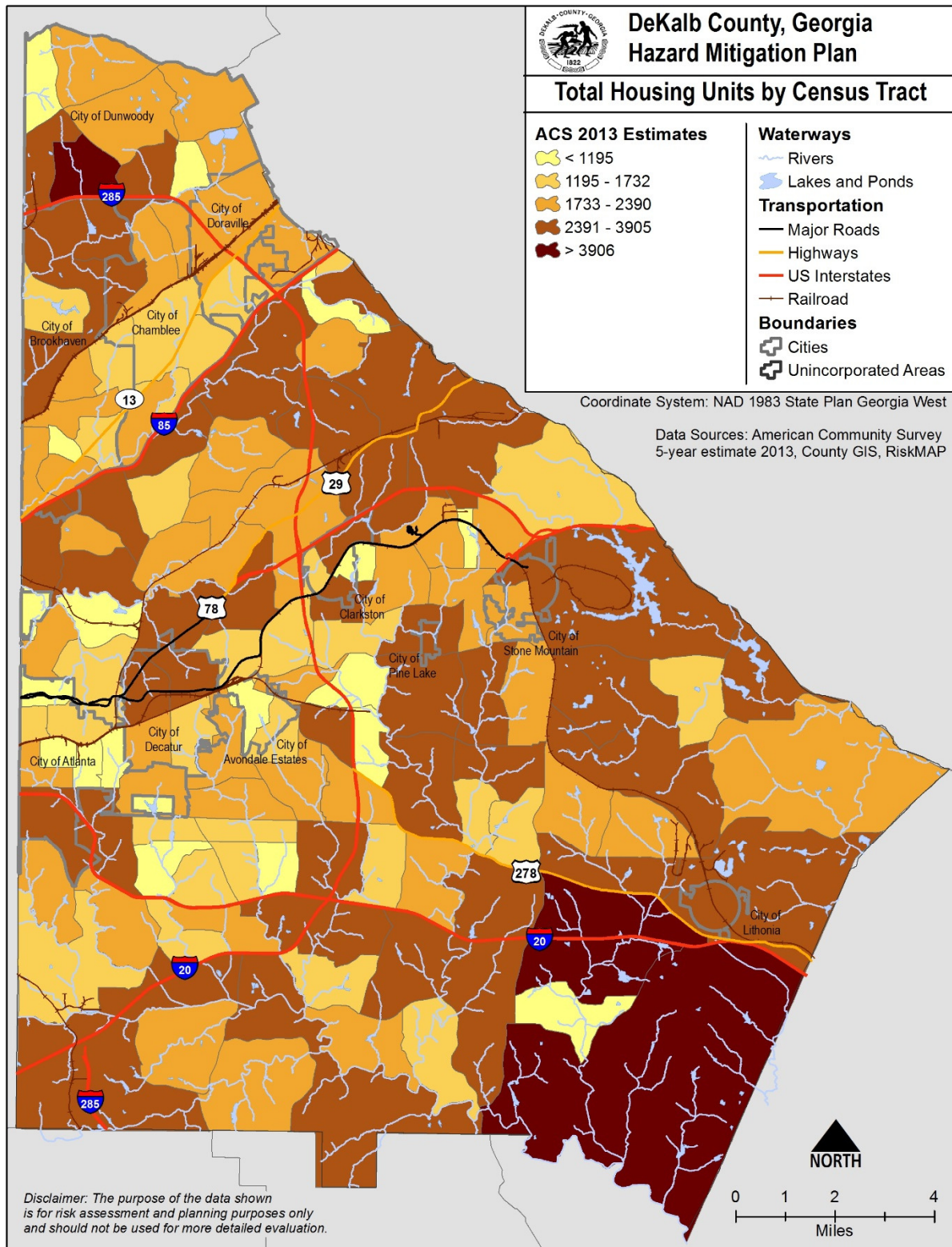


Figure 7. DeKalb County total housing units (2013 ACS estimates)

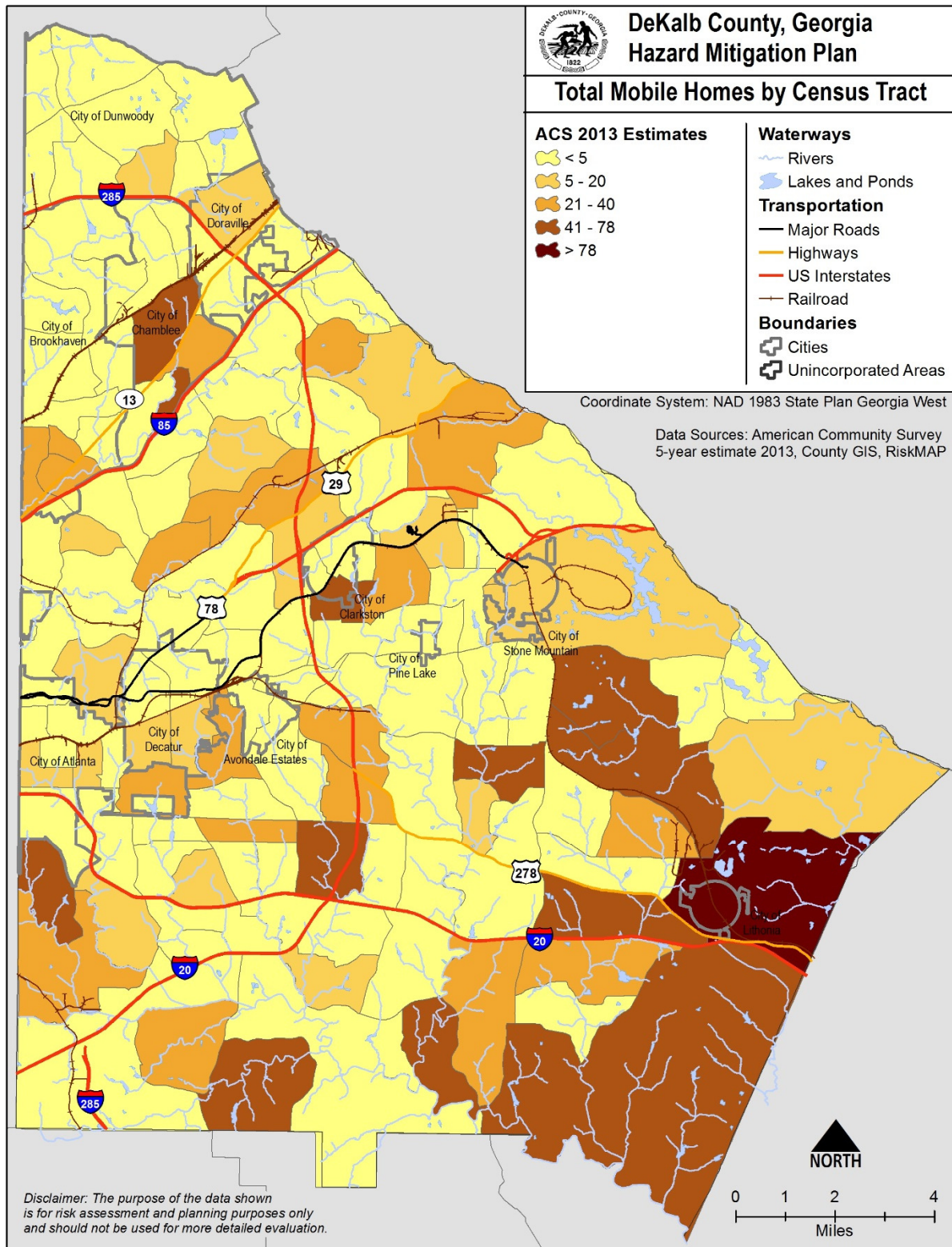


Figure 8. DeKalb County total mobile homes (2013 ACS estimates)

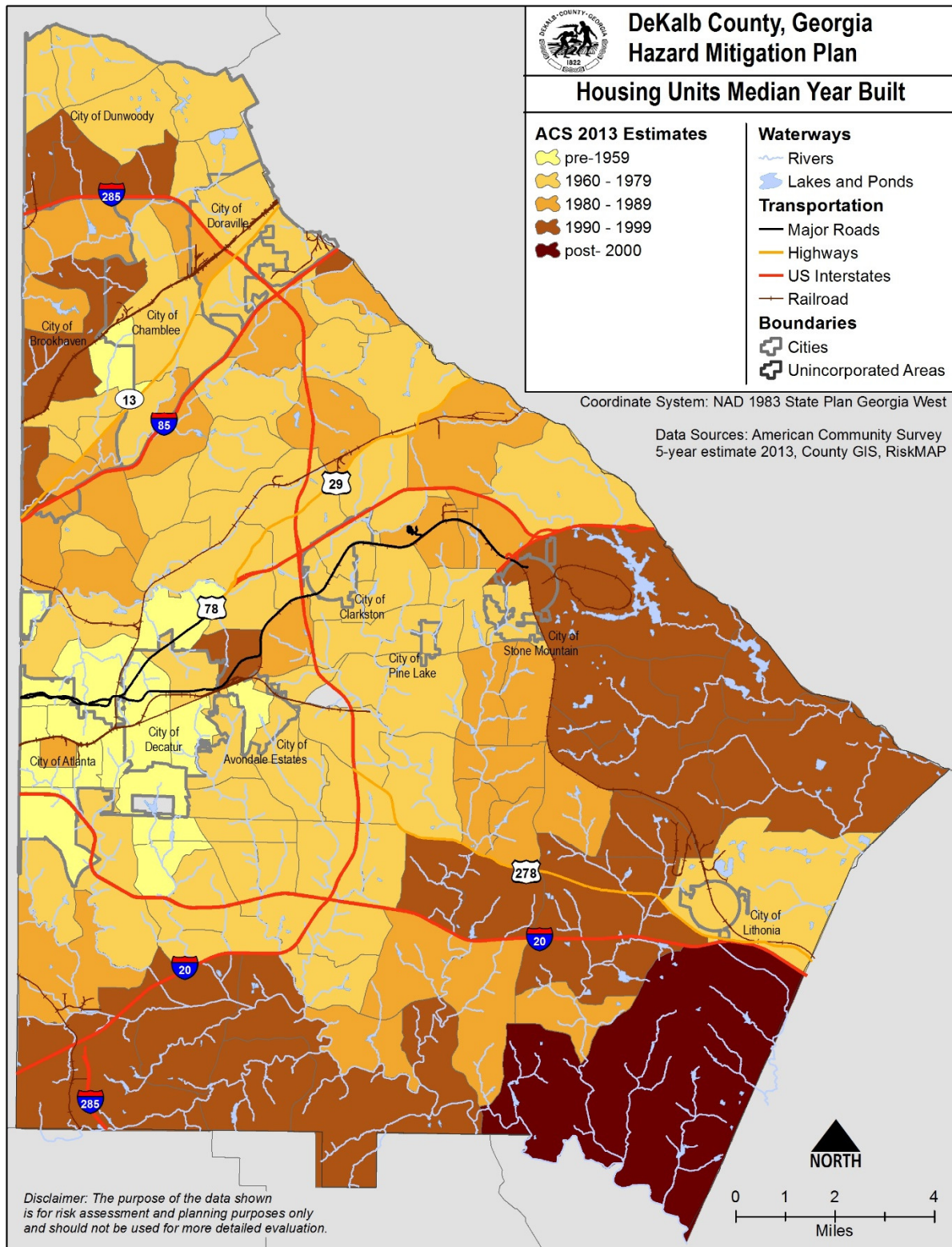


Figure 9. DeKalb County housing unit's median year built (2013 ACS estimates)

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 Appendix 5 – Goals, Objectives, and Actions.

3.2.1 [Avondale Estates](#) (Population Estimate: **2,797; *increase of 2.9% from previous plan*)**

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, 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.

3.2.2 [Brookhaven](#) (Population Estimate: **50,603; was not an incorporated city during previous plan update)**

Brookhaven is located in the northeast suburbs of DeKalb County and became an incorporated city in July of 2012. As such, there is no history available as it relates to demographics identified in the 2010 update. Brookhaven is bounded by Fulton County on the west and Interstate 85 on the south. On the east, it is bounded by the city of Chamblee and to the north lies the city of Dunwoody.

Brookhaven is the second largest City in DeKalb County - only behind Dunwoody which when incorporated a few years ago, adopted the DeKalb Hazard Mitigation Plan very quickly. The City of Brookhaven is approximately 11.35 square miles and has .84 square miles of Special Flood Hazard Area (~7% of the total area).

The City has at least 160 identified structures in the floodplain with an exposed value totaling over \$121,860,786. After creating a scenario with FEMA's HAZUS software it was estimated that total losses for those structures from 1% annual chance flood of approximately \$30,000,000. These estimates only apply to the structures not the infrastructure within the City limits. Many of these structures currently have NFIP flood insurance as required by FEMA on Federally-backed mortgages.

There are approximately 30 repetitive loss properties within the City limits. Repetitive Loss Properties mean properties that have received one or more NFIP insurance payments. FEMA makes funds up to 100% of the cost available to communities for projects that alleviate properties identified as Repetitive Loss. (Some of these have been acquired and demolished such as those in the Drew Valley detention pond area but are kept in the database for calculations on Losses Avoided.)

The City has two identified high hazard dams which indicate that, if breached, there is the probable loss of life. Those dams are (GA Safe Dams Program provided the data):

1. Silver Lake Dam
2. Murphy Candler Lake Dam

Within the City limits 6 road crossings are expected to be inundated in a 1% annual chance storm scenario. 4 of the 6 culverts identified are located along the same stream. One culvert is expected to have over 11 feet of water inundating it during the 1% annual chance flood (at the intersection of Perimeter Creek and Byrnwyck Road). When this roadway inundates the residents in the subdivision will not have roadway access in or out of their homes because there is not alternate route available. This will strain emergency services personnel and possibly put them in harm's way if trying to help those residents during a flooding event.

3.2.3 [Chamblee](#) (Population Estimate: **26,801**; *Increase of 63%, mostly due to 2014 annexation*)

Chamblee encompasses an area of approximately 7.85 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 indicated approximately 15,518 residents in 2010 and growing to 15,948 in the 2013 estimate. However, in 2014, the City of Chamblee welcomed some 12,000 new residents into the city from the newly annexed area Dresden East Civic Association (DECA), making Chamblee DeKalb's third largest city. The City of Chamblee grew from 3.18 square miles to 7.85 square miles. Now, Chamblee has 26,801 residents. Twelve Asian/Pacific countries and eighteen Latin countries are represented, with 30 languages and dialects spoken as a first language. The 2010 census indicated that the median age in the city is 28, and the median household income is \$48,646. There are not any newer statistics to take into account the incorporation of the DECA area.

3.2.4 [Clarkston](#) (Population Estimate: **7,846**; *Increase of 4%*)

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 2014 American Community Survey estimated 7,846 residents while the 2010 Census indicated the population of Clarkston at 7,554. 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.

3.2.5 [Decatur](#) (Population: **20,380; *Increase of 5.4%*)**

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 2014 American Community Survey estimated 20,380 residents while 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 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.

3.2.6 [Doraville](#) (Population: **10,714; *increase of approximately 2,400 people since 2010 Census*)**

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. In 2009, the GM Assembly Plant closed. However, the city is experiencing a population increase due to its desirable location on the outskirts of Atlanta with close proximity to MARTA lines as well as plan to revitalize the community. 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 average household income is \$40,641. Residential and commercial land uses comprise more than 60% of Doraville's geography.

3.2.7 [Dunwoody](#) (Population **48,000; *increase of 4% since previous plan*)**

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.

3.2.8 [Lithonia](#) (Population: **1,983; *increase of 3% since previous plan*)**

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.

3.2.9 [Pine Lake](#) (Population: **750**; *increase of 2.6% since previous plan*)

The 2014 American Community Survey estimated 750 residents while the 2010 census indicated a population of 731 residents. 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. 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.

3.2.10 [Stone Mountain](#) (Population: **5,976**; *increase of 3% since the previous plan*)

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 2010 census, the population was 5,811. 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 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.

SECTION 4 RISK AND VULNERABILITY ASSESSMENT

Significant Changes to this Section from Previous Plan

The 2016 plan update expands on the work completed during the 2005, 2008, and 2011 plans and includes hazard events that have taken place following the 2011 plan adoption. Critical facilities and infrastructure have been updated based on MAC review of the asset inventory during the kickoff meeting and the data available and provided by DeKalb County GIS. Significant events since 2011 have been included in the Historical Occurrences subsections in each of the hazards specific profiles. Events noted on the 2016 Public Survey have been included in each of the hazard sections. As previously discussed, several hazards were added for consideration during the 2016 plan update.

The risk assessment includes information from DeKalb County's ongoing FEMA Risk MAP flood assessments. This includes utilizing results from the Flood Risk Report as well as the data to assess vulnerabilities to infrastructure based on flood depths provided from Risk MAP products. The community has also updated dam break analyses for community-owned dams and the results are included in this update. The assessment of land use, which was part of the risk assessment process per previous FEMA guidance, is now part of the planning process section of this plan update to be consistent with newer guidance documents.

In general the methods conducted in the original plan were used as guidance for this 2016 update. Those methods included several local data collection meetings, extensive research using the NCDC database and defaulting to HAZUS databases where applicable. All hazards considered in this plan have been re-evaluated and re-ranked in 2016.

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 Local Mitigation Planning Handbook* identifies four Risk Assessment steps as part of the hazard mitigation planning process, including: 1) describe hazards, which involves describing those hazards posing a threat to a study area, 2) identifying community assets, which involves identifying anything that is important to the character and function of a community (including people), 3) analyzing risks, involves evaluating vulnerable assets, describing potential impacts, and estimating losses for each hazard, and 4) summarizing vulnerability, which involves taking the results of the previous activities to highlight the areas of most concern to the participating communities. These steps are described in detail in the following sections.

4.1.1 Describing 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. 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 and local subject-matter experts such as the DeKalb County fire chief. 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. As discussed in Section 3, 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 potential vulnerability to each hazard type (map of community assets located within the main plan as well as Appendix 3). 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.

4.2 DESCRIBE HAZARDS**4.2.1 List of Hazards**

During the initial creation of the plan, 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. During the 2016 plan update, all hazards identified in the previous plan were reviewed and determine to represent all hazards that could impact DeKalb County.

Federal Disaster Declarations

An important source for identifying hazards that can affect a community is the record of federal disaster declarations. According to the Federal Emergency Management Agency (FEMA), since 1968 there have been six major disaster declarations (DR) and four emergency declarations (EM) for DeKalb County. Three of the 10 declarations were related to severe winter storms, three for severe storms and flooding, one tornado related, one drought related, and three with a hurricane incident type.

Since the 2011 plan, the county experienced one emergency declaration in February 2014 related to severe winter storms. Past emergencies and disasters are listed in Table 1 in addition to the program declaration type.

Table 1: Declared Disasters.¹

Disaster Type	Disaster Number	Incident Type	Title	Incident Begin Date	IH Program	IA Program	PA Program	HM Program
EM	3368	Severe Ice Storm	SEVERE WINTER STORM	2/10/2014			√	
DR	1858	Severe Storm(s)	SEVERE STORMS AND FLOODING	9/18/2009	√		√	√
DR	1750	Severe Storm(s)	SEVERE STORMS AND TORNADOES	3/14/2008	√	√	√	√
EM	3218	Hurricane	HURRICANE KATRINA EVACUATION	8/27/2005			√	
DR	1554	Hurricane	HURRICANE IVAN	9/14/2004	√	√	√	√
DR	1311	Severe Storm(s)	SEVERE WINTER STORM	1/22/2000			√	√
DR	1209	Severe Storm(s)	SEVERE STORMS AND FLOODING	2/14/1998		√	√	
DR	1071	Hurricane	HURRICANE OPAL	10/4/1995		√	√	√
EM	3097	Snow	SEVERE SNOWFALL, WINTER STORM	3/13/1993			√	√
EM	3044	Drought	DROUGHT	7/20/1977			√	√
DR	370	Tornado	TORNADOES & FLOODING	4/4/1973		√	√	√

IH = Individuals and Households Program

IA = Individual Assistance Program

PA = Public Assistance Program

HM = Hazard Mitigation Program

¹ FEMA National Emergency Management Information System (NEMIS)
<https://www.fema.gov/media-library/assets/documents/28318> 4/21/2015

National Climatic Data Center

National Climatic Data Center (NCDC) Storm data is published by the National Oceanic and Atmospheric Administration (NOAA), part of the U.S. Department of Commerce. The storm events database contains information on storms and weather phenomena that have caused loss of life, injuries, significant property damage, and/or disruption to commerce. Efforts are made to collect the best available information, but because of time and resource constraints, information may be unverified by the National Weather Service (NWS). The NWS does not guarantee the accuracy or validity of the information. Although the historical records in the database often vary widely in their level of detail, the NWS does have a set of guidelines used in the preparation of event descriptions. The historical record of the storm data used for this update includes events starting in 1950 through 2015. The Storm Events database is updated as data becomes available and is usually 90-120 days behind the current month. While the incompleteness of the data is problematic, the NCDC data is considered a “best available” data source and is a generally accepted source of data for emergency management and hazard mitigation planning. Its data should be used in conjunction with other data sources to provide a full picture of risk and vulnerability but should not be used as a sole data source, whenever possible.

In order to compare the storm events data, a Microsoft Excel macro was utilized to process the data to account for inflation, standardization of hazard event types, normalization of zone reported events, and annualizing events and damages for DeKalb County. After processing the data, there were 445 storm events listed for DeKalb County, Georgia (Table 2) accounting for more than \$93.9 million in damages. Similar to the FEMA declared disasters, most of the records are related to high wind and flooding. Property damages from nine tornado events account for losses exceeding \$51.3 million, 113 hail event damages at \$17.3 million and \$10.2 million in damages related to flooding. Based on this data, wind related hazards peak in June, July and August and flood related events increased during July and September.

Damages entered into the NCDC Storm Events database portray how much damage was incurred in the year of the event. Due to inflation and the changing value of money, the values of damages incurred have been adjusted to 2015 dollars. This was accomplished using the U.S. Bureau of Labor Statistics annual index of Consumer Prices. Each value was multiplied by the index of its year of occurrence and subsequently divided by the index value in 2015, the target year. The year 2015 was chosen because it was the most recent full year available in the index values list.

Table 2: NCDC Storm Events for DeKalb County, Georgia (shown in 2015 Dollars).

Hazard	Number of Events	Property Damage (Inflated)	Crop Damage (Inflated)	Deaths	Injuries
Wind	167	\$2,242,455	\$0	2	4
Hail	113	\$17,399,913	\$0		
Flash Flood	39	\$9,536,843	\$0		
Winter Weather	22	\$611,600	\$0		
Drought	21	\$0	\$328,980		
Lightning	15	\$1,132,864	\$0	1	6
Flood	14	\$10,241,342	\$0		
Hurricane	14	\$0	\$0		
Extreme Cold	13	\$0	\$0		
Extreme Heat	11	\$0	\$0		
Tornado	9	\$51,365,382	\$0	1	2
Ice Storm	5	\$1,410,745	\$0		
Fog	2	\$0	\$0		

Table 3: NCDC Storm Events annualized by years of record.

Hazard	Period of Record	Annualized Events	Annualized Property Damage	Annualized Crop Damage
Wind	1955-2015	2.7	\$36,762	\$0
Hail	1955-2015	1.9	\$285,245	\$0
Flash Flood	1993-2015	1.7	\$414,645	\$0
Winter Weather	1993-2015	0.96	\$26,591	\$0
Drought	1995-2015	1.0	\$0	\$15,666
Lightning	1993-2015	0.65	\$49,255	\$0
Flood	1993-2015	0.61	\$445,276	\$0
Hurricane	1955-2015	0.23	\$0.00	\$0
Extreme Cold	1993-2015	0.57	\$0.00	\$0
Extreme Heat	1993-2015	0.48	\$0.00	\$0
Tornado	1950-2015	0.14	\$778,263	\$0
Ice Storm	1993-2015	0.22	\$61,337	\$0
Fog	1993-2015	0.09	\$0	\$0

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 (included in the Flood section). Table 4 shows a summary of the hazard identification results for DeKalb County.

Table 4. 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 • RiskMAP data • 2015 Flood Risk Report • 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 tornadoes hit Georgia • 9 tornadoes recorded in DeKalb with \$51 million in damages
Thunderstorm / Lightning (included in wind section)	<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

Hazard	Representative Data Collected for Hazard Identification	Justification for Inclusion
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 three that prompted Presidential Disaster Declarations
Wildfire	<ul style="list-style-type: none"> USDA US Forest Service Georgia Forestry Comm. 	<ul style="list-style-type: none"> The entire southern United States is susceptible to wildfire Ample fuel available in DeKalb County
Extreme Heat	<ul style="list-style-type: none"> 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 (not in DeKalb Co) failed in 1977

4.2.3 Hazard Identification Sources

Hazard-specific analysis is often the most challenging and time consuming segment of the risk assessment. The level and type of analysis that can be completed is dependent on the type of data available for analysis. Critical facility and infrastructure data has been described above. To determine hazard specific risk, data needs to be available for analysis. The majority of the hazards impacting DeKalb County do not have definitive impact boundaries (i.e., drought), and, as a result, past occurrences were used to try to identify probable locations where these events may happen in the future. Table 4 provides a breakdown, by hazard, of the datasets used for analysis and mapping in the hazard-specific sections that follow. The available datasets illustrate the difficult nature of quantitatively assessing vulnerability and risk within the County. This assessment has been compiled using the best available data.

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

As described above, 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. Table 5 gives a brief description of the non-profiled hazards and the reason for their exclusion.

Table 5: 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	No history of expansive soils in the county was identified.

Hazard	Description	Reason for Exclusion
	foundations	
Hailstorm	Can occur during thunderstorms that bring heavy rains, strong winds, hail, lightning and tornadoes	This hazard is included as part of 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. Based on USGS mapped karst topography, no karst topography is present within DeKalb County. A small patch of parent material exists in Gwinnett County, northeast of Dekalb.
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 (Fig 1 shows the low risk to the county).
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.

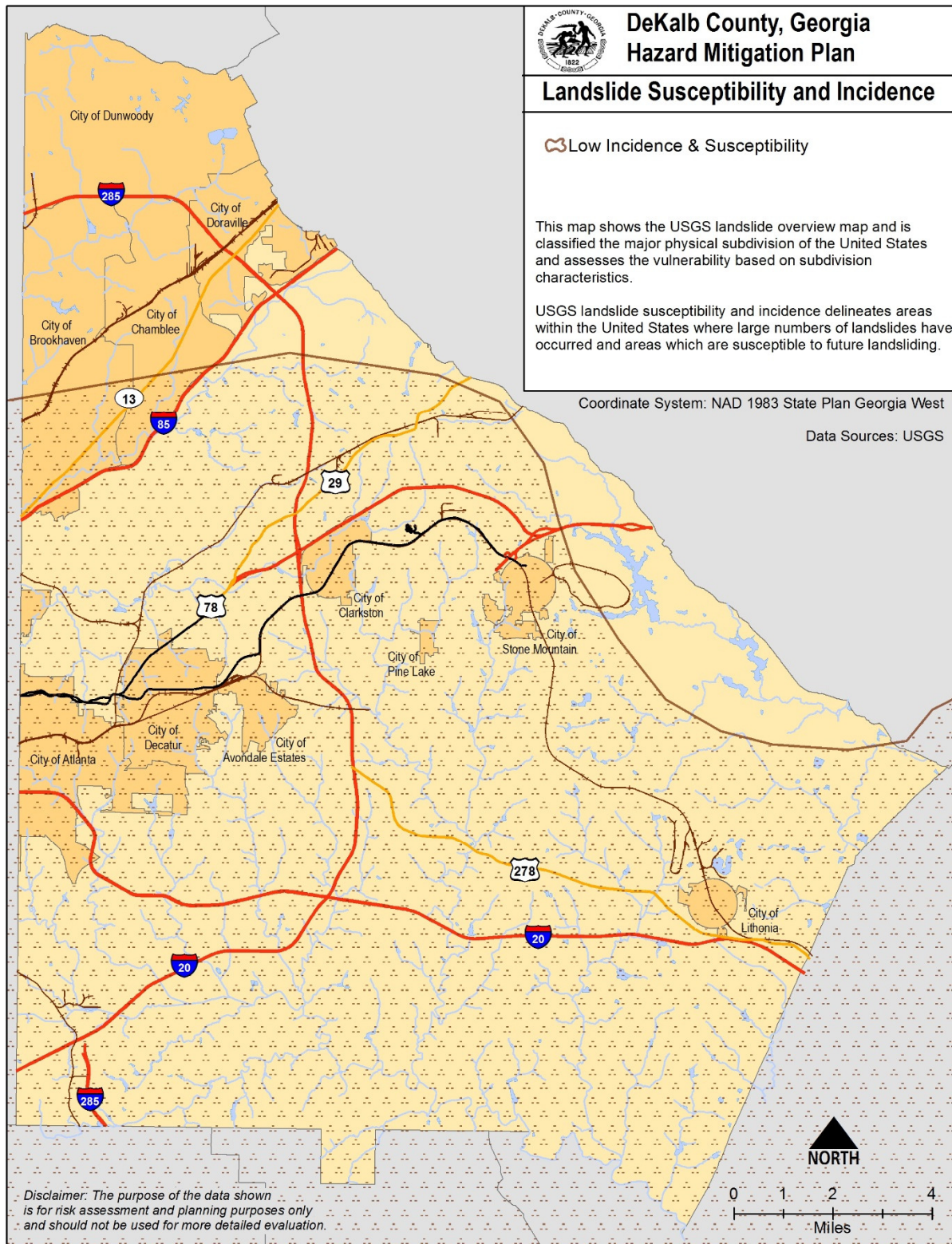


Figure 1: Landslide susceptibility and incidence

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 list of potential actions focuses on vulnerabilities of most concern to the individual community.

For the 2016 update, the committee discussed the previous hazard rankings and decided to elevate several hazards based on current events and damages. The hazards that were elevated included extreme heat/drought, wind (thunderstorm and tornado), winter storm, and earthquake. Table 6 provides a side by side comparison for the 2011 and 2016 hazard consideration ranking. The majority of the hazards have increased in rank, while maintaining relative risk among hazard types.

APPENDIXFOUR

Risk And Vulnerability Assessment

Table 6: Hazard Ranking and Planning Consideration

Hazard Section	Hazard Type	Probability	Impact			Hazard Planning Consideration 2011	Hazard Planning Consideration 2016
			Affected Area	Primary Impact	Secondary Impacts		
FLOODING	FLOODING	Highly Likely	Medium	Critical	High	Significant	Significant
	DAM FAILURE	Unlikely	Isolated	Critical	High	Limited	Limited
WIND	WIND (STRAIGHT LINE, THUNDERSTORM, & LIGHTNING)	Highly Likely	Large	Limited	Moderate	Significant	Significant
	TORNADO	Highly Likely	Isolated	Critical	Moderate	Moderate	Significant
	HURRICANE	Likely	Medium	Critical	High	Moderate	Moderate
WINTER STORM	WINTER STORM	Likely	Large	Negligible	Moderate	Moderate	Significant
DROUGHT	DROUGHT	Likely	Large	Negligible	Limited	Limited	Moderate
EXTREME HEAT	EXTREME HEAT	Likely	Medium	Negligible	Limited	Limited	Moderate
WILDFIRE	WILDFIRE	Somewhat Likely	Small	Catastrophic	High	Limited	Limited
EARTHQUAKE	EARTHQUAKE	Unlikely	Medium	Negligible	Negligible	None	Limited

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 Identification and Ranking*

Hazard rankings completed for this plan were updated using the DeKalb County Hazard Vulnerability Analysis tool. The 2011 hazard rankings were reviewed and updated to reflect feedback of the MAC and public survey responses. Flood and dam breach hazard rankings have remained the same for the 2016 update.

In addition to the overall county ranking, each of the ten municipalities MAC members consider flooding a significant risk with major damage potential. Nine municipalities consider dam failure as a limited risk with little damage potential. The City of Avondale Estates considers dam failure a moderate risk with moderate damage potential.

Table 7 summarizes the probability, severity, impacts and relative risk for flooding and dam breach. Dam breach has been profiled and included in the flooding section of this report as a limited hazard ranking. Flooding is considered a significant risk for DeKalb County. Hazard ranking methodology is further explained in the beginning of the hazard identification section of this plan.

Table 7: Flood Hazard Ranking

Hazard	Probability	Impact			Hazard Planning Consideration 2011	Hazard Planning Consideration 2016
		Affected Area	Primary Impact	Secondary Impacts		
Flooding	Highly Likely > 1/100 or 1% annual occurrence	Medium 5% to 25% of community impacted	Critical 25% to 50% of facility damage	High Major loss of function, downtime, and/or evacuations	Significant	Significant
Dam Breach	Unlikely < 1 event in the last 100 years	Isolated < 1% of community impacted			Limited	Limited

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 [National Inventory of Dams](#), there are 68 dams located in DeKalb County. The dams are periodically inspected by the State of Georgia's Dam Safety Program. The primary purpose of the majority (60 dams) is classified as recreation, followed by 4 dams for water supply, one for irrigation and one for stock. Sixty-six of the dams are earthen, followed by one gravity dam, and one with unknown type. Below is a list of the name of the river or stream that dams are located on:

- Aboothlacoosta Creek
- Ball Mill Creek
- Baroasheala Creek
- Blue Creek
- Chattahoochee River
- Conley Creek
- Crooked Creek
- Doolittle Creek
- Emory Banch
- Henderson Creek
- Henderson Mill Creek
- Honey Creek
- Intrenchment Creek
- Jackson Creek
- Johnson Creek
- Lucky Shoals Creek
- Mountain Creek
- North Fork Nancy Creek
- Nancy Creek
- No Business Creek
- North Fork Peachtree Creek
- Pole Bridge Creek
- Shoal Creek
- Snapfinger Creek
- South Fork Peachtree Creek
- South River
- Stone Mountain Creek
- Swift Creek
- Tom George Creek
- Yellow River

The hazard potential classification for a dam is intended to rank dams in terms of potential losses to downstream interests if the dam should fail for any reason. The classification is based on the incremental adverse consequences (after vs. before) of failure or mis-operation of the dam, and has no relationship to the current structural integrity, operational status, flood routing capability, or safety condition of the dam or its appurtenances. The hazard potential classification is based on

potential adverse impacts/losses in four categories: environmental, life line, economic, and/or human life.

Figure 2 below shows the location of dams within DeKalb County and their downstream hazard potential. Seventeen of the dams within the county are considered to have a high downstream damage potential, three significant, 44 low and four with an unknown classification. Two high hazard dams are within Brookhaven and three within Dunwoody.

Of the 68 dams listed, 17 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. Eight of the Category I dams are maintained by DeKalb County or local governments and the remaining nine by private owners. In contrast, category II dams (33 in DeKalb) are those for which improper operation or dam failure would not be expected to result in probable loss of human life.²

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.

² <http://www.damsafety.org/media/Documents/PDF/GA.pdf>

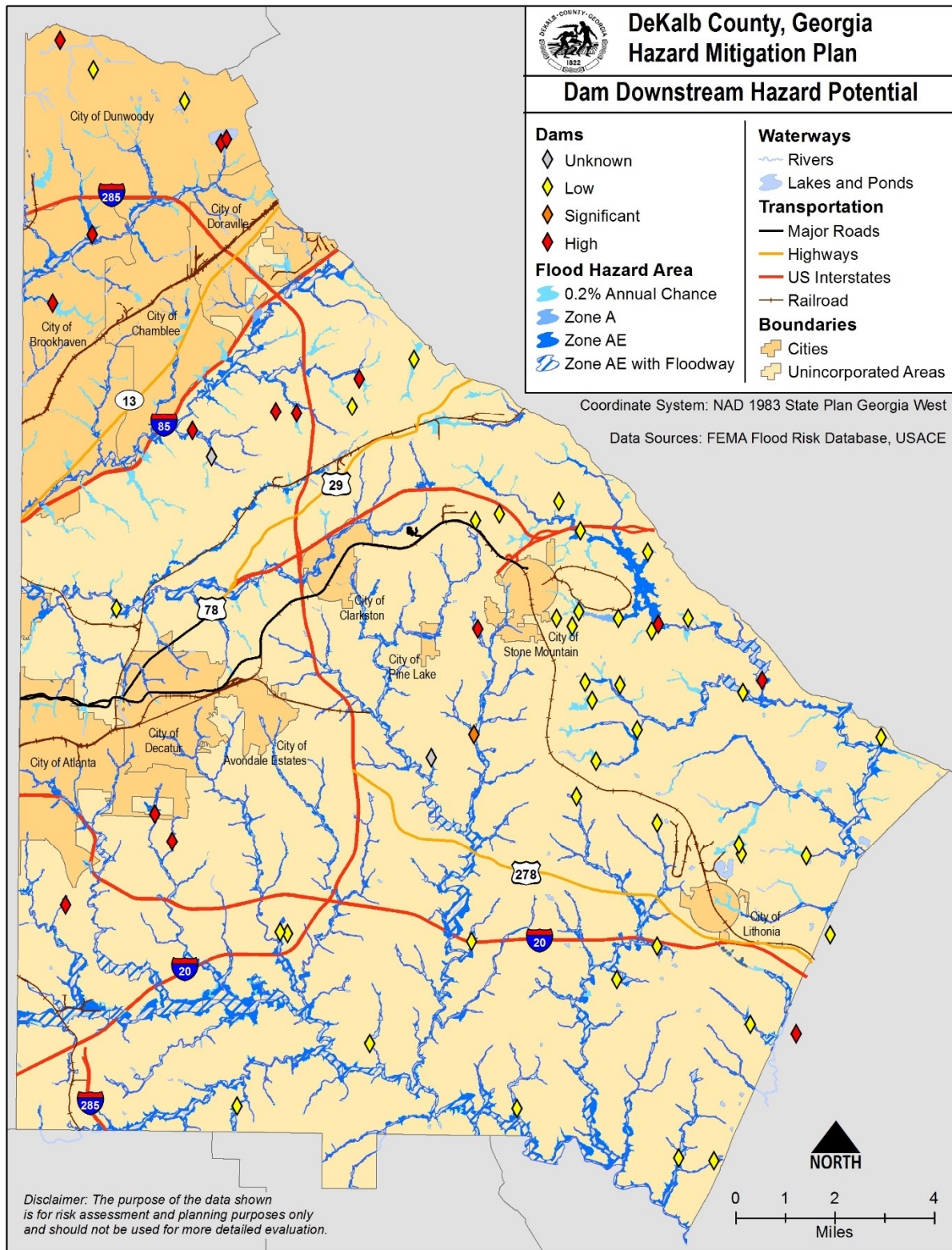


Figure 2: DeKalb County Dam Locations

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 have been 11 emergencies/declared disasters in DeKalb County. As shown in Table 1, three have been related to flooding (9/18/2009, 2/14/1998, and 4/4/1973), in addition to Hurricane Ivan (9/14/2004) and Hurricane Opal (10/4/1995).

There are 53 flood events, 39 of which were flash flood events, on record between the years of 1995 and 2014 at the National Climatic Data Center (NCDC) for DeKalb County. Limited detail is available on damages from the flooding events. It should be noted that NCDC takes 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 indicative of future damage. 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 SHELDS 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)

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 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.

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.

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

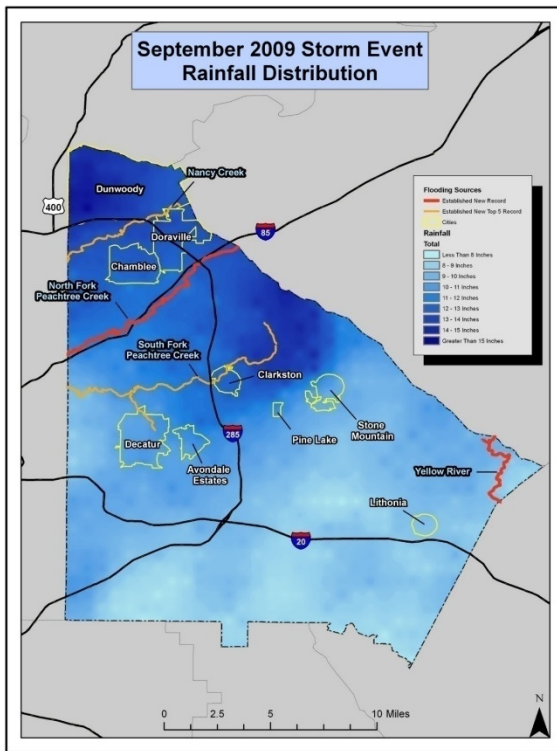


Figure 3: September 2009 Distribution of Rainfall Across DeKalb County

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 USGS³. 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 3. shows the distribution of rainfall across the county though it does necessary 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 3 shows the rainfall distribution across DeKalb County during the storm event between the dates of September 19th and September 21st, 2009.

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

³ <http://www.srh.noaa.gov/ffc/?n=rivers090922>

May 3, 2010 – South Fork of the Peachtree Creek at Johnson Road, Northfork at Peachtree Creek at Buford Highway and Snapfinger Creek all reached flood stage. Flood waters from the upper South Fork of Peachtree Creek flooded the crawl spaces of several apartments on Lansbury Village Drive. Forty-five people had to be evacuated until the buildings were inspected and cleared of structural problems related to the flood waters. Damages estimated at \$50,000. No injuries were reported.

August 9, 2014 – Minor flooding of residential yards along portions of Snapfinger, Cobb, Shoal, Intrenchment and Stone Mountain Creeks in portions of central and south DeKalb County due to heavy rain. The overflow of water from Snapfinger Creek flooded several cars in the Redan Village Apartments complex off of Redan Road. Damages estimated at \$30,000. No injuries were reported.

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.

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,



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

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 Creak, Nancy Creek, their tributaries and other streams. These are the locations of the repetitive loss properties that are addressed throughout the plan.

Figure 5 shows the location of the major streams and FEMA Special Flood Hazard Areas (SFHA) in DeKalb County. 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. Below is a summary of extent by locality:

- 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.
- Snap finger 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.
- 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.

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. As noted in the Community Profiles, the City of Brookhaven has two identified high hazard dams which indicate that, if breached, there is the probable loss of life. These include Silver Lake Dam and Murphy Candler Lake Dam.

National Flood Insurance Program (NFIP)

In 1968, the U.S. Congress established the National Flood Insurance Program (NFIP) making federally backed flood insurance available to residents of communities that adopt and enforce floodplain management ordinances. The NFIP Program is a part of the Federal Emergency Management Agency (FEMA), managed by the Risk Insurance Division of the Flood Insurance and Mitigation Administration (FIMA). The three components of the NFIP are:

1. Flood Insurance
2. Floodplain Management
3. Flood Hazard Mapping

Thousands of communities across the United States and its territories participate in the NFIP by adopting and enforcing floodplain management ordinances to reduce future flood damage. In exchange, the NFIP makes federally backed flood insurance available to homeowners, renters, and business owners in these communities. Community participation in the NFIP is voluntary.

Flood insurance is designed to provide an alternative to disaster assistance to reduce the escalating costs of repairing damage to buildings and their contents caused by floods. Flood damage is reduced by nearly \$1 billion a year through communities implementing sound floodplain management requirements and property owners purchasing flood insurance. Additionally, buildings constructed in compliance with NFIP building standards suffer approximately 80% less damage annually than those not built in compliance. In addition to providing flood insurance and reducing flood damages through floodplain management regulations, the NFIP identifies and maps the Nation's floodplains. Mapping flood hazards creates broad-based awareness of the flood hazards and provides the data needed for floodplain management programs and to actuarially rate new construction for flood insurance.

Communities that participate in the NFIP are required to adopt and enforce the minimum federal NFIP floodplain management regulations. These regulations apply to all types of floodplain development and ensure that development activities will not cause an increase in future flood damages. Buildings are required to be reasonably safe from flooding which usually requires the finished floor elevation to be elevated at or above the corresponding Base Flood Elevation (BFE). The BFE is determined based on modeling and mapping identified within a community's Flood Insurance Study (FIS). The FIS and its corresponding Flood Insurance Rate Maps (FIRMs) provide information on areas of flood risk per the NFIP standards. These maps identify areas that have a 1%-annual chance of flooding as well as those areas with a 0.2%-annual chance of flooding. Some communities have additional flood frequencies that are modeled as part of their flood studies are within their local watershed mapping programs. When new structures are built, they are required to adhere to regulations and flood risk information provided by the NFIP. If the finished grade elevation for a structure is below the corresponding BFE, and there is a federally insured loan on the structure, then there is a mandatory requirement to purchase a flood insurance policy. The requirement for high

risk structures to carry a flood insurance policy is one method used by the NFIP to offset the escalating costs of flood disasters.

Table 8 shows the dates Flood Hazard Boundary Maps (FHBM) were issued for DeKalb County and the participating municipalities when the first Flood Insurance Rate Maps became effective, the date of the current FIRMs used for insurance purposes, and the date the community entered into the NFIP. The current regulatory Special Flood Hazard Areas (SFHA) have an effective date of May 2013. The SFHA are shown on Figure 4.

Table 8: DeKalb County NFIP Participation

Community Name	Emergency Entry Date	Initial FHBM Identified	Initial FIRM Identified & Entry Date	Current Effective Map Date
De Kalb County	05-Jun-70	05-Jun-70	15-May-80	16-May-13
Avondale Estates	--	21-Jan-10	07-May-01	16-May-13
Brookhaven	--	18-Oct-13	15-May-80	16-May-13
Chamblee	17-Dec-73	07-Jun-74	15-Sep-77	16-May-13
Clarkston	07-Aug-75	21-Feb-75	15-Jun-81	16-May-13
Decatur	19-Jun-70	11-Jun-71	11-Jun-71	16-May-13
Doraville	27-Nov-73	07-Jun-74	01-Sep-77	16-May-13
Dunwoody	--	14-Oct-09	07-May-01	16-May-13
Lithonia	--	30-Jan-08	07-May-01	16-May-13
Pine Lake	27-Feb-75	12-Apr-74	15-Jun-81	16-May-13
Stone Mountain	18-Jan-83	12-May-74	01-Aug-86	16-May-13

Of the 1,941 flood insurance policies in force within the county, 1,458 are within the unincorporated county, 233 are within the City of Decatur and 110 are within the City of Dunwoody. As of September 2015, 1,451 NFIP claims with \$22 million in total payments were filed for properties within the county. **Table 9** summarizes the NFIP policy and claim statistics for the county with flood totals for comparison. The data in this table was obtained from FEMA's CIS database.

Table 9: NFIP Policy and Claim Information

Community Name	Policy Statistics (as of 9/2015)			Claim Statistics (as of 9/2015)	
	Policies In-Force	Total Coverage	Total Premium	Total Claims since 1978	Total Paid since 1978
DeKalb County	1,458	\$ 688,651,300	\$ 2,380,846	1,250	\$ 20,147,568
Avondale Estates	9	\$ 2,870,000	\$ 4,357	0	\$0
Brookhaven	--	--	--	--	--
Chamblee	43	\$ 9,760,900	\$ 46,531	21	\$ 161,988
Clarkston	12	\$ 1,473,500	\$ 7,798	4	\$ 11,042
Decatur	233	\$ 45,595,700	\$ 186,224	142	\$ 1,041,197
Doraville	49	\$ 12,290,800	\$ 53,090	8	\$ 141,644

Community Name	Policy Statistics (as of 9/2015)			Claim Statistics (as of 9/2015)	
	Policies In-Force	Total Coverage	Total Premium	Total Claims since 1978	Total Paid since 1978
Dunwoody	110	\$ 28,774,400	\$ 52,713	0	\$0
Lithonia	--	--	--	--	--
Pine Lake	11	\$ 2,572,200	\$ 6,600	9	\$ 129,427
Stone Mountain	16	\$ 3,871,800	\$ 9,838	17	\$ 417,293
Total	1,941	795,860,600	2,747,997	1,451	22,050,159

Community Rating System (CRS)

Communities that regulate development in floodplains are able to participate in the NFIP. In return, the NFIP makes federally-backed flood insurance policies available for properties in the community. The CRS was implemented in 1990 as a program for recognizing and encouraging community floodplain management activities that exceed the minimum NFIP standards. There are ten CRS classes: class 1 requires the most credit points and gives the largest flood insurance premium reduction; class 10 receives no premium reduction. These discounts are applied per each CRS community and apply to all flood insurance policyholders.

DeKalb County entered the CRS in October 1992 and participates as a “Class 7” community. The City of Decatur (October 1993) also participates in the CRS and is a “Class 7” community. Participation in this program allows residents within the SFHA to receive a 15% discount on their flood insurance premiums for policies purchased under the NFIP. Residents within the non-SFHA receive a 5% discount on their policies.

FEMA Repetitive Flood Claims

Many flood insured properties have had more than one claim. A property that is currently insured for which two or more NFIP losses (occurring more than 10 days apart) of at least \$1,000 each that have been paid within any 10-year period since 1978 is defined as repetitive loss property (RLP) by the NFIP program. According to FEMA RiskMAP data, there are 157 RLPs within the incorporated and unincorporated areas of DeKalb County, three within the City of Atlanta. Of the participating localities, 91 are within the unincorporated areas of DeKalb County, followed by 30 in Brookhaven, 12 within Chamblee, and nine in Decatur and Dunwoody. According to the FEMA Community Information System (CIS) database, there have been 279 repetitive losses, 91 (or 33%) of the claims are for areas outside of the SFHA. Table 10 summarizes the RL properties and losses for each community as of September 2015.

Table 10: Repetitive Losses, Including Claims within Non-Regulatory Zones B, C, and X

Community Name	Number of Properties	Number of Repetitive Losses	Number of Claims in BCX Zones	Total Area Population	LOMCs
De Kalb County	91	214	72	660,000	801
Avondale Estates	0	--	--	--	--
Brookhaven	30	0	0	7,231	9
Chamblee	12	19	7	10,000	23
Clarkston	0	--	--	--	--
Decatur	9	35	8	18,127	55
Doraville	0	2	2	9,039	33
Dunwoody	9	--	--	--	--
Lithonia	0	0	0	2,200	10
Pine Lake	1	3	0	901	3
Stone Mountain	2	6	2	6,494	14
Total	154	279	91	713,992	948

Figure 4 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 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.

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. Methods used to evaluate and prioritize properties for acquisition are included in the property acquisition projects descriptions in Section 5.3.

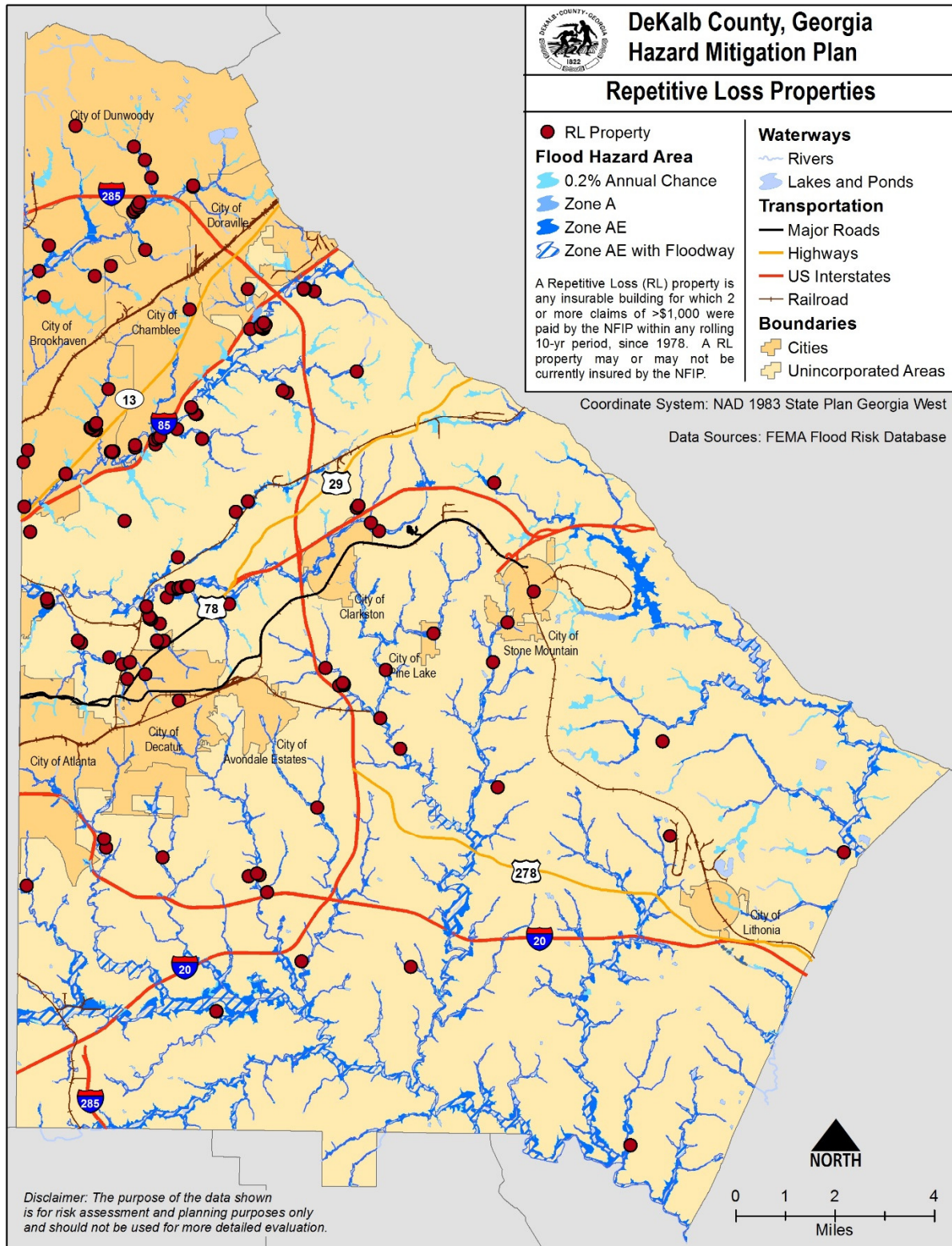


Figure 4. Repetitive Loss Properties

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.

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.

As part of the April 2015 Risk Analysis report, a building footprint layer was provided by DeKalb County to use for the study. Using DeKalb's updated aerial imagery and impervious surface data, building footprints were digitized and added where not depicted on the building footprint layer. Before the risk analysis, the building footprint data was intersected with the parcel data provided by DeKalb County, and the parcel identification numbers and street addresses were added as attributes in the building footprint data. An ID field was then added to the building footprint layer and an ID number was assigned to each building. To identify the floodprone roadways, riverlines were intersected with all structures (e.g. bridges, culverts, and dams) that are located on roads and converted to points. This data has been used as the basis for the 2016 plan update analysis.

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 Energy⁴. 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 capabilities and mitigation measures for each jurisdiction. According to the **DeKalb GA 2015 Risk Analysis of Floodprone Buildings and Roadways** the total value of exposed assets within DeKalb County is estimated at over \$85 billion dollars. Table 11 displays the distribution of exposed assets within the county.

As described above, a Level 2 Hazus Analysis was performed as part of the April 2015 Risk Analysis Study. More accurate loss estimates are produced by providing more accurate local inventories of buildings, essential facilities and other infrastructure (FEMA). The User Defined Facilities table in Hazus was populated using the building footprint provided by DeKalb County and 2010 US Census general building stock data.

Table 11.Total Exposure of Assets in DeKalb County (shown in thousands of dollars)*

Community Name	Residential	Commercial	Industrial	Agricultural	Religious	Government	Education	Total
DeKalb County	\$5,936,315	\$848,357	\$147,068	\$12,426	\$131,885	\$11,031	\$105,366	\$7,192,444
Avondale Estates	\$14,787	\$3,081	\$1,113	\$953	\$566	\$155	\$0	\$20,654
Brookhaven	\$595,401	\$150,934	\$9,805	\$932	\$9,486	\$1,750	\$36,679	\$804,989
Chamblee	\$389,434	\$129,319	\$23,016	\$3,369	\$8,136	\$567	\$7,309	\$561,147
Clarkston	\$88,816	\$9,728	\$713	\$114	\$132	\$485	\$3	\$99,991
Decatur	\$89,099	\$83,607	\$1,532	\$271	\$5,461	\$5	\$2	\$179,978
Doraville	\$49,366	\$21,046	\$902	\$1	\$1,322	\$0	\$106	\$72,744
Dunwoody	\$1,033,978	\$188,843	\$10,287	\$2,292	\$16,373	\$889	\$1,874	\$1,254,535
Lithonia	\$0	\$70	\$0	\$0	\$0	\$0	\$0	\$70
Pine Lake	\$1,809	\$716	\$159	\$0	\$0	\$0	\$0	\$2,684
Stone Mountain	\$38,694	\$2,843	\$192	\$145	\$238	\$0	\$0	\$42,112
Total*	\$65,913,862	\$13,046,956	\$2,315,533	\$196,471	\$1,526,135	\$547,765	\$1,513,469	\$85,060,191

*Includes exposure to the portion of Atlanta that is within DeKalb County, however Atlanta has been left out as it is covered under Fulton County's Hazard Mitigation Plan

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 square footage and valuation parameters to use in loss estimation

⁴ HAZUS-MH MR4 Technical Manual – Flood Model Chapter 3 page 5

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.

Danger Classifications for the resulting damage tables for buildings and roadways are highly customizable based on what data the user wants to present. In the recent Risk Analysis performed for buildings and roadways, there are results tables for BldgDmg, ContDmg, Depth, Pct30yrChance, Inventory Loss, and PctAnnChance. These all can join back up to the building footprint and then be displayed however the County wants to display them and create their own intervals in symbology to determine the danger classification they want. For roads, they can create their own danger classification based on Depth, WSEL, or Flood_Frequency which are included in the Floodprone_Structures feature class. Figure 2 in the Risk Report was just an example of how the County can create their own Danger Classification.

The most recent Hazus results for DeKalb County produced a building damage table that calculates the building damage percent and building damage loss in dollars for each flood scenario analyzed. This table was joined to the DeKalb County's building footprint to create a Danger Classification. The

Danger Classification shown in Table 17. This is based on categorizing each building footprint based on their 100 year percent damage. The categories are:

- 0-20% Building Damage (Very Low Danger)
- 21%-40% Building Damage (Low Danger)
- 41%-60% Building Damage (Medium Danger)
- 61%-80% Building Damage (High Danger)
- 81%-100% Building Damage (Very High Danger)

Table 18 summarizes the estimated building loss and content loss for the 100-year and 500-year events. As shown, the 100-year event results in losses over \$280 million in building and \$455 million in contents. The City of Brookhaven losses exceed \$34 million in building losses and \$3.5 million in contents.

Table 12. Danger classification for 1% annual chance flood

Municipality	Exposed Population	Number of Building Footprints	Number of Building Footprints within danger classes				
			Very High	High	Medium	Low	Very Low
Avondale Estates	112	2,589	0	0	0	1	2,588
Brookhaven	7,649	22,268	0	1	3	32	22,232
Chamblee	6,266	10,907	0	0	0	19	10,888
Clarkston	1,340	2,526	0	0	19	29	2,478
Decatur	739	12,355	0	0	0	11	12,344
Doraville	1,150	5,636	0	0	0	6	5,630
Dunwoody	10,429	22,777	Was not part of 2015 Risk Analysis Report scope				
Lithonia	0	1,220	0	0	0	0	1,220
Pine Lake	37	662	0	0	0	1	661
Stone Mountain	284	3,405	0	0	0	1	3,404
DeKalb County Unincorporated	62,280	294,192	0	2	136	751	293,303

Table 13. Flood Building Footprint Analysis Building and Content Loss

Municipality	Number of Building Footprints	100- year Flood Event Building Loss	100- year Flood Event Contents Loss	500- year Flood Event Building Loss	500- year Flood Event Contents Loss
Avondale Estates	2,589	\$98,940	\$90,581	\$147,602	\$195,395
Brookhaven	22,268	\$34,233,726	\$3,501,4859	\$72,543,114	\$76,417,479
Chamblee	10,907	\$12,549,810	\$19,555,219	\$30,633,099	\$52,327,893
Clarkston	2,526	\$8,913,510	\$4,184,532	\$10,264,424	\$3,284,567
Decatur	12,355	\$689,195	\$1,019,566	\$1,094,048	\$1,656,682
Doraville	5,636	\$3,747,968	\$11,158,605	\$7,081,584	\$20,119,837
Dunwoody	22,777	Was not part of 2015 Risk Analysis Report scope			
Lithonia	1,220	\$18,192	\$94,301	\$31,088	\$158,967
Pine Lake	662	\$173,123	\$622,624	\$197,519	\$673,566
Stone Mountain	3,405	\$1,158,952	\$698,211	\$2,941,431	\$1,865,573
DeKalb County Unincorporated	294,192	\$214,304,773	\$376,885,978	\$327,754,787	\$593,525,118
Total*		\$280,724,561	\$455,565,589	\$459,627,835	\$758,031,490

*Includes building and content loss to the portion of Atlanta that is within DeKalb County, however Atlanta has been left out as it is covered under Fulton County's Hazard Mitigation Plan

Floodprone Roadways

As part of the Risk Analysis Report, riverlines were intersected with all structures (including bridges, culverts, and dams). The water surface elevations were extracted and assigned to the top of road, with the most frequent flood event to impact the road being noted. Figure 5 shows the floodprone roads, symbolized by color based on the frequency of occurrence. Roads with a red + have a 50% annual chance of occurrence (2-year event) and the dark green + are associated with roadways that are inundated by the 500-year event. Table 14 summarizes the number of roadways flooded by recurrence interval. As shown, there are 190 road segment inundated by the 2-year event. The majority of these are located within the unincorporated areas of the county. Following the county, Atlanta has 46 total roadways inundated, Chamblee has 33, and Brookhaven has 34. Streams with the highest number of floodprone structures include:

- Snapfinger (24 floodprone structures)
- NFPC Main (20 floodprone structures)
- SM Creek (18 floodprone structures)
- Sugar Sugar (18 floodprone structures)
- NFPC TA Main (15 floodprone structures)
- Pole Bridge Creek (15 floodprone structures)

Table 14: Floodprone Roadways by Recurrence Interval

Municipality	50% Chance Event (2-yr)	20% Chance Event (5-yr)	10% Chance Event (10-yr)	4% Chance Event (25-yr)	2% Chance Event (50-yr)	1% Chance Event (100-yr)	0.5% Chance Event (200-yr)	0.2% Chance Event (500-yr)	No Overtopping	Grand Total
Atlanta	16	1	13	3	1	4	1	3	4	46
Avondale Estates	2		1		1					4
Brookhaven	2	2	3	4	1	4	5	3	10	34
Chamblee	7	5	7	4		1		4	5	33
Clarkston	3		1	2	1			6	1	14
Decatur			1							1
Doraville	5	8		3	1	1	2		2	22
Dunwoody	Was not part of 2015 Risk Analysis Report scope									
Lithonia					1			1	2	4
Pine Lake	1		1							2
Stone Mountain	2		2		1					5
DeKalb County Unincorporated	152	63	170	47	129	46	15	73	232	927
Grand Total	190	79	199	63	136	56	23	90	256	1,092

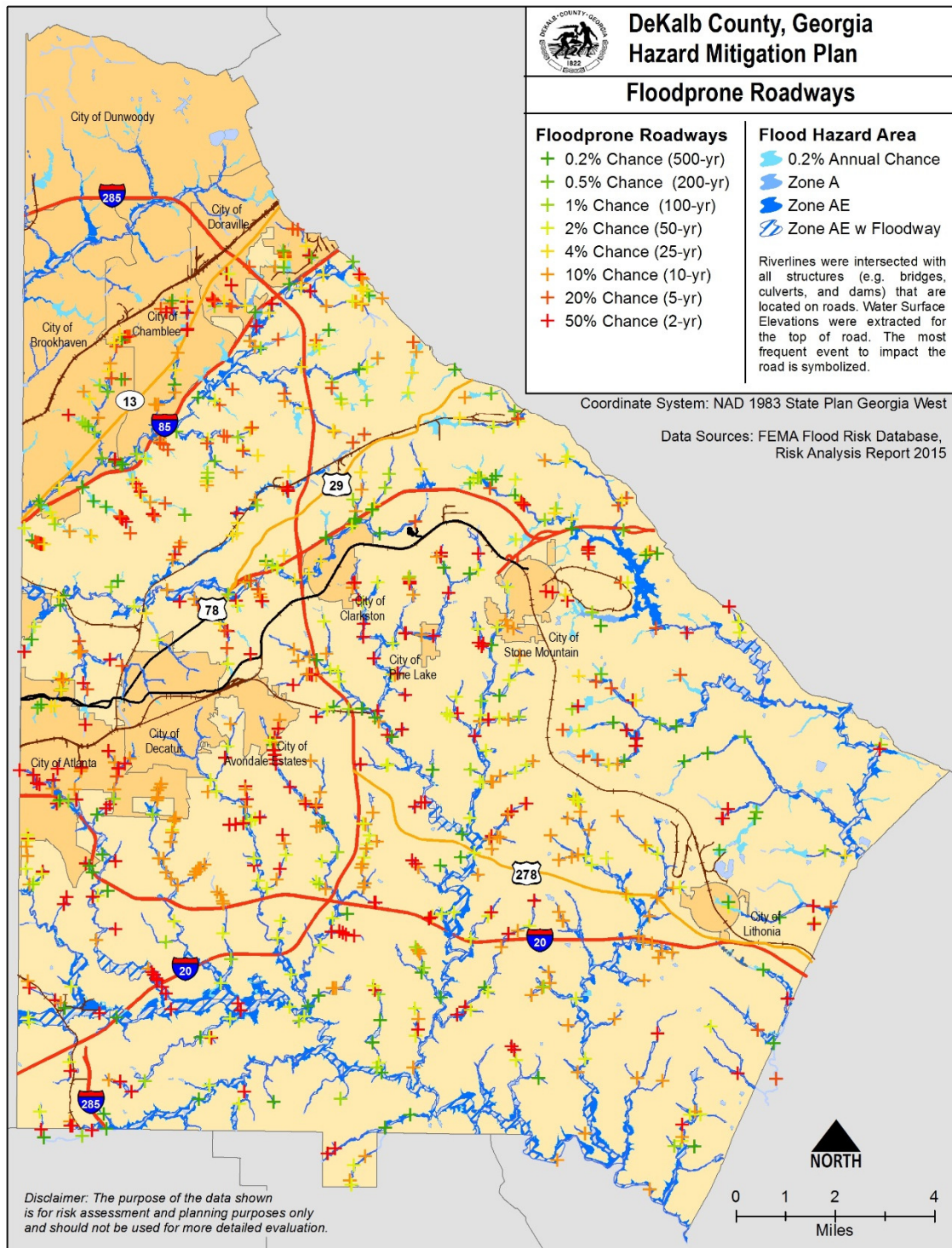


Figure 5: Floodprone Roadways

Critical Facilities

Critical facilities were extracted from the 2015 Flood Risk Study and RiskMAP and cross-referenced with the facilities provided as part of the 2016 HMP update for a comprehensive analysis of at risk facilities. The facilities were then intersected with the FEMA effective 100-Year flood data.

Seventeen of the 30 facilities within flood zones are located within DeKalb County unincorporated areas, ten within Decatur, and one facility within Brookhaven, Chamblee, and Stone Mountain. Ten facilities with a total building value of \$2.5 million were located within Zone AE with Floodway, 11 facilities with a total building value of \$1.3 million were within Zone AE, and nine facilities with a total building value of \$35 million were within the 0.2% annual chance flood zone. **Table 15** includes the 30 facilities located within mapped flood zones and include available information for address and building value. It should be noted that data supplied from the County did not include building values.

Table 15: Critical facilities located within FEMA mapped flood zones.

Jurisdiction	Facility Type	Facility Name	Address	Flood Zone	Building Value
Brookhaven	Elementary School	Woodward Elementary School	3034 Curtis Drive, NE	Zone AE with Floodway	\$2,479,700
Chamblee	Senior Center	North DeKalb Senior Center	3393 Malone Drive	0.2% Annual Chance	Not Available
Decatur	Health Center	Clifton Springs Health Center	3100 Clifton Springs Road	0.2% Annual Chance	Not Available
Decatur	Administrative	Fox Recovery Center	3110 Clifton Springs Road	0.2% Annual Chance	Not Available
Decatur	Recreation	Truelove Park/ Softball Complex	3510 Oakvale Road	Zone AE with Floodway	Not Available
Decatur	Park	Meadowdale Park	3569 Larkspur Road	Zone AE	Not Available
Decatur	Park	Shoal Creek Park I	3642 Glenwood Road	Zone AE with Floodway	Not Available
Decatur	Park	Shoal Creek Park II	3643 Glenwood Road	Zone AE with Floodway	Not Available
Decatur	Wastewater Treatment Plant	Dekalb County-Snapfinger Creek WPCP	4124 Flakes Mill Rd	0.2% Annual Chance	\$22,967,600
Decatur	Water & Waste Water Treatment	Snapfinger Plant, Water & Sewer	4124 Flakes Mill Road	Zone AE with Floodway	Not Available
Decatur	Maintenance	Snapfinger Maint Shop W&S	4124 Flakes Mill Road	Zone AE with Floodway	Not Available
Decatur	Administrative	Snapfinger Laboratory	4124 Flakes Mill Road	Zone AE with Floodway	Not Available
DeKalb	Park	Longdale Park	1830 Longdale Drive	Zone AE	Not Available
DeKalb	Park	Fisher Trail	2230 Fisher Trail	Zone AE	Not Available
DeKalb	Park	Buena Vista Park	2300 McAfee Road	Zone AE with Floodway	Not Available
DeKalb	Park	Washington Park	2830 Arborcrest	0.2% Annual Chance	Not Available
DeKalb	Public Two-Year College	GPC SE Building	3251 Panthersville Road	0.2% Annual Chance	\$77,760

Jurisdiction	Facility Type	Facility Name	Address	Flood Zone	Building Value
DeKalb	Public Two-Year College	GPC SC Building	3251 Panthersville Road	0.2% Annual Chance	\$12,096,000
DeKalb	Public Two-Year College	GPC SH Building	3251 Panthersville Road	Zone AE	\$47,628
DeKalb	Public Two-Year College	GPC SI Building	3251 Panthersville Road	Zone AE	\$45,360
DeKalb	Public Two-Year College	GPC SJ Building	3251 Panthersville Road	Zone AE	\$45,360
DeKalb	Public Two-Year College	GPC SK Building	3251 Panthersville Road	Zone AE	\$45,360
DeKalb	Public Two-Year College	GPC SD Building	3251 Panthersville Road	Zone AE	\$453,600
DeKalb	Public Two-Year College	GPC SF Building	3251 Panthersville Road	Zone AE	\$81,000
DeKalb	Private School	Learning Institute (The)	3900 Memorial College Ave.	0.2% Annual Chance	\$243,300
DeKalb	Police Station	Decatur Police Department	420 W Trinity Place	0.2% Annual Chance	Not Available
DeKalb	Park	Stoneview Park	850 Dunleith Court	Zone AE with Floodway	Not Available
DeKalb	Park	Medlock Park	854 Galemond Road	Zone AE with Floodway	Not Available
DeKalb	Recreation	Medlock Pool	854 Galemont Road	Zone AE	Not Available
Stone Mountain	Fire Station	DeKalb County Fire Services Station 24	4154 Redan Rd	Zone AE	\$545,900

The 2011 HMP critical facility analysis indicated a total of two schools, one fire station and one police station in the 100-Year floodplain. The 2016 analysis has identified 27 additional facilities vulnerable to flooding within the county.

Analysis for major infrastructure from the 2011 HMP was reviewed and determined to be applicable for infrastructure categories and associated costs. 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 16.

Table 16. 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 substantially 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.

Flood Risk Summary

Based on historical frequency of occurrence using NCDC data, a reasonable determination of probability of future flood events can be made. Flooding has had significant impacts on DeKalb in the past and is likely to impact the County in the future. An examination of NCDC data suggests that on an annual basis, approximately one flood event of some significance is likely to occur in the county on an annual basis with damages near \$445,276. Based on NCDC data, flash flood events of some significance are likely to occur 1 to 2 times in a given year with damages near \$414,645. **Table 17** shows the annualized number of flood events and estimated annualized damages (inflated to 2015) based on the NCDC historical record.

As evidence in property and crop loss figures (Table 2) obtained from NCDC, floods have the potential to be destructive. These estimates are believed to be an underrepresentation of the actual losses experienced due to hazards as losses from events that go unreported or that are difficult to quantify are not likely to appear in the NCDC database; this is especially true with crop damages.

Table 17: Flood NCDC annualized events and damages

Hazard	Period of Record	Annualized Events	Annualized Property Damage	Annualized Crop Damage
Flash Flood	1993-2015	1.7	\$414,645	\$0
Flood	1993-2015	0.602	\$445,276	\$0

4.3.1.2 Severe Winds (Hurricane, Tornado, Thunderstorm/Lightning/Straight Line Winds)

4.3.1.3 Hazard Identification and Ranking

Hazard rankings completed for this plan were updated using the DeKalb County Hazard Vulnerability Analysis tool. The 2011 hazard rankings were reviewed and updated to reflect feedback of the MAC and public survey responses. Hazard rankings were elevated for tornado, thunderstorms and lightning for the 2016 update.

In addition to the overall county ranking, ten municipalities consider wind, hurricane, thunderstorms, lightning and tornado as a moderate risk with moderate damage potential. The City of Doraville considers these hazards significant in risk and damage potential.

Table 18 summarizes the probability, severity, impacts and relative risk for wind related hazards. Straight-line wind, tornado, thunderstorms, lightning, and hurricane winds profiled and included in the wind section of this report. Straight-line winds and tornadoes are considered significant risks for DeKalb County followed by thunderstorm, lightning, and hurricane wind as moderate risks. Hazard ranking methodology is further explained in the beginning of the hazard identification section of this plan.

Table 18: Wind related Hazard Rankings

Hazard	Probability	Impact			Hazard Planning Consideration 2011	Hazard Planning Consideration 2016
		Affected Area	Primary Impact	Secondary Impacts		
WIND (STRAIGHT LINE, LIGHTNING, AND THUNDERSTORM)	Highly Likely > 1/100 or 1% annual occurrence	Large > 25% of community impacted	Limited 10% to 25% of facility damage	Moderate Some loss of function, downtime, and/or evacuations	Significant	Significant
TORNADO	Highly Likely > 1/100 or 1% annual occurrence	Isolated < 1% of community impacted	Critical 25% to 50% of facility damage	Moderate Some loss of function, downtime, and/or evacuations	Moderate	Significant
HURRICANE	Likely 1/1000 to 1/100 or 0.1% to 1% annual	Medium 5% to 25% of community impacted	Critical 25% to 50% of facility damage	High Major loss of function, downtime, and/or evacuations	Moderate	Moderate

4.3.1.4 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 (now, the Enhanced Fujita Scale), along with the type and number of facilities and resources impacted. Table 19 includes the corresponding wind speeds for the Enhanced Fujita Scale, and typical damage descriptions for each level.

Table 19: The Enhanced Fujita Scale

Scale Value	Wind Speed (mph)	Description of Typical Damage
EF-0	65-85	'Minor damage': shingles blown off or parts of a roof peeled off, damage to gutters/siding, branches broken off trees, shallow rooted trees toppled.
EF-1	86-110	'Moderate' damage: More significant roof damage, windows broken, exterior doors damaged or lost, mobile homes overturned or badly damaged.
EF-2	111-135	'Considerable' damage: roofs torn off well-constructed homes, homes shifted off their foundation, mobile homes completely destroyed, large trees snapped or uprooted, cars can be tossed.
EF-3	136-165	'Severe' damage: entire stories of well-constructed homes destroyed, significant damage done to large buildings, homes with weak foundations can be blown away, and trees begin to lose their bark.
EF-4	166-200	'Extreme' damage: Well-constructed houses are leveled, cars thrown significant distances, top story exterior walls of masonry buildings would likely collapse.
EF-5	> 200	'Massive/incredible' damage: Well-constructed homes are swept away, steel-reinforced concrete structures are critically damaged, high-rise buildings sustain severe structural damage, trees are usually completely debarked, stripped of branches, and snapped.

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 shown in Table 20.

Table 20: 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

Category	Wind Speed (mph)	Description of Typical Damages
		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 cumulonimbus 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.

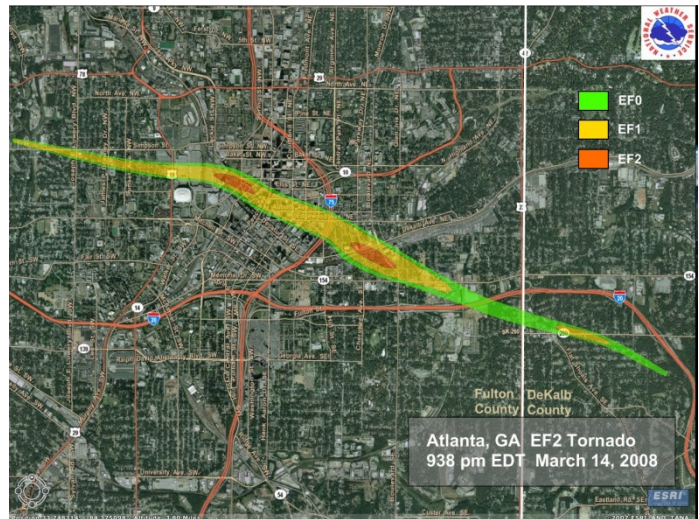
Tornado Disaster History

In an average year, about 1,000 tornadoes are reported across the United States, resulting in 80 deaths and over 1,500 injuries. 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 21 includes a combination of recorded events from the NCDC and USC – SHELDTUS 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 EF2 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.

No tornadoes have been recorded in NCDC since March 2008.



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

Table 21: 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	EF2	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 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 7**, which shows the locations of 7 of the 9 tornadoes noted above within DeKalb County. Locations of these touch downs were obtained from the NCDC database. **Figure 7** shows the spatial location of the recent tornado events as mapped by NWS SVRGIS. The wind events are shown as swaths in the pink to red color spectrum.

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 the April 27, 2011 tornado outbreak that spawned approximately 150 tornadoes across 13 U.S. states, DeKalb County would experience utter devastation. While not catastrophic, the April 27, 2011 event that went through greater Atlanta is an unpleasant reminder of the damage that can be caused by a major tornado. 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, 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. **Figure 6** shows the historic hurricanes to pass over DeKalb County. As shown, several hurricanes passed over the county as tropical depressions in 1900, 1903, 1912, 1940, and Arlene in 1959.

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 SHELDTUS 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 NCDC and SHELDTUS 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 NCDC database include Tropical Storm Cindy (2005), Hurricane Katrina (2005), Tropical Storm Fay (2008), Hurricane Ida (2009), and Tropical Storm Lee (2010). 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.

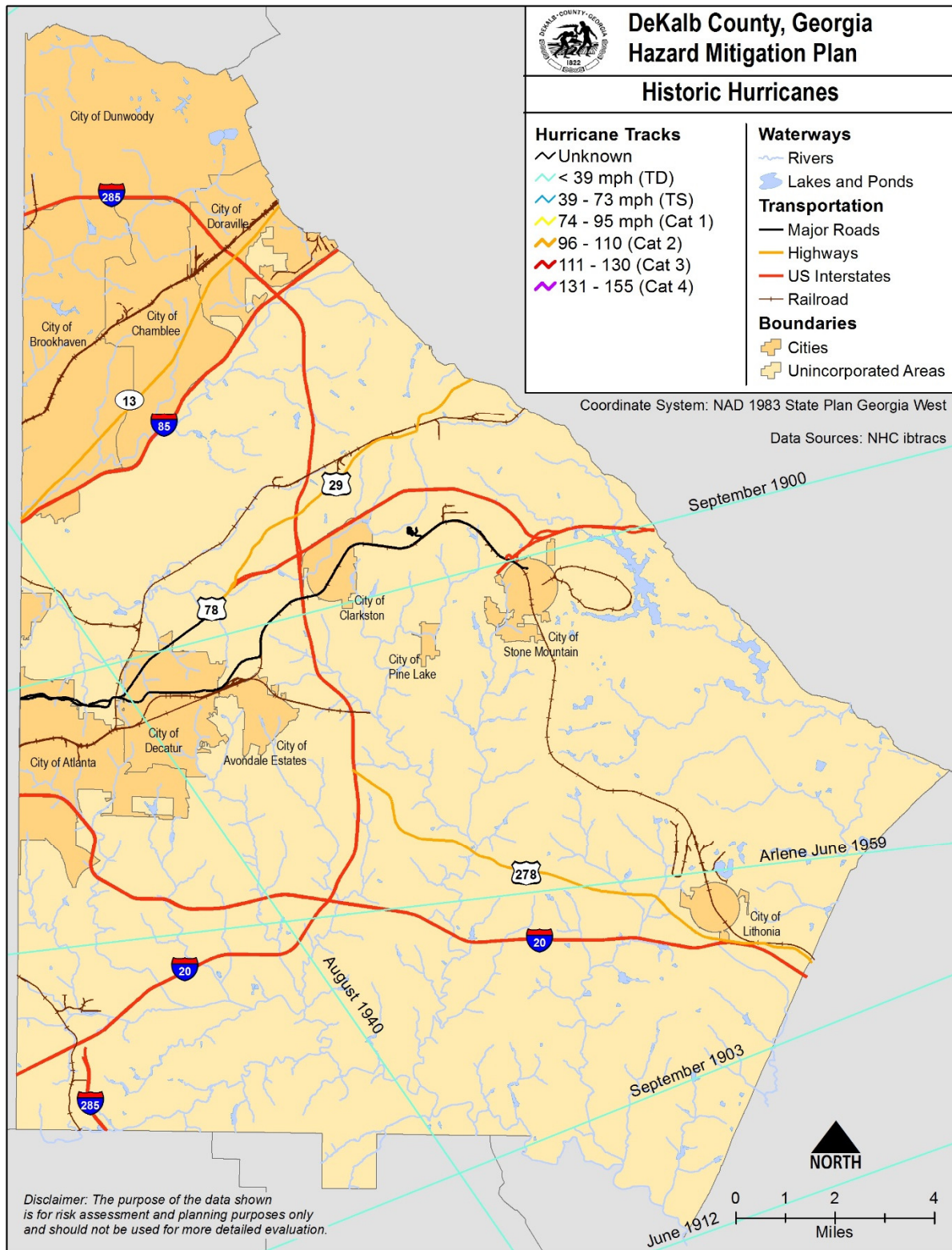


Figure 6: Historic hurricanes

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. Table 22 provides a summary of the tropical cyclones impacting DeKalb. 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.

Table 22: 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
November	2009	Ida	40	Tropical Storm
September	2011	Lee	40	Tropical Storm

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 August 2014 there are 295 thunderstorm related wind events listed in the NCDC database for DeKalb County. The database indicates that those events caused approximately \$20.7 million in property damages and resulted in three fatalities and ten 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. **Figure 7** shows the spatial location of the recent wind events as mapped by NWS SVRGIS. The wind events are shown as swaths in the yellow to maroon color spectrum and hail events shown in the blue color spectrum.

According to the NCDC database, the majority 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.

On August 2012, Broadcast Media relayed reports of several trees down across northeast Atlanta, including on Iverson Avenue, Hardee Street and Sinclair Avenue. A tree fell on Fox Brothers Barbeque on DeKalb Avenue. Damages were estimated at \$80,000. No one was injured.

A 74 knot thunderstorm on January 4, 2015 resulted in damage to trees along Shallowford Road near the North Fork of Peachtree Creek. Several trees were downed along Cosmos Drive N.E. with some damage to homes due to falling limbs. A large tree was downed on a home on Hawthorne Place with several other trees down surrounding the home. Trees were also downed along Jasmine Court and Canna Ridge. Extensive tree and home damage was noted along Braithwood Road and Applewood Court where numerous trees were downed on homes. All damage noted to structures was due to falling trees or branches.

An overview of the latest thunderstorm wind events is located in Table 23.

Table 23: Overview of Recent Thunderstorm Events in DeKalb County

Date	Location	Magnitude (kts)	Property Damage
6/15/2010	Gresham Park	35	10K
4/21/2010	Gresham Park	50	4K
5/26/2011	Gresham Park	52	150K
6/18/2011	Dunwoody	50	5K
6/22/2011	Henrico	52	50K
6/26/2011	Chamblee	35	50K
6/26/2011	Dunwoody	50	10K
3/3/2012	Toco Hills	50	3K
7/3/2012	Gresham Park	50	2K
7/10/2012	Redan	50	3K
8/2/2012	Vista Grove	50	80K
8/3/2012	Redan	45	70K
8/9/2012	Oglethorpe University	50	75K
6/13/2013	North Atlanta	55	70K
7/12/2013	Belvedere Park	40	10K
7/17/2013	Peachtree	50	15K
8/8/2014	Stone Mtn	60	2K
8/18/2014	Decatur	50	1K
1/4/2015	Peachtree	74	50.00K

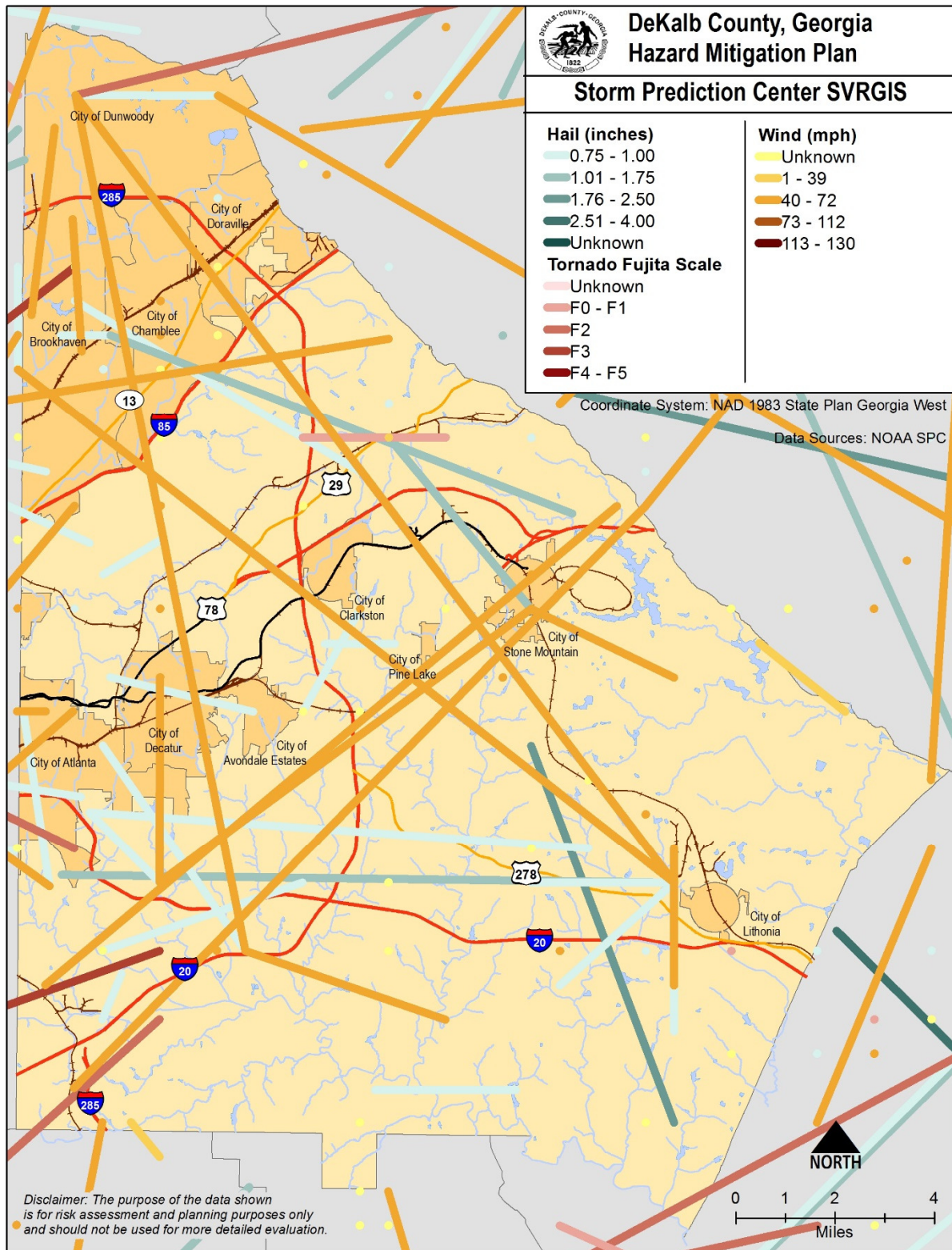


Figure 7: NOAA NWS severe storm events.

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.

4.3.1.5 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. As discussed in *Appendix 3 – Community Profiles*, the median age of building stock in DeKalb County is 1977. Areas around Decatur and parts of Avon Estates were built pre-1960. Newer development (after 1990) is focused in the southern part of the county and the northwestern area north of Brookhaven.

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 ten city jurisdictions, and the private utility companies. The vulnerability of power infrastructure is generally consistent from jurisdiction to jurisdiction.

4.3.1.5.1 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. 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. The Hazus analysis was completed during the 2011 plan update and determined to still be applicable for the 2016 update. The results provide a relative risk look at hurricane vulnerability in the county.

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 24 Exposed Countywide Losses from Wind Table 24. On a CENSUS tract-by-CENSUS tract basis, the losses are fairly consistent throughout the study area.

Table 24 Exposed Countywide Losses from Wind

Property Damage (Capital Stocks) Loss			Business Interruption (Income) Loss				Total (\$)
Building (\$)	Content (\$)	Inventory (\$)	Relocation Cost (\$)	Income (\$)	Rental (\$)	Wage (\$)	
DeKalb County							
\$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 Table 25 and Table 26. Not surprisingly, the majority of losses come from wood structures with residential properties expected to receive 80% of the overall damage.

Table 25 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 26 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

Wind Risk Summary

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 resulting from 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.

Based on historical frequency of occurrence using NCDC data, a reasonable determination of probability of future wind events can be made. Wind has had significant impacts on DeKalb in the past and is likely to impact the County in the future. An examination of NCDC data suggests that on an annual basis, approximately two to three high wind events of some significance is likely to occur in the county on an annual basis with damages near \$36,762; on average, a significant tornado is expected once every seven years in the county with damages near \$778,263. **Table 17** shows the annualized number of wind events and estimated annualized damages (inflated to 2015) based on the NCDC historical record.

As evidence in property and crop loss figures (Table 27: NCDC annualized events and damages.) obtained from NCDC, wind related events have the potential to be destructive. Total damages (adjusted for inflation) on an annualized basis range from more than \$36,762 for high wind events to more than \$285,244 for hail events.

These estimates are believed to be an underrepresentation of the actual losses experienced due to hazards as losses from events that go unreported or that are difficult to quantify are not likely to appear in the NCDC database; this is especially true with crop damages.

Table 27: NCDC annualized events and damages.

Hazard	Period of Record	Annualized Events	Annualized Property Damage	Annualized Crop Damage
Wind	1955-2015	2.74	\$36,762	\$0
Hurricane	1955-2015	0.23	\$0	\$0
Tornado	1950-2015	0.14	\$778,263	\$0

4.3.2 Winter Storms

4.3.2.1 Hazard Identification and Ranking

Hazard rankings completed for this plan were updated using the DeKalb County Hazard Vulnerability Analysis tool. The 2011 hazard rankings were reviewed and updated to reflect feedback of the MAC and public survey responses. Hazard rankings were elevated for winter storms during the 2016 update. In addition to the overall county ranking, the City of Avondale Estates considers winter storm to be a limited risk with little damage potential.

Table 28 summarizes the probability, severity, impacts and relative risk for winter related hazards. Winter related hazards risk ranking has increased from moderate to significant since 2011 due to recent events and MAC feedback. Hazard ranking methodology is further explained in the beginning of the hazard identification section of this plan.

Table 28: Winter Storm Hazard Ranking

Probability	Impact			Hazard Planning Consideration 2011	Hazard Planning Consideration 2016
	Affected Area	Primary Impact	Secondary Impacts		
Likely 1/1000 to 1/100 or 0.1% to 1% annual	Large > 25% of community impacted	Negligible < 10% of facility damage	Moderate Some loss of function, downtime, and/or	Moderate	Significant

4.3.2.2 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 2015 the NCDC database reported 27 winter storm, heavy snow and ice events resulting in approximately \$2 million dollars in damages. Table 29 includes some of the historical winter weather events that have affected DeKalb County. Limited detail is available on damages from the winter storm events. Summaries of several NCDC events for which data were available are listed below.

Table 29 Winter Weather Events in DeKalb County

Start Date	Remarks	Property Damage* (Adjusted for Inflation)
3/1/1960	Glaze, Sleet and Snow	\$515,855
3/9/1960	Snow	\$88,432
3/11/1960	Snow	\$8,843
1/25/1961	Glaze and Sleet	\$2,336
12/31/1963	Snow and Storm	\$218,031
1/13/1964	Snow and sleet	\$22
1/15/1965	Snow	\$608
1/25/1966	Snow and Ice	\$570
1/29/1966	Snow	\$2,044
1/8/1968	Glaze and sleet	\$827
1/12/1968	Snow, sleet and glaze	\$1,020
2/9/1968	Snow	\$537

Start Date	Remarks	Property Damage* (Adjusted for Inflation)
2/9/1973	Snowstorm	\$198,098
2/6/1979	Ice storm	\$550,262
2/17/1979	Snow and Sleet	\$15,476
2/5/1980	Snow	\$1,429
1/20/1983	Winter Storm	\$11,285
1/15/1994	Freeze	\$745
1/16/1994	Freeze	\$1,444
1/22/2000	Ice Storm	\$1,253,007
1/28/2000	Ice Storm	\$41,767
12/4/2002	Ice Storm	\$3,321
1/25/2004	Ice Storm	\$32,035
1/28/2005	Winter Storm	\$108,333
12/15/2005	Ice Storm	\$52,691
4/2/2005	Winter Storm	-
2/6/2006	Winter Storm	-
1/19/2008	Winter Storm	-
3/1/2009	Heavy Snow	\$5,517
1/7/2010	Winter Storm	-
12/15/2010	Winter Storm	-
2/9/2011	Winter Storm	-
1/28/2014	Winter Storm	-
2/11/2014	Winter Storm	-

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.

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.

January 2011 - One of the most significant winter storms to affect north and central Georgia in years, but especially north Georgia, began the evening of January 9th and continued throughout much of the following work week. Snowfall of four to seven inches was common across most of north Georgia north of Interstate-20. The DeKalb County 911 Center reported snowfall accumulations across the county ranging from 4.0 to 4.5 inches.

February 2014 – A significant winter storm impacted north and portions of central Georgia on Tuesday the 11th and Wednesday the 12th. Light snow began across north Georgia early Tuesday morning with the first round of wintry precipitation, followed by a brief lull Tuesday night, and a second, more significant, round of snow, sleet, and freezing rain on Wednesday morning, ending finally as light snow Wednesday evening. Overall across the Metropolitan Atlanta counties and areas east (along and just south of Interstate 85) and west (along Interstate 20), sleet accumulations of 0.25 to 0.75 inches, freezing rain accumulations of 0.1 to 0.25 inches, and snowfall accumulations of 1 to 2 inches were reported.

February 2015 – Continued cold temperatures combined with a series of upper-level troughs and associated surface low pressure systems to bring significant snow totals to portions of North Georgia. The CoCoRaHS observer reported 0.5 inches of snow.

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 22 winter events and 5 ice storms in a 23 year period, indicating a 96% probability of a winter storm occurrence in any given year and one ice storm approximately every 5 years. Magnitude varies significantly by event.

4.3.2.3 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.

4.3.2.3.1 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 to occur within the next 12 hours. 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.

4.3.2.3.2 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.

4.3.2.3.3 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. Impassable 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. Heath 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.

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.

Winter Risk Summary

Based on historical frequency of occurrence using NCDC data, a reasonable determination of probability of future winter events can be made. Winter storms have had significant impacts on DeKalb in the past and is likely to impact the County in the future. An examination of NCDC data suggests that on an annual basis, approximately one winter storm event of some significance is likely to occur in the county on an annual basis with damages near \$26,591; on average, a significant ice storm is expected once every four years in the county with damages near \$61,337. **Table 17** shows the annualized number of winter storm events and estimated annualized damages (inflated to 2015) based on the NCDC historical record.

These estimates are believed to be an underrepresentation of the actual losses experienced due to hazards as losses from events that go unreported or that are difficult to quantify are not likely to appear in the NCDC database; this is especially true with crop damages.

Table 30: NCDC annualized events and damages.

Hazard	Period of Record	Annualized Events	Annualized Property Damage	Annualized Crop Damage
Winter Weather	1993-2015	0.96	\$26,591	\$0
Ice Storm	1993-2015	0.22	\$61,337	\$0

4.3.3 Drought

4.3.3.1 Hazard Identification and Ranking

Hazard rankings completed for this plan were updated using the DeKalb County Hazard Vulnerability Analysis tool. The 2011 hazard rankings were reviewed and updated to reflect feedback of the MAC and public survey responses. In addition to the overall county ranking, the City of Avondale Estates and Pine Lake consider drought to be a moderate risk with moderate damage potential while the remaining municipalities consider drought to be a limited risk with little damage potential.

Table 31 summarizes the probability, severity, impacts and relative risk for drought related hazards. Drought related hazards risk ranking has increased from limited to moderate since 2011 due to recent events and MAC feedback. Hazard ranking methodology is further explained in the beginning of the hazard identification section of this plan.

Table 31 Drought Hazard Ranking

Probability	Impact			Hazard Planning Consideration 2011	Hazard Planning Consideration 2016
	Affected Area	Primary Impact	Secondary Impacts		
Likely 1/1000 to 1/100 or 0.1% to 1% annual	Large > 25% of community impacted	Negligible < 10% of facility damage	Limited Minimal loss of function, downtime, and/or evacuations	Limited	Moderate

4.3.3.2 Hazard Profile

Nature of Hazard

The USGS defines a drought as a condition of moisture deficit sufficient to have an adverse effect on vegetation, animals, and man over a sizeable area. 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.

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.

The NCDC database lists 21 “events” of drought condition since 1997, accounting for \$328,980 in crop damages. 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. 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.

4.3.3.3 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 limited to small pockets in the eastern and south eastern portion of the 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.

4.3.3.3.1 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 effect 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.

Drought Risk Summary

Based on historical frequency of occurrence using NCDC data, a reasonable determination of probability of future drought events can be made. An examination of NCDC data suggests that on an annual basis, approximately one drought event of some significance is likely to occur in the county on an annual basis with crop damages near \$15,666; on average, a significant extreme heat event is expected once every two years in the county. Table 32 shows the annualized number of drought events and estimated annualized damages (inflated to 2015) based on the NCDC historical record.

These estimates are believed to be an underrepresentation of the actual losses experienced due to hazards as losses from events that go unreported or that are difficult to quantify are not likely to appear in the NCDC database; this is especially true with crop damages.

Table 32 NCDC annualized events and damages.

Hazard	Period of Record	Annualized Events	Annualized Property Damage	Annualized Crop Damage
Drought	1995-2015	1	\$0.00	\$15,666
Extreme Heat	1993-2015	0.48	\$0.00	\$0

4.3.4 Wildfire

4.3.4.1 Hazard Identification and Ranking

Hazard rankings completed for this plan were updated using the DeKalb County Hazard Vulnerability Analysis tool. The 2011 hazard rankings were reviewed and updated to reflect feedback of the MAC, public survey responses, and the DeKalb County Fire Rescue. Wildfire has remained a limited hazard for the 2016 plan update. In addition to the overall county ranking, the cities of Clarkston, Dunwoody, Lithonia, and Pine Lake consider wildfire to be a moderate risk with moderate damage potential while the remaining municipalities consider wildfire to be a limited risk with little damage potential.

Table 33 summarizes the probability, severity, impacts and relative risk for wildfire related hazards. Wildfire is considered a limited risk for DeKalb County. Hazard ranking methodology is further explained in the beginning of the hazard identification section of this plan.

Table 33 Wildfire Hazard Rankings

Probability	Impact			Hazard Planning Consideration 2011	Hazard Planning Consideration 2016
	Affected Area	Primary Impact	Secondary Impacts		
Somewhat Likely > 4 events in the last 100 years	Small 1% to 5% of community impacted	Catastrophic > 50% of facility damage	High Major loss of function, downtime, and/or evacuations	Limited	Limited

4.3.4.2 Hazard Profile

Nature of Hazard

A wildfire is an uncontrolled fire spreading through vegetative fuels, exposing and possibly consuming structures 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 a wildland urban interface (WUI) 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. A WUI fire includes situations in which a wildfire enters an area that is developed with structures and other human developments. In WUI 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.”

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

The previous versions of this plan did not include specific hazard history for the county. The lack of recent wildfire history there is a false sense of security invasive throughout the County and the incorporated cities.

The DeKalb County Fire and Rescue provided wildland responses for 2013 through 2014. During 2013 and 2014, 14 acres within the county burned, resulting in the response of 64 units and 163 personnel. These events totaled 209 man hours (Table 34). Fire Rescue has an ATV unit and tractor available to respond to the incidents. It should be noted that Fire and Rescue are currently working on a wild land plan that will be complete by the end of 2015.

Table 34 Fire and Rescue Wildland calls (2012 – 2014)

Response Year	Number of Incidents	Acres Burned	Number of Units Responded	Number of Personnel Responded	Total Response Manhours
2013/2014	-	14	64	163	209
2012	26	60	67	184	345

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 35).

Table 35 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

Location and Extent/Probability of Occurrence and Magnitude

A WUI fire can be subdivided into three categories: 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.

A WUI 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. 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.

Figure 8 shows the concentration of WUI areas in the county. 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.

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 discussed 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.

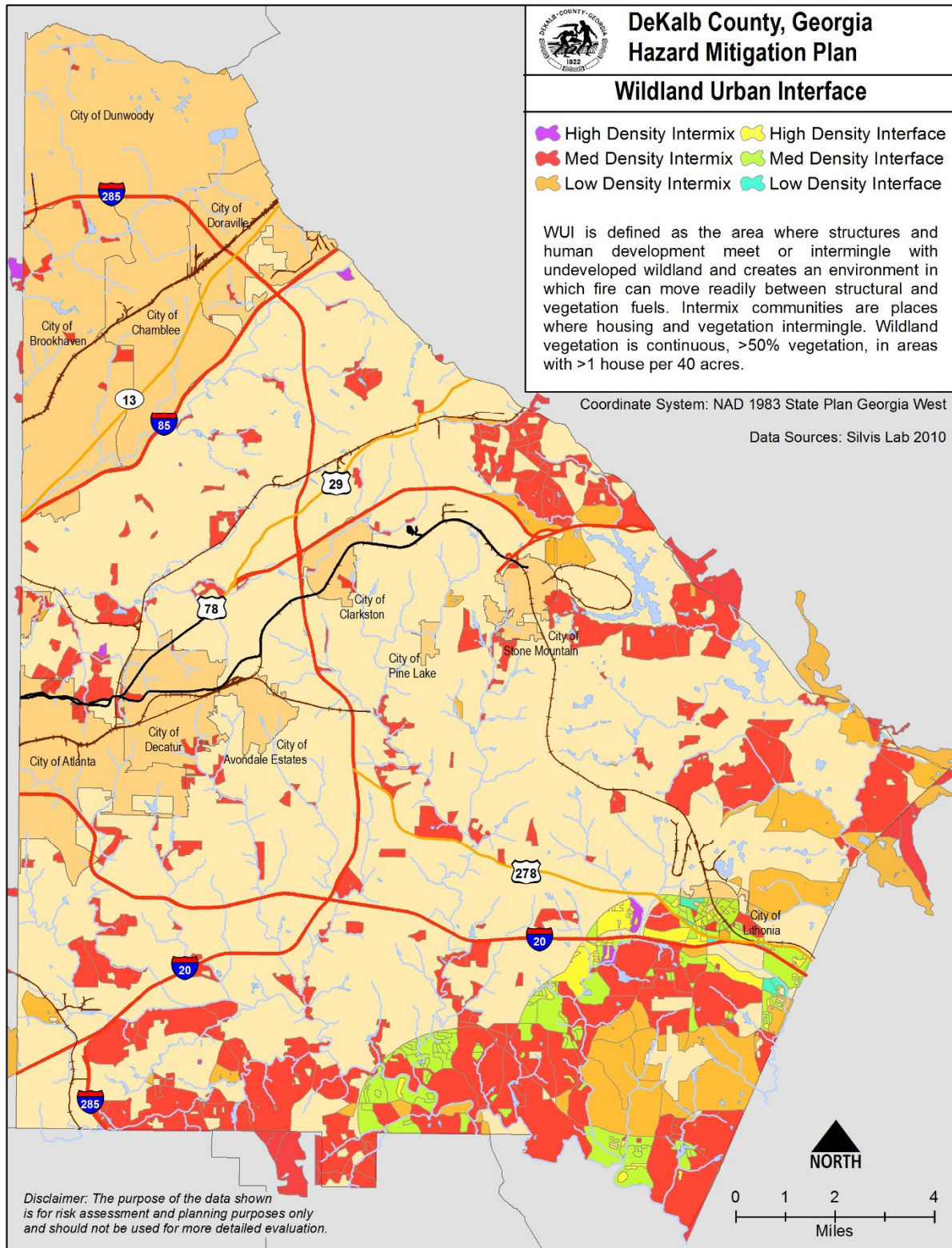


Figure 8: Wildland Urban Interface (WUI)

4.3.4.3 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.)

4.3.4.3.1 Asset Inventory

Wildfire in DeKalb County can impact critical facilities as well as residential and commercial property. Using GIS, the previously described mapping was analyzed against an inventory of assets to identify vulnerabilities to the wildfire risks, resulting in 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.

4.3.4.3.2 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 and 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 36 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 36. 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
Brookhaven						
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 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.

Wildfire Risk Summary

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.

4.3.5 Extreme Heat

4.3.5.1 Hazard Identification and Ranking

Hazard rankings completed for this plan were updated using the DeKalb County Hazard Vulnerability Analysis tool. The 2011 hazard rankings were reviewed and updated to reflect feedback of the MAC and public survey responses. In addition to the overall county ranking, the cities of Clarkston and Dunwoody consider extreme heat to be a limited risk with little damage potential.

Table 37 summarizes the probability, severity, impacts and relative risk for extreme heat. Extreme heat related hazards risk ranking has increased from limited to moderate since 2011 due to recent events and MAC feedback. Hazard ranking methodology is further explained in the beginning of the hazard identification section of this plan.

Table 37 Extreme Heat Hazard Ranking

Probability	Impact			Hazard Planning Consideration 2011	Hazard Planning Consideration 2016
	Affected Area	Primary Impact	Secondary Impacts		
Likely 1/1000 to 1/100 or 0.1% to 1% annual	Medium 5% to 25% of community impacted	Negligible < 10% of facility damage	Limited Minimal loss of function, downtime, and/or evacuations	Limited	Moderate

4.3.5.2 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."

Extreme heat can also cause water shortages and exacerbate fire hazards. Roads, bridges, and railroad tracks are susceptible to damage from extreme heat.ⁱⁱ 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.

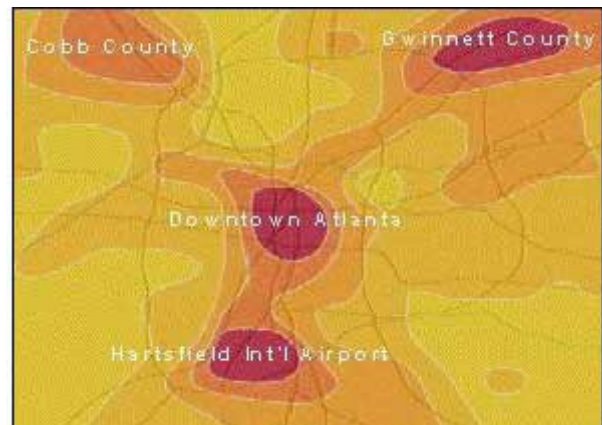
Disaster History

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 NCDC database listed 11 extreme heat events between July of 1999 and September 2014 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.

In the summer of 2012, a strong upper level ridge was responsible for record-breaking heat across the Plains and Midwest slid toward the Southeast. This was one of the hottest events in Georgia state history, with multiple all-time heat records tied or broken, including, Macon, Atlanta, and Columbus.). The record-breaking heat wave continued into the beginning of July.

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. Based on limited historical records, an extreme heat event can be expected approximately once every two years.



Landsat satellite image of multi-nodal heat island in Atlanta, GA. Darker tones denote higher temperatures.

<http://www.epa.gov/heatisland/about/measuring.htm>

4.3.5.3 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.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.

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.

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. Climate records from the past 40 years indicate the Atlanta area receives about 36 days annually where the high is over 90 degrees.

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.

Extreme Heat Risk Summary

Based on historical frequency of occurrence using NCDC data, a reasonable determination of probability of future extreme events can be made. An examination of NCDC data suggests that on average, a significant extreme heat event is expected once every two years in the county. Table 38 shows the annualized number of extreme heat events and estimated annualized damages (inflated to 2015) based on the NCDC historical record.

These estimates are believed to be an underrepresentation of the actual losses experienced due to hazards as losses from events that go unreported or that are difficult to quantify are not likely to appear in the NCDC database; this is especially true with crop damages.

Table 38 NCDC annualized events and damages.

Hazard	Period of Record	Annualized Events	Annualized Property Damage	Annualized Crop Damage
Extreme Heat	1993-2015	0.48	\$0	\$0

4.3.6 Earthquake

4.3.6.1 Hazard Identification and Ranking

Hazard rankings completed for this plan were updated using the DeKalb County Hazard Vulnerability Analysis tool. The 2011 hazard rankings were reviewed and updated to reflect feedback of the MAC and public survey responses. Earthquake was elevated during the 2016 plan update from insignificant risk to limited risk and damage potential.

Table 39 summarizes the probability, severity, impacts and relative risk for earthquake. Earthquake related hazards risk ranking has increased from none to limited since 2011 due to MAC feedback. Hazard ranking methodology is further explained in the beginning of the hazard identification section of this plan.

Table 39 Earthquake Hazard Ranking

Probability	Impact			Hazard Planning Consideration 2011	Hazard Planning Consideration 2016
	Affected Area	Primary Impact	Secondary Impacts		
Unlikely < 4 events in the last 100 years	Medium 5% to 25% of community impacted	Negligible < 10% of facility damage	Negligible No loss of function, downtime, and/or evacuations	None* Insignificant Risk	Limited

4.3.6.2 Hazard Profile

Nature of Hazard

Earthquakes can last from a few seconds to more than five minutes, and they may also occur as a series of tremors over a period of several days. The actual movement of the ground in an earthquake is seldom the direct cause of injury or death. Casualties may result from falling objects and debris, because the tremors shake, damage, or demolish buildings and other structures. Disruption of communications, electrical power supplies, and gas, sewer, and water lines should be expected. Earthquakes may trigger fires, dam failures, landslides, or releases of hazardous material, compounding their disastrous effects.

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.

Table 40: Modified Mercalli Intensity Scale and Peak Ground Acceleration Comparison

Source: FEMA Publication 386-2, "Understanding Your Risks"

MMI	Acceleration (%g) PGA	Perceived Shaking	Potential Damage
I	<0.17	Not Felt	None
II-III	.17-1.4	Weak	None
IV	1.4-3.9	Light	None
V	3.9-9.2	Moderate	Very Light
VI	9.2-18	Strong	Light
VII	18-34	Very Strong	Moderate
VIII	34-65	Severe	Moderate to Heavy
IX	65-124	Violent	Heavy
X-XII	>124	Extreme	Very Heavy

Disaster History

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) 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.

Location and Extent/Probability of Occurrence

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.

Since the previous plan, national seismic hazard maps were updated by the USGS and released in 2014 to account for new methods, models, and data. Figure 9 shows peak horizontal ground acceleration (PGA) for the United States. This represents the fastest measured change in speed, for a particle at ground level that is moving horizontally due to an earthquake with a 2% probability of exceedance in 50 years. Values are given in %g, where g is acceleration due to gravity, or 9.8 meters/second². All communities within DeKalb County are located within the PGA rank of 4%g to 6%g (shown as light blue on the map). The upper

northeast portion of the county has a slightly higher risk compared to the rest of the county but is still within the “low” hazard zone. Table 40 correlates the MMI scale with the PGA method.

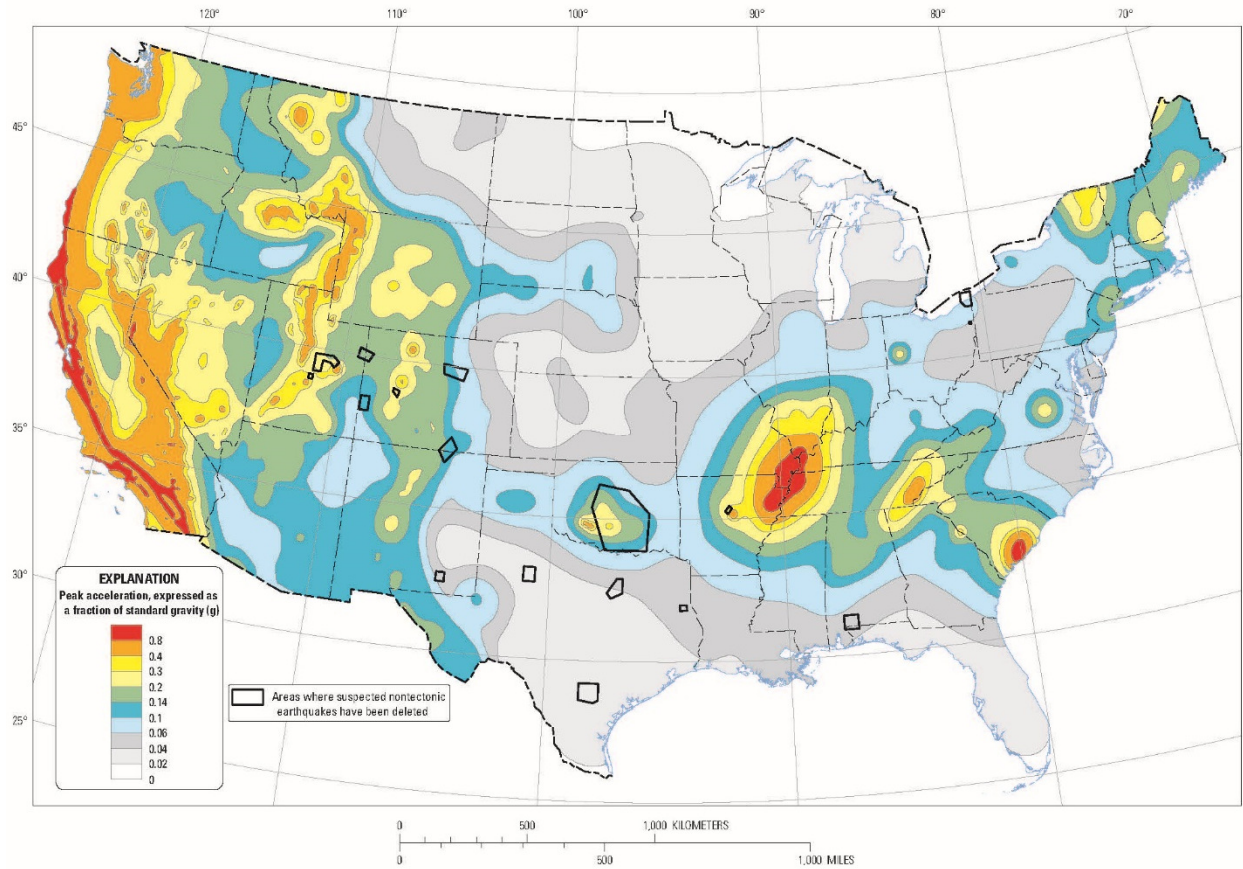


Figure 9: Peak Ground Acceleration (%g) with 2% probability of exceedance in 50 years

4.4 HAZARD ANALYSIS SUMMARY

The hazard profiles presented in this section were developed using best available data and result in what may be considered principally a qualitative assessment as recommended by FEMA. It relies heavily on historical and anecdotal data, stakeholder input, and professional and experienced judgment regarding observed and/or anticipated hazard impacts. It also carefully considers the findings in other relevant plans, studies and technical reports.

4.4.1 Hazard Ranking Index

In order to draw some meaningful planning conclusions on hazard risk for DeKalb County, the results of the hazard profiling process were used to generate countywide hazard classifications according to a “Hazard Ranking Index”. The purpose of the ranking is to categorize and prioritize all potential hazards for DeKalb County based on risk. Combined with the asset inventory and quantitative vulnerability assessment provided in the next section, the summary hazard classifications generated through the use of the Hazard Ranking allows for the prioritization of those high hazard risks for mitigation planning purposes, and more specifically, the identification of hazard mitigation opportunities for DeKalb County jurisdictions to consider as part of their proposed mitigation strategy.

The prioritization and categorization of identified hazards for DeKalb County is based principally on the tool used to measure the degree of risk for identified hazards in a particular planning area. Hazard Ranking is used to assist the MAC in gaining consensus on the determination of those hazards that pose the most significant threat to DeKalb County based on a variety of factors. Hazard Ranking is not scientifically based, but is rather meant to be utilized as an objective planning tool for classifying and prioritizing hazard risks in DeKalb County based on standardized criteria. The Hazard Ranking was introduced as part of the 2016 update and was altered based on MAC feedback.

Hazard Ranking values are obtained by assigning varying degrees of risk to four categories for each hazard (probability, affected area, primary impacts, secondary impacts). Each degree of risk has been assigned a value (1 to 4) and a weighting factor, as summarized in Table 41.

The probability of each hazard is determined by assigning a level, from unlikely to highly likely, 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. Each level's score is reflected in the matrix. The total score for each hazard is the probability score multiplied by the importance factor times the sum of the impact level scores multiplied by their importance factors. Based on this total score, the hazards are separated into three categories based on the hazard level they pose to the communities: Significant, Moderate, and Limited.

The sum of all four categories equals the final hazard rank, as demonstrated in the example equation below:

HAZARD RANKING =

(PROBABILITY x 2) x IMPACT

Where IMPACT =

(AFFECTED AREA x 0.8) + (PRIMARY IMPACTS x 0.7) + (SECONDARY IMPACTS x 0.5)

Ranking for the identified hazards were reviewed and accepted by the members of the MAC during their countywide meeting and continues the approach utilized in previous versions of the plan.

Table 41. Hazard Ranking Index

Ranking Category	Degree of Risk			Assigned Weighting Factor
	Level	Criteria	Index Value	
Probability <i>Based on estimated likelihood of occurrence from</i>	Unlikely	Less than 1% annual probability	1	2.0
	Somewhat Likely	Between 1 and 10% annual	2	
	Likely	Between 10 and 100% annual	3	
	Highly Likely	100% annual probability	4	
Affected Area <i>Based on size of geographical area of community affected</i>	Isolated	Less than 1% of area affected	1	0.8
	Small	Between 1 and 10% of area affected	2	
	Medium	Between 10 and 50% of area affected	3	
	Large	Between 50 and 100% of area	4	
Primary Impact <i>Based on percentage of damage to typical</i>	Negligible	Less than 10% damage	1	0.7
	Limited	Between 10% and 25% damage	2	
	Critical	Between 25% and 50% damage	3	
	Catastrophic	More than 50% damage	4	
Secondary Impacts <i>Based on estimated secondary impacts to community at large considering economic impacts, health impacts, and crop losses</i>	Negligible	No loss of function, downtime, and/or evacuations	1	0.5
	Limited	Minimal loss of function, downtime, and/or evacuations	2	
	Moderate	Some loss of function, downtime, and/or evacuations	3	
	High	Major loss of function, downtime, and/or evacuation	4	

4.4.2 Hazard Ranking Results

Table 42 summarizes the degree of risk assigned to each category for all initially identified hazards based on the application of the Hazard Ranking. Assigned risk levels were based on the detailed hazard profiles developed for this section, as well as input from the MAC. The results were then used in calculating relative risk and making final determinations for the risk assessment.

Table 42: Summary of Hazard Ranking and Planning Consideration

Hazard Section	Hazard Type	Probability	Impact			Hazard Planning Consideration 2011	Hazard Planning Consideration 2016
			Affected Area	Primary Impact	Secondary Impacts		
FLOODING	FLOODING	Highly Likely 100% annual probability	Medium Between 10 and 50% of area affected	Critical Between 25% and 50% damage	High Major loss of function	Significant	Significant
	DAM FAILURE	Unlikely Less than 1% annual probability	Isolated Less than 1% of area affected	Critical Between 25% and 50% damage	High Major loss of function	Limited	Limited
WIND	WIND (STRAIGHT LINE, THUNDERSTORM, AND LIGHTNING)	Highly Likely 100% annual probability	Large Between 50 and 100% of area affected	Limited Between 10% and 25% damage	Moderate Some loss of function, downtime, and/or evacuations	Significant	Significant
	TORNADO	Highly Likely 100% annual probability	Isolated Less than 1% of area affected	Critical Between 25% and 50% damage	Moderate Some loss of function, downtime, and/or evacuations	Moderate	Significant
	HURRICANE	Likely Between 10 and 100% annual probability	Medium Between 10 and 50% of area affected	Critical Between 25% and 50% damage	High Major loss of function	Moderate	Moderate
WINTER STORM	WINTER STORM	Likely Between 10 and 100% annual probability	Large Between 50 and 100% of area affected	Negligible Less than 10% damage	Moderate Some loss of function, downtime, and/or evacuations	Moderate	Significant
DROUGHT	DROUGHT	Likely Between 10 and 100% annual probability	Large Between 50 and 100% of area affected	Negligible Less than 10% damage	Limited Minimal loss of function, downtime, and/or evacuations	Limited	Moderate
EXTREME HEAT	EXTREME HEAT	Likely Between 10 and 100% annual probability	Medium Between 10 and 50% of area affected	Negligible Less than 10% damage	Limited Minimal loss of function, downtime, and/or evacuations	Limited	Moderate
WILDFIRE	WILDFIRE	Somewhat Likely Between 10 and 100% annual probability	Small	Catastrophic More than 50% damage	High Major loss of function	Limited	Limited
EARTHQUAKE	EARTHQUAKE	Unlikely Less than 1% annual probability	Medium Between 10 and 50% of area affected	Negligible Less than 10% damage	Negligible No loss of function	None	Limited

The results of this vulnerability assessment are useful in at least three ways:

- Improving our understanding of the risk associated with the natural hazards in DeKalb County through better understanding of the complexities and dynamics of risk, how levels of risk can be measured and compared, and the myriad of factors that influence risk. An understanding of these relationships is critical in making balanced and informed decisions on managing the risk.
- Providing a baseline for policy development and comparison of mitigation alternatives. The data used for this analysis presents a current picture of risk in DeKalb County. Updating this risk “snapshot” with future data will enable comparison of the changes in risk with time. Baselines of this type can support the objective analysis of policy and program options for risk reduction in the region.
- Comparing the risk among the natural hazards addressed. The ability to quantify the risk to all these hazards relative to one another helps in a balanced, multi-hazard approach to risk management at each level of governing authority. This ranking provides a systematic framework to compare and prioritize the very disparate natural hazards that are present in DeKalb County. This final step in the risk assessment provides the necessary information for local officials to craft a mitigation strategy to focus resources on only those hazards that pose the most threat to the county.

Historic damages and probability to hazards can be an indicator of vulnerability. Table 43 provides a summary of the expected events and damages for each hazard per year for DeKalb County. As shown, on average the county experiences three wind events each year with damages exceeding \$36 thousand. Between one and two flood events are likely within DeKalb annually with damages exceeding \$414 thousand for flash floods and \$445 thousand for flood events.

Table 42 provides a summary of results for the vulnerability assessment conducted for each of DeKalb County’s assets (from the inventory listed earlier in this section). The table lists those assets that are determined exposed to each of the identified hazards. The assets included here should ideally be considered for mitigation actions to reduce long-term vulnerability.

Table 43: Summary of Annualized Events and Estimated Damages

<i>Hazard</i>	<i>Annualized Events</i>	<i>Annualized Property Damage</i>	<i>Annualized Crop Damage</i>
Wind	2.7	\$36,762	\$0
Flash Flood	1.7	\$414,645	\$0
Winter Weather	0.96	\$26,591	\$0
Drought	1.0	\$0	\$15,666
Flood	0.61	\$445,276	\$0
Hurricane	0.23	\$0.00	\$0
Extreme Cold	0.57	\$0.00	\$0
Extreme Heat	0.48	\$0.00	\$0
Tornado	0.14	\$778,263	\$0
Ice Storm	0.22	\$61,337	\$0
Fog	0.09	\$0	\$0

Table 44: Results of Vulnerability Assessment for DeKalb County's Asset Inventory

Facility Type	Facility Name	Address	Building Value	Wildfire	FloodZone
Fire Station	DeKalb County Fire Services Station 24	4154 Redan Rd	\$545,900	High	AE
Elementary School	Woodward Elementary School	3034 Curtis Drive, NE	\$2,479,700	High	AE
Public Two-Year College	GPC SH Building	3251 Panthersville Road	\$47,628	Medium	AE
Public Two-Year College	GPC SI Building	3251 Panthersville Road	\$45,360	Medium	AE
Public Two-Year College	GPC SJ Building	3251 Panthersville Road	\$45,360	Medium	AE
Public Two-Year College	GPC SK Building	3251 Panthersville Road	\$45,360	Medium	AE
Public Two-Year College	GPC SD Building	3251 Panthersville Road	\$453,600	Negligible	AE
Public Two-Year College	GPC SF Building	3251 Panthersville Road	\$81,000	Negligible	AE
Private School	Learning Institute (The)	3900 Memorial College Ave.	\$243,300	High	0.2% Annual Chance
Wastewater Treatment Plant	Dekalb County-Snapfinger Creek WPCP	4124 Flakes Mill Rd	\$22,967,600	Medium	0.2% Annual Chance
Public Two-Year College	GPC SE Building	3251 Panthersville Road	\$77,760	Medium	0.2% Annual Chance
Police Station	Decatur Police Department	420 W Trinity Place	-	Negligible	0.2% Annual Chance
Public Two-Year College	GPC SC Building	3251 Panthersville Road	\$12,096,000	Negligible	0.2% Annual Chance

ⁱ National Center for Environmental Health, Centers for Disease Control. *About Extreme Heat*. Retrieved from <http://www.cdc.gov/nceh/hsb/extremeheat/>

ⁱⁱ *Multi-Hazard Identification and Risk Assessment*.

ⁱⁱⁱ *Multi-Hazard Identification and Risk Assessment*.

Table 43: Summary of Annualized Events and Estimated Damages

<i>Hazard</i>	<i>Annualized Events</i>	<i>Annualized Property Damage</i>	<i>Annualized Crop Damage</i>
Wind	2.7	\$36,762	\$0
Flash Flood	1.7	\$414,645	\$0
Winter Weather	0.96	\$26,591	\$0
Drought	1.0	\$0	\$15,666
Flood	0.61	\$445,276	\$0
Hurricane	0.23	\$0.00	\$0
Extreme Cold	0.57	\$0.00	\$0
Extreme Heat	0.48	\$0.00	\$0
Tornado	0.14	\$778,263	\$0
Ice Storm	0.22	\$61,337	\$0
Fog	0.09	\$0	\$0

Table 44: Results of Vulnerability Assessment for DeKalb County's Asset Inventory

Facility Type	Facility Name	Address	Building Value	Wildfire	FloodZone
Fire Station	DeKalb County Fire Services Station 24	4154 Redan Rd	\$545,900	High	AE
Elementary School	Woodward Elementary School	3034 Curtis Drive, NE	\$2,479,700	High	AE
Public Two-Year College	GPC SH Building	3251 Panthersville Road	\$47,628	Medium	AE
Public Two-Year College	GPC SI Building	3251 Panthersville Road	\$45,360	Medium	AE
Public Two-Year College	GPC SJ Building	3251 Panthersville Road	\$45,360	Medium	AE
Public Two-Year College	GPC SK Building	3251 Panthersville Road	\$45,360	Medium	AE
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Police Station	Decatur Police Department	420 W Trinity Place	-	Negligible	0.2% Annual Chance
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ⁱⁱ *Multi-Hazard Identification and Risk Assessment*.

ⁱⁱⁱ *Multi-Hazard Identification and Risk Assessment*.

Appendix 4 – Additional Documentation

- Listing of Georgia Storm Ready Communities
- Hazus Earthquake Assessment (Limited Hazard – MAC Agreed 2011 Assessment could be utilized to supplement newer narrative items in Risk Assessment chapter)



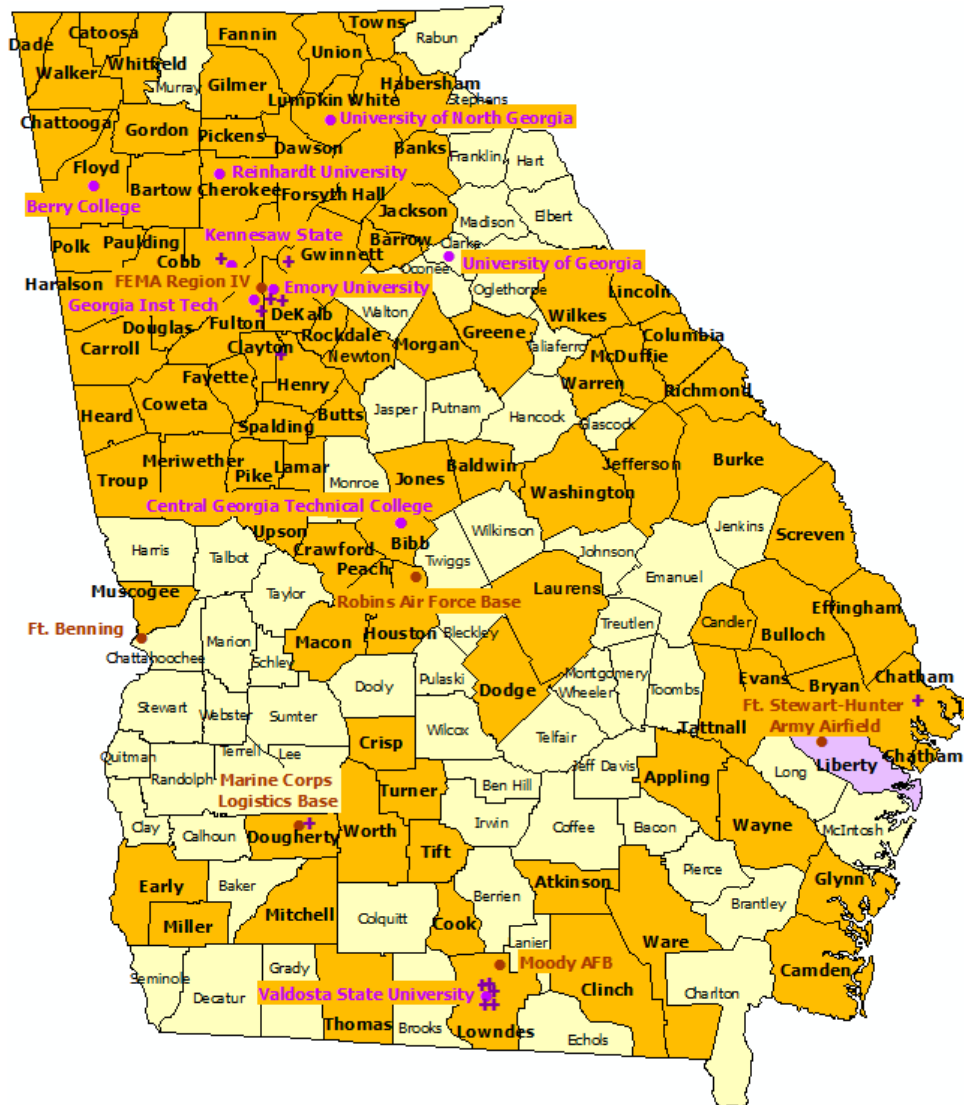
NATIONAL WEATHER SERVICE

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

StormReady® in Georgia

111 Sites
94 Counties, 1 StormReady/TsunamiReady County
6 Government/Military, 9 Universities
15 Supporters

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Counties

■ Appling	■ Candler	■ Crisp	■ Forsyth	■ Jefferson	■ Muscogee	■ Towns
■ Atkinson	■ Carroll	■ Dade	■ Fulton	■ Jones	■ Newton	■ Troup
■ Baldwin	■ Catoosa	■ Dawson	■ Gilmer	■ Lamar	■ Paulding	■ Turner
■ Banks	■ Chattooga	■ DeKalb	■ Glynn	■ Laurens	■ Peach	■ Union
■ Barrow	■ Cherokee	■ Dodge	■ Gordon	■ Liberty*	■ Pickens	■ Upson
■ Bartow	■ Clayton	■ Dougherty	■ Greene	■ Lincoln	■ Pike	■ Walker
■ Berrien	■ Cobb	■ Douglas	■ Gwinnett	■ Lowndes	■ Polk	■ Ware
■ Bibb	■ Coweta	■ Early	■ Habersham	■ Lumpkin	■ Richmond	■ Warren
■ Bryan	■ Fannin	■ Effingham	■ Hall	■ Macon	■ Rockdale	■ Washington
■ Bulloch	■ Fayette	■ Evans	■ Haralson	■ McDuffie	■ Screven	■ Wayne
■ Burke	■ Heard	■ Fannin	■ Henry	■ Meriwether	■ Spalding	■ White
■ Butts	■ Wilcox	■ Jones		■ Miller	■ Tattall	■ Whitfield

<ul style="list-style-type: none"> ■ Camden ■ Crawford ■ Floyd ■ Houston ■ Mitchell ■ Thomas ■ Wilkes ■ Jackson ■ Morgan ■ Tift ■ Worth 	
Government/Military Sites	Universities
<ul style="list-style-type: none"> ■ FEMA Region IV ■ Ft. Benning ■ Ft. Stewart-Hunter Army Airfield ■ Marine Corps Logistics Base ■ Moody AFB ■ Robins Air Force Base 	<ul style="list-style-type: none"> ■ Cent. Georgia Technical Col.Emory University ■ Georgia Inst. of Technology ■ Kennesaw State ■ Reinhardt University ■ University of Georgia ■ University of North Georgia ■ Valdosta State University
Supporters	
<ul style="list-style-type: none"> ■ Darton State College ■ Dept. of Labor, Region IV ■ ERCO Worldwide Inc. ■ Federal Executive Board ■ Georgia World Congress Center Authority ■ Georgia State Parks and Historic Sites ■ JCB Inc. ■ Siemens Industry 	<ul style="list-style-type: none"> ■ South Georgia Medical Center ■ Southern Polytechnic State University, ■ Tybee Island ■ Upson Regional Medical Center ■ Valdosta Regional Airport ■ Valdosta State Univ ■ Wild Adventures Theme Park

*TsunamiReady and StormReady

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	Number of Locations_				
		Locations/ Segments	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	5
	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	3
	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	537,508,791	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 Losses							
	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

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

The section covers both the capabilities as well as the mitigation strategies and actions of the individual communities. 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. Lack of funding was cited by all communities as the main reason most of the projects are still deferred. There are multiple planning efforts underway (regionally and within the communities) that will influence how hazards will be addressed in the next plan (2021 Hazard Mitigation Plan). This was Brookhaven's first time as a participant since their incorporation in 2012 so there projects are all new. As for the capabilities of each city some major changes included:

- Changes in local officials
- Changes in department responsibilities
- Adoption of plans, codes, ordinances, and/ or other guidance.

At the September 10, 2015 meeting, the MAC agreed to keep the existing, countywide goals of the 2011 plan. A couple of the communities reworded their community goals but the intent remained the same from the previous plan.

The capabilities assessment was performed as a combination of in-person and web meetings with each community. This method provided the opportunity for each community to provide their feedback into the overall plan as well as identifying the needs of their jurisdiction.

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 using data from FEMA's Map Service Center (<http://msc.fema.gov>).

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	5/16/2013	1/21/2010
BROOKHAVEN, CITY OF			5/16/2013	
CHAMBLEE, CITY OF	6/7/1974	9/15/1977	5/16/2013	9/15/1977
CLARKSTON, CITY OF	2/21/1975	6/15/1981	5/16/2013	6/15/1981
DECATUR, CITY OF		6/19/1970	5/16/2013	6/11/1971
DEKALB COUNTY *	6/5/1970	5/15/1980	5/16/2013	5/15/1980
DORAVILLE, CITY OF	6/7/1974	9/1/1977	5/16/2013	9/1/1977
DUNWOODY, CITY OF			5/16/2013	10/14/2009
LITHONIA, CITY OF		5/7/2001	5/16/2013	1/30/2008
PINE LAKE, CITY OF	4/12/1974	6/15/1981	5/16/2013	6/15/1981
STONE MOUNTAIN, CITY OF	5/12/1974	8/1/1986	5/16/2013	8/1/1986

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 Failure)
- Wind (Hurricane, Tornado, Thunderstorm)
- Winter Storm
- Drought
- Extreme Heat
- Wildfire
- Earthquake

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.

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 CEO 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.

The CEO 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 (Now called Decide DeKalb Development Authority)

- 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 Public Safety (includes DeKalb Emergency Management Agency)
 - 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.
 - 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 Sustainability 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 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.
 - Responsible for the County 911 system.

DeKalb County Public Works

- Maintains county infrastructure (assets) ranging from streets to parks to buildings and vehicle fleet
- 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 divisions: Roads and Drainage, Sanitation, Transportation, Stormwater Management, and Fleet Maintenance.
- Stormwater 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.

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.

APPENDIX FIVE

Goals, Objectives, and Actions

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. The plan is undergoing the update process during the time of this hazard mitigation plan update and should be completed late 2015 or early 2016. The Comprehensive Plan 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 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 2015. 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 2) 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 addition 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 Stormwater 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 are participants of the NFIP. Further information about each of their programs is included later in 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 detention facility and additional acquisitions.
- 2013 – Revised and updated flood modeling and associated insurance maps through FEMA's Risk MAP program.
- 2015 – Received new grant for repetitive flood property 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

The County's 2016 proposed budget is \$1.3 billion dollars. The budget incorporates the potential financial impacts from the creation of Tucker based on the County model used during the recent Incorporation and Annexation Study Committee; Adds code enforcement officers and equipment at a cost of \$200 thousand to further improve response times; Funds the newly created independent Office of the Internal Auditor at \$1 million to perform much needed reviews of County functions; Dedicates \$1 million in Sanitation funding to enhanced mowing and litter abatement efforts; Increases Water & Sewer's operations by approximately \$4.3 million to enhance operations and maintenance; Contributes \$4.9 million in HOST funding road resurfacing and transportation efforts, including an additional \$2.7 million in matching money for various Georgia Department of Transportation efforts to leverage \$3.0 million more of funding; Includes \$1.1 million for additional fire fighter personal safety equipment along with \$600K to fully fund the creation of eight supervisory Captain positions in the Fire Department; Improves quality of life efforts in the County with \$200 thousand in additional funding for Parks & Recreation programs for arts and entertainment; Develops the Ward Lake area with an additional \$1.5 million of Sanitation funding; Enhances development efforts with over \$2 million for technology efforts to streamline permitting and other development costs; Initiates managed competition efforts over two years at \$173 thousand to identify potential programs as candidates; Presents a five-year Capital Improvement Plan proposal for both HOST (sales tax) and Tax Funds funding sources; Creates an added emphasis of certain functions by elevating some areas to department status: Animal Control will be transferred from under the Police Department; the DeKalb Emergency Management Association will be transferred from under Fire; Communications/DCTV transferred from under the CEO's Office; and 311 (Citizen Help Center) transferred from the COO.

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 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

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

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.*

Goals

DeKalb County and its ten 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.

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>	
<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>

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.

Hazards Addressed: The prioritized mitigation actions, as well as an implementation strategy for each, are generalized into hazard types and 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).

A printout of the DeKalb County Countywide Actions table (actively maintained as an excel spreadsheet) is attached to the back of this appendix. The spreadsheet contains the actions along with identification of all of the elements documented above. The attachment is also on file and available from the DeKalb County Emergency Management Agency.

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.

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
- 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.

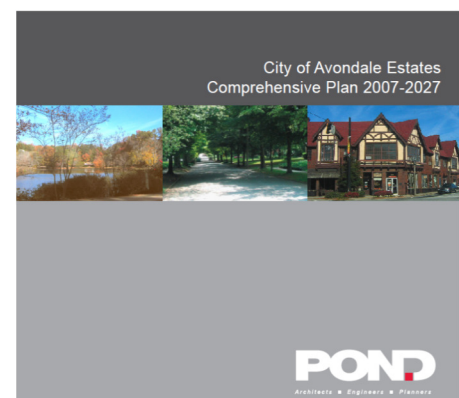
The Comprehensive Plan

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.

Floodplain Management

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



<http://www.avondaleestates.org/re>

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 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
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

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

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.

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

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>

Prioritization and Implementation of Mitigation Action Items Unique to Avondale Estates

The City has 1 mitigation action (status is "In Progress") which is providing improvements to the stormwater infrastructure system. The City has performed some improvements and is working with the County for where their drainage system flows into the City. Some sewer lines that were leaking and running into the City have been repaired. The City has finished a lake dredging project which has provided additional flood relief.

List of Actions

A printout of the DeKalb County Countywide Actions table (actively maintained as an excel spreadsheet) is attached to the back of this appendix. The spreadsheet contains the actions along with identification of all of the elements documented above.

5.5 CITY OF BROOKHAVEN

The City of Brookhaven (Brookhaven) 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 Brookhaven LPG as their most critical hazards:

Winter Storm – Historical (First major incident encountered by the newly incorporated city)

Flooding – Frequent and historical

Wind – Frequent

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 Brookhaven's fiscal capabilities that may be applicable to providing financial resources to implement identified mitigation action items.

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

The City of Brookhaven utilizes the strong mayor-council form of local governance, which includes both elected officials and an appointed city manager/chief executive officer. The four council members and serve geographic districts as delineated by the 2010 census.

The city council is Brookhaven's legislative body, setting policy, approving budgets, and setting tax rates. The mayor hires the city manager (with confirmation by city council), who is responsible for the day-to-day administration of the city, and serves as the city's Chief Administrative Officer. The city manager acts as a budget officer, 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 and the mayor. The mayor appoints (with confirmation by city council) city officers — city attorney, city clerk, city accountant, and judge (nominated by the mayor).

Other City Departments involved in activities related to Hazard Mitigation include:

Community Development

- Performs code compliance, zoning and land use, and issues building permits.

Public Works Department

- Performs stormwater design and maintenance (utility fee in place).

- Responds to city emergencies (coordinates with private contractors for response and recovery as needed).
- Watershed planning, such as the Nancy Creek Watershed Improvement Plan and the Osborne Road Flood Study.

Police Department

- Protection of life and property – The department will provide services that contribute to the preservation of life, the protection of property and the safety of the community.
- Maintenance of public order – The department will maintain peace and public order and assist during times of natural or technological occurrences or disasters.
- Traffic control – The department will provide for the safe and effective flow of both vehicular and pedestrian traffic and the investigation of traffic-related accidents.
- Community service – The department will provide the resources necessary for assisting residents under special non-criminal circumstances. The administration will plan, staff, coordinate and control resources in support of community-oriented policing. Further, the department's community relations/crime prevention objectives are shared by all personnel. Community input is encouraged in this area.

Guiding Community Documents

The City of Brookhaven's Code of Ordinances is the primary guidance for activities within the City: https://www.municode.com/library/ga/brookhaven/codes/code_of_ordinances. Key chapters that contain information relevant to hazard mitigation planning and implementation are as follows:

Chapter 7 – Buildings and Construction

References the DeKalb County Flood Insurance Study as well as international codes for fire, flood, and winter design standards.

Chapter 11 – Emergency Management

Describes nomination of the Emergency Manager, emergency powers, utilization of volunteers, and prohibited practices during state of emergency.

Chapter 14 – Land Development and Subdivisions

Covers hazard mitigation concerns such as stormwater management, stream buffer protection, reservation of open space, and floodplain management (Article VIII)

Chapter 14, Article VIII – Floodplain Management

The City of Brookhaven follows the requirements of the NFIP. In addition to the minimum requirements, the city requires a flood damage prevention plan for any development project with any area of special flood hazard located on the site. The plan requires items such as base flood elevation (BFE) and future-conditions flood elevations; boundaries of the base flood floodplain and future conditions floodplain; the location of the floodway. City forbids new development within the future-conditions floodplain unless impacts are very minimal (raises BFE < 0.01 foot; doesn't reduce flood or future-conditions flood storage capacity; doesn't change flow characteristics as to depth and velocity of water; doesn't create hazardous or erosion-producing velocities, etc.).

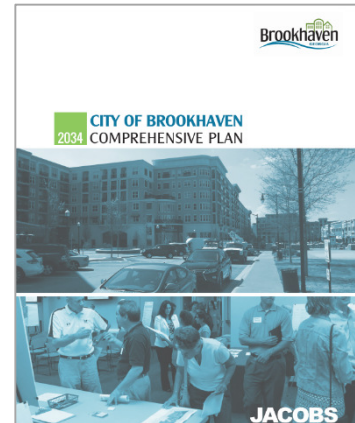
Stormwater Utility

The City of Brookhaven has developed a stormwater utility, independent of the one run by the county. Fees are assessed per unit as adopted by resolution.

Comprehensive Plan

The city has a comprehensive plan, City of Brookhaven Comprehensive Plan 2034, which sets forth the long term vision for the community. The vision statement of the plan is as follows:

“Brookhaven will be a national model for a walkable, urban community that preserves its unique character and history of neighborhoods, parks, and natural assets while welcoming higher density activity nodes that support transit use, biking, community hubs, sense of place, and diversity of residents and businesses”.



The plan notes that there is a concurrent planning effort, the Parks and Recreation Master Plan, which discusses the desire to have a Conversion of Federal Emergency Management Agency (FEMA) properties into potential stormwater/park amenities in neighborhood areas.

Mitigation Activities

The City of Brookhaven has not performed, nor has it received any money for, hazard mitigation activities. The recently completed Osborne Road Flood Study recommends projects to mitigate flooding in response to community concerns.

GIS, Computer and Communication Technology

The City of Brookhaven has capabilities to provide GIS services to citizens and perform local analyses. The city maintains an online mapping system available to the public with access to information such as flood zones, elevation data, and parcels.

Financial Resources

Brookhaven’s adopted budget for 2016 is just under \$33 million. The Police Department uses the largest share of the budget, with the Community Development and Administrative Departments also using a large portion. Budget available at <http://www.brookhavenga.gov/home/showdocument?id=3844>.

The following is a summary of existing departments in Brookhaven 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 Brookhaven, 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 Brookhaven: 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	Director of Community Development
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Building Official, Plans Reviewers/Techs
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Director of Community Development
D. Floodplain manager	Y	Floodplain Administrator and Building Official
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	GIS professionals on staff
H. Scientists familiar with the hazards of the community	N	
I. Emergency manager	N	An emergency manager had not been hired at time of meeting. Shared responsibilities across departments and emergency contractors.
J. Grant writers	N	Department leaders write/administer grants as needed

The legal and regulatory capabilities of Brookhaven are shown in Table 5.5-2, which presents the existing ordinances and codes that affect the physical or built environment of Brookhaven. 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 Brookhaven: 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 ¹	N
• An economic development plan	N ¹	N
• An emergency response plan	Y ²	N
• A post-disaster recovery plan	Y ³	N
• A post-disaster recovery ordinance	N	N
• Real estate disclosure requirements	N	N

- 1) Partial plans for specific projects/geographies, such as the Buford Highway Improvement Plan and Economic Development Strategy.
- 2) The plan exists at the county level. Brookhaven participated in the plan, and is therefore covered by it.
- 3) The plan exists at the county level, through GEMA. Brookhaven participated in the plan, and thus covered by it.

Fiscal Resources

Table 5.5-3 shows specific financial and budgetary tools available to Brookhaven 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 Brookhaven: Fiscal Capability

Financial Resources	Accessible or Eligible to Use (Yes/No)
• Community Development Block Grants	Y ¹
• Capital improvements project funding	N
• 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 Community Development, Parks and Recreation, Police, and Public Works participated in the Brookhaven LPG. These members include:

- Justin Young – Police Sergeant
- Gregory Anderson – City Engineer/Stormwater Utility Manager
- Donald Chase – Police Major
- Seth Yurman – Development Services Manager
- Bennett White – Floodplain Administrator

Goals

The City of Brookhaven 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.

Objectives

The City of Brookhaven utilized the countywide 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>	

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 DeKalb County*.

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).

List of Actions

A printout of the DeKalb County Countywide Actions table (actively maintained as an excel spreadsheet) is attached to the back of this appendix. The spreadsheet contains the actions along with identification of all of the elements documented above.

5.6 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

5.6.1 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 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.

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.

The Comprehensive Plan

The Comprehensive Plan for the City of Chamblee was updated in 2006 with a major amendment in 2014 to cover the new, large annexation.

City of Chamblee, Georgia
10th Year Comprehensive Plan Update
Community Agenda



ROSS+associates
urban planning & plan implementation
June 20, 2006

Zoning and Subdivision Ordinances

The Unified Development Ordinance (UDO) was adopted on April 21, 2015. Zoning activities from the adoption date forward are performed through implementation of the UDO, which includes code enforcement, along with shaping growth and redevelopment to meet the city's comprehensive plan. The Development Department prepares and presents recommendations that ensure compliance with the UDO and the comprehensive plan in partnership with various boards and commissions to achieve a livable city while balancing the needs of residents and businesses. A copy of the UDO can be viewed and downloaded on [Municode](http://Municode.com).

Building Codes

The City's building codes are standard, and can be found on www.municode.com, in Chapter 18 of the ordinances.

Floodplain Management Ordinance

The City of Chamblee follows the requirements of the NFIP and details of its floodplain management requirements are contained within Chapter 330 of the Code of Ordinances. The City regulates to existing and future flood condition standards in order to minimize loss of life or property from flood damage.

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 2015 is around \$32 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 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
K. Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	City Planner/Engineer
L. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Building Inspectors and City Planner
M. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	City Planner/Engineer
N. Floodplain manager	Y	Coordinate - Engineer and Inspectors with assistance of State and County
O. Surveyors	N	
P. Staff with education or expertise to assess the community's vulnerability to hazards	Y	City Planner/Engineer
Q. Personnel skilled in GIS and/or HAZUS	Y	Consulting staff and Police Chief
R. Scientists familiar with the hazards of the community	N	
S. Emergency manager	Y	Police Chief coordinates with the County
T. Grant writers	N	Each department

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

4) The plan exists at the county level. Chamblee participated in the plan, and is therefore covered by it.

5) The plan exists at the county level, through GEMA. Chamblee participated in the plan, and is therefore covered by it.

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

3) CDBG – Entitlement County, through the County.

4) Would be highly unusual: is never used.

5.6.2 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:

- Reginald Anderson, Public Works Director
- Jim Summerbell, Development Department
- Donny Williams, Police Department
- Jennifer Rackley, Public Works Department

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.

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.

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>

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.

List of Actions

A printout of the DeKalb County Countywide Actions table (actively maintained as an excel spreadsheet) is attached to the back of this appendix. The spreadsheet contains the actions along with identification of all of the elements documented above.

5.7 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

5.7.1 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.

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 spilt. 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.
- 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

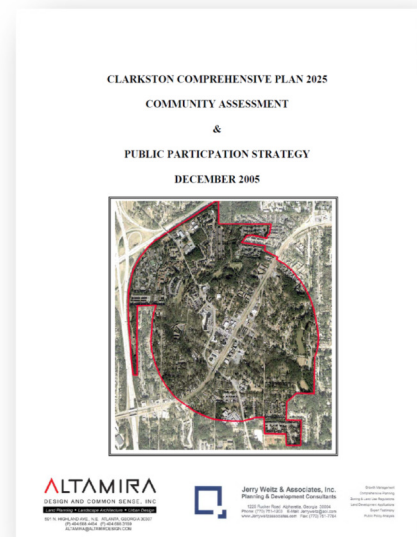
- Works for Army Corp of Engineers.
- Helps to identify sick trees or those in danger of falling.

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. A new update will begin in January of 2016. 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).

<http://www.cityofclarkston.com/DSN/wwwcityofclarkstoncom/Content/Clarkston%20Comprehensive%20Plan%202025.pdf>

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.

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.

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

APPENDIX FIVE

Goals, Objectives, and Actions

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

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

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 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:

- Jason Gaines, Community Development
- Rodney Beck, Public Works

Once developed, City staff presented them to the City of Clarkston City Council. 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.

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.

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>
Goal 2: Build and support capacity and commitment to become less vulnerable to hazards.
<i>Objective 2: To identify ways to increase the city's ability to access private property for mitigation-related maintenance activities.</i>

List of Actions

A printout of the DeKalb County Countywide Actions table (actively maintained as an excel spreadsheet) is attached to the back of this appendix. The spreadsheet contains the actions along with identification of all of the elements documented above.

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5.8 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.

5.8.1 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.

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 a five member City Commission. Two Commissioners each are elected from two districts and one member is elected at-large. The Commissioners 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 and recommends the annual 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/Basic Life Support: 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 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 Design, Environment & Construction (DEC) 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 Civic Engagement & Communications Division

- 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 2010 and provides a ten-year strategic plan for the City principles for managing growth, encouraging community interaction, providing quality services and supporting a healthy, lifelong community. Sixteen goals support the four principles.

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 DEC Division 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 DEC Division received a rating of "6/5" in early 2014 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 DEC Division within 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.

Several changes have occurred since the citywide study was completed in 2008 including construction of the Beacon underground detention vault. In addition, the National Oceanic and Atmospheric Administration has completed a comprehensive study of the rainfall frequency estimates for the southeastern US. The City would like these changes to be reflected in a portion of the City's FEMA Flood Insurance Rate Maps.

The current modeling project scope includes updating the effective models for the Peavine Creek Watershed and then updating the Flood Insurance Rate maps using the revised data. The result will be more accurate flood insurance rate maps for property owners in this watershed.

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 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 daylights at Peavine Creek by the Post Office. This drainage trunk line carries all the stormwater runoff in downtown Decatur and needed repairs and replacement. Since 2008 a large portion of the Downtown Decatur Peavine Basin drainage infrastructure has been replaced from 230 East Trinity Place in a westerly direction through the City Schools of Decatur High School property continuing through the Decatur Housing Authority property before it reaches a 100,000 cubic foot detention vault constructed beneath the Ebster Park ballfield. This stormwater detention vault was designed to manage the stormwater runoff for the entire Downtown Decatur drainage basin. 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 plan is currently under review and approval of the document is expected in 2016.

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.

Previously Completed 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. Since 2009, the City has completed construction, renovation and/or expansion of Fire Station Two, Fire Station One, the Decatur Recreation Center, the Leveritt Public Works Facility, the Decatur Police Department and the Ebster Recreation Center. While the Decatur Police Department houses the

City's main state of the art 911/EOC center, all other buildings were designed with back-up power, dedicated plug and play 911/EOC facilities and the ability to be used for a temporary shelter or any other city building during an emergency. These projects were funded with bonds issued by the City.

4. Decatur Public Works began an annual City Tree maintenance program 10 years ago. This mitigation program has proven to reduce the damage that the city was routinely seeing as a result of inclement weather.

5. Flood Mitigation Assistance (FMA) Program – Project #FMA-PJ-04-GA-2013 -001:

October 3, 2013, the City of Decatur filed for a FMA grant for 2 floodplain properties at 115 Willow Lane and 453 Superior Avenue. Both properties were designated as repetitive losses by FEMA. The City received official notification of the grant award from the Georgia Department of Homeland Security on April 15, 2015. The grant was a 100/0 grant in an amount of \$654,750.

GIS, Computer and Communication Technology

Decatur currently contracts with Critigen for GIS services using 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 5 years. In 1995, the revenues for the city were just over \$18.4 million. For 2015 that number is estimated to be just over \$23.2 million. The largest portion of the city's revenue comes from property taxes.

The budget for the city from 2014 to 2015 has changed very little, with most departments seeing a slight increase in budget; a reflection of the slight increase in the projected revenue for the year. Public Safety uses the largest share of the \$23.2 million budget, at \$9.1 million. Together, the budgets for Engineering, Sanitation and Facilities Maintenance total about \$4.9 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
1 Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	Design, Environment & Construction Division
2 Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Design, Environment & Construction Division
3 Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Design, Environment & Construction Division
4 Floodplain manager	Y	Design, Environment & Construction Division
5 Surveyors	N	
6 Staff with education or expertise to assess the community's vulnerability to hazards	Y	Fire Department
7 Personnel skilled in GIS and/or HAZUS	Y	Contract with Critigen
8 Scientists familiar with the hazards of the community	N	
9 Emergency manager	Y	
10 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

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

5.8.2 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 5.7.2.1, 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:

- Toni Washington, Fire Chief/Emergency Services Director
- Meredith Roark, Budget & Performance Measurement Manager
- David Junger, Assistant City Manager - Public Works

- Keith Lee, Deputy Police Chief
- Linda Harris, Chief - Community, Education & Civic Engagement Division
- John Maximuk, DEC Director
- Angela Threadgill, Planning Director
- Jennings Bell, Project Civil Engineer
- Mark Ethun, Building Official

Once developed, City staff presented them to the City of Decatur City Commission. 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.

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.

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 residents, 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>	

MITIGATION GOALS AND OBJECTIVES
<i>Objective 1.E: City tree maintenance</i>

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).

List of Actions

A printout of the DeKalb County Countywide Actions table (actively maintained as an excel spreadsheet) is attached to the back of this appendix. The spreadsheet contains the actions along with identification of all of the elements documented above.

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5.9 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

5.9.1 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.

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 works with the City Manager for the day-to-day administration of the city. 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

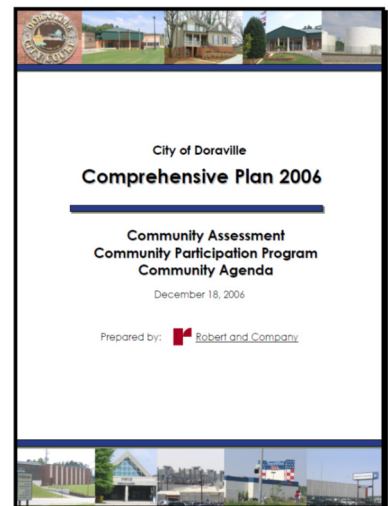
- Responds to safety concerns involving threats and/or damage to life or property. Acts as the enforcement entity for violations of State and local laws and ordinances.
- Primary emergency responders to acts of civil disobedience and public disorders and terrorism. Support personnel for emergency rescue 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 2025 with a mid-term update starting in 2015.



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. Newer changes within the City include the 2015 Tax Allocation District #1 Transit-Oriented Development Redevelopment Plan, 2014 Livable Communities Form-Based Code, and Urban redevelopment Plans in 2012 and 2013.

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

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. The flood maps were most recently updated in 2013.

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 2015 budget of \$10.7 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

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

5.9.2 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 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.

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. A representative from the City's

police Department, Chuck Atkinson, participated in the countywide meeting and served as the City's liaison between the LPG and the Mitigation Advisory Committee.

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.

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>	

List of Actions

A printout of the DeKalb County Countywide Actions table (actively maintained as an excel spreadsheet) is attached to the back of this appendix. The spreadsheet contains the actions along with identification of all of the elements documented above.

5.10 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

5.10.1 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.

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

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- Develop and maintain city Comprehensive Land Use Plan, Zoning Ordinance, and Land Development regulations.
 - 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.
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- 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 five year update of the city's Comprehensive Land Use Plan is currently under review by the Department of Community Affairs and Atlanta Regional Commission. Dunwoody anticipates adoption by the close of 2015. 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 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.

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

Dunwoody has completed or is progressing on the hazard mitigation activities identified in the previous mitigation plan.

GIS Technology

Dunwoody operates its own Geographic Information Systems database.

Financial Resources

Dunwoody's Fiscal Year 2015 approved budget is just over \$22.7 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
Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	Community Development Department and Public Works Department
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Community Development Department and Public Works Department
Planners or Engineer(s) with an understanding of natural and/or manmade hazards	Y	Community Development Department and Public Works Department
Floodplain manager	Y	Community Development Department
Surveyors	Y	Community Development Department and Public Works Department
Staff with education or expertise to assess the community's vulnerability to hazards	Y	Community Development Department and Public Works Department
Personnel skilled in GIS and/or HAZUS	Y	Community Development Department, Public Works Department, and Police Department (GIS only)
Scientists familiar with the hazards of the community	N	
Emergency manager	Y	Police Chief
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 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)
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
General or 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	N	N

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 developments/homes	N

Financial Resources	Accessible or Eligible to Use (Yes/No)
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

5.10.2 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 are involved in hazard mitigation planning, including Community Development, Public Works, and Police participated in the Dunwoody LPG. These members include:

- David Elliott – Storm Water Manager
- Rich Edinger – City Engineer
- Billy Grogan – Chief of Police
- Eric Linton – City Manager
- Michael Smith – Public Works Director
- Steve Foote – 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.

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.

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>

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).

List of Actions

A printout of the DeKalb County Countywide Actions table (actively maintained as an excel spreadsheet) is attached to the back of this appendix. The spreadsheet contains the actions along with identification of all of the elements documented above.

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5.11 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

5.11.1 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 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.

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

The City of Lithonia is governed by a Mayor and five member Council, all elected to four year terms.

The City Council is Lithonia’s legislative body, setting policy, approving budgets, and setting tax rates.

The council’s responsibilities are as follows:

- Adopt ordinances, resolutions, policies and regulations for the health, safety and welfare of the current and future citizens
- Create departments, offices and citizen advisory committees necessary for the efficient and effective operation of the City
- Participate in community strategic and long-range planning
- Approve the municipal boundaries, sphere of influence and all annexations of land into the City
- Approve all zoning changes, subdivisions and commercial and industrial site plans. Approve all development agreements with residential, commercial and industrial developers
- Adopt the annual City budget

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.
- 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
U. Planner(s) or engineer(s) with knowledge of land development and land management practices	N	
V. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	N	
W. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	N	
X. Floodplain manager	N	
Y. Surveyors	N	
Z. Staff with education or expertise to assess the community's vulnerability to hazards	Y	Local Planning Group
AA. Personnel skilled in GIS and/or HAZUS	N	
BB. Scientists familiar with the hazards of the community	N	
CC. Emergency manager	N	
DD. 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

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

5.11.2 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:

- Deborah Jackson, Mayor
- Larry Williams, Lithonia PD
- Roosevelt Smith, Lithonia PD
- Gale Tolan, Lithonia PD
- Xavier Todd, Lithonia PD

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.

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.

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>

List of Actions

A printout of the DeKalb County Countywide Actions table (actively maintained as an excel spreadsheet) is attached to the back of this appendix. The spreadsheet contains the actions along with identification of all of the elements documented above.

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5.12 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.

5.12.1 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 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.

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

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 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

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

5.12.2 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.

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.

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>

List of Actions

A printout of the DeKalb County Countywide Actions table (actively maintained as an excel spreadsheet) is attached to the back of this appendix. The spreadsheet contains the actions along with identification of all of the elements documented above.

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5.13 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.

The following hazards were identified after reviewing the localized hazard maps and exposure/loss estimates:

Flooding - Historical
High Wind - Historical
Ice Storm – Historical

5.13.1 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.

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

Since the 2005 Plan, the City of Stone Mountain 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. The Mayor is also elected at large. The City Manager is the chief executive and administrative officer of the City. Below are descriptions for primary functions of the major departments that may participate in an aspect of mitigation:

- Administration
 - Budget and finance
 - Permitting including land disturbance, building and site development
 - Comprehensive Planning
 - Coordination of inter-departmental activities
- City of Stone Mountain 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.
 - Emergency management assistance is provided through DeKalb County.
 - City of Stone Mountain Public Works Department
 - Stormwater utility administered by Public Works.
 - Maintains city infrastructure ranging including streets, parks and buildings.
 - Responds to city emergencies, includes EOC response in disasters, assisting police and fire departments, traffic and perimeter control efforts, traffic accident clean up and evacuation routing.
 - In charge of clean up and recovery.
 - City of Stone Mountain Planning and Zoning Committee
 - The Planning and Zoning Committee recommends to the City Council action on applications for variances, land use and subdivision site plans.

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. Work has begun on a 2016 update to conform to the Department of Community Affairs revised standards adopted in 2014. The updated plan will focus on

- Assets that can be accentuated and improved;
- Liabilities that can be mitigated and changed over time; and
- Potential benefits that can be sought after and developed.

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 the Office of Code Compliance. The code was developed by 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 can be found in 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 system is permitted through the National Pollutant and Discharge Elimination System (NPDES) by the Environmental Protection Agency. 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 the amount of impervious surface on properties.

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 to 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. The City complies with the requirements of its NPDES permit and the North Georgia Metropolitan Water Planning District.

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 and the Atlanta Regional Commission when needed. In addition, the county covers the City with both its 911 and reverse-911 systems.

Financial Resources

The 2016 proposed budget for the City of Stone Mountain includes expenses of nearly \$5.1 million. The largest expense for the City comes from the Police Department, then public works and solid waste disposal. The majority of the city's revenue comes from ad valorem property taxes.

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. 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	The firm of Clark Patterson Lee serves as the City Engineer.
B. Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	SafeBuilt of Georgia under contract for safety inspections and construction plan
C. Planners or Engineer(s) with an understanding of natural and/or manmade hazards	N	
D. Floodplain manager	Y	PW Director
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	DDA Executive Director

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	N
General or comprehensive plan	Y	N
A capital improvements plan	Y	N
An economic development plan	Y	N
An emergency response plan	N ¹	N
A post-disaster recovery plan	N	N
A post-disaster recovery ordinance	N	N
Real estate disclosure requirements	N	N

1 Emergency response is covered in the Code of Ordinances, Chapter 11, Article 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 – Vote Required
Incur debt through revenue bonds	Y
Incur debt through private activity bonds	N
Withhold spending in hazard-prone areas	N

5.13.2 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 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:

- Gary Peet, City Manager
- Jim Tavenner, Director of Public Works
- ChaQuias Miller Thornton, City Clerk
- Chauncey Troutman, Chief of Police

The goals and objectives remain the same from the previous plan and presented to the public again via the online version of the draft plan. The following sections present the hazard-related goals, objectives and actions

Goals

The City of Stone Mountain has developed the following goals for their Hazard Mitigation Plan. Objectives for achieving this goal are discussed in the subsequent section.

Goal 1: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities due to floods.

Goal 2: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities due to high winds.

Goal 3: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities due to ice storms.

Objectives

The City of Stone Mountain developed the following broad list of objectives to assist in the achievement of each of its 3 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 1: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to floods.	
<i>Objective 1.A: Increase the total maximum daily load (capacity) of city storm water infrastructure</i>	
<i>Objective 1.B: Repair and maintain existing stormwater infrastructure as needed</i>	
Goal 2: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to high winds.	
<i>Objective 1.A: Remove trees that present a risk to persons and property</i>	
Goal 3: Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and City-owned facilities, due to ice storms.	
<i>Objective 1.A: Maintain materials and equipment to mitigate road hazards due to ice</i>	

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).

List of Actions

A printout of the DeKalb County Countywide Actions table (actively maintained as an excel spreadsheet) is attached to the back of this appendix. The spreadsheet contains the actions along with identification of all of the elements documented above.

DeKalb County Countywide Hazard Mitigation Actions

Jurisdiction	Year Added to HMP	Hazards Addressed	Title	Description	Priority	Objectives Addressed	Coordinating Individual/ Organization	Implementation Strategy	Estimated Cost	Benefit vs. Cost	Timeframe for Implementation	Potential Funding Source	2011 Interpreted Status	2015 Status
DeKalb County	2011	General	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.	N/A	N/A Project completed.	Beginning with the next update of the Comprehensive Plan and continuing with each additional update.	N/A	Deferred	Completed.
DeKalb County	2011	General	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.	N/A	Budget has been allocated to improve code enforcement and inspection process.	Beginning within 6 months of adoption of this plan and continuing with each disaster event.	Departmental Budgets	In Progress	In Progress
DeKalb County	2011	General	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) 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.	N/A	To be determined. Additional EMA programs such as the THIRA and UASI programs could offset costs.	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	Deferred.
DeKalb County	2011	General	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.	N/A	To be determined. New GIS program could offset costs. FEMA RiskMAP activities are also supporting risk communication.	Beginning within 1 year of plan adoption and continuing as necessary updates occur.	Departmental Operating Budgets	Deferred	Deferred. Initial discussions started with DeKalb GIS on how this could be implemented.
DeKalb County	2011	General	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.	N/A	N/A - Complete	Beginning within 2 years of plan adoption	Departmental Budgets	Complete	Completed.
DeKalb County	2011	Flood	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.	N/A	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	In Progress. FMA grant received in 2015 for the acquisition of 3 homes

Jurisdiction	Year Added to HMP	Hazards Addressed	Title	Description	Priority	Objectives Addressed	Coordinating Individual/ Organization	Implementation Strategy	Estimated Cost	Benefit vs. Cost	Timeframe for Implementation	Potential Funding Source	2011 Interpreted Status	2015 Status
DeKalb County	2011	Flood	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.	Very High	5F, 5M, 5L, 5G, 5A, 4D, 1A	Floodplain Administrator, DeKalb County Public Works, Roads & Drainage Division	Construct the already designed drainage improvements described above.	N/A	FEMA B/C module yields a ratio of about 2.	Beginning within 24 months of adoption continuing as funding allows	PDM grant (75% share), DeKalb County Stormwater Utility Fee Enterprise Fund (25%) – HMGP and FMA grant programs as back up with same match.	In Progress	Deferred. Lack of funding.
DeKalb County	2011	Flood	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.	N/A	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	Deferred. Lack of funding.
DeKalb County	2011	Flood	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.	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.	N/A	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 Engineers	In Progress	Deferred. Lack of funding.
DeKalb County	2011	Flood	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.	N/A	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	Deferred. Lack of funding.
DeKalb County	2011	Flood	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	N/A	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	Completed.
DeKalb County	2011	Flood	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.	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	Minimal cost with potentially good benefits. Existing software could be retrofitted to capture data. Need estimate from vendor.	Beginning with plan adoption and continuing as permit applications for RL properties are submitted.	Departmental Operating Budget	In Progress	Deferred. Lack of funding.

DeKalb County Countywide Hazard Mitigation Actions

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DeKalb County	2011	Flood	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	N/A	N/A. Project is complete.	Beginning with a complete evaluation and program design within 2 years of plan adoption	Departmental Operating Budget	Complete	Completed.
DeKalb County	2011	Flood	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.	N/A	N/A. Project is complete.	Within 3 years of plan adoption, two programs will be developed and outreach materials will be distributed in tax bills	Departmental Operating Budgets	Complete	Ongoing. Some insurance training provided during Risk MAP outreach but more formal program is not in place as of yet.
DeKalb County	2011	Flood	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.	N/A	Cost is minimal, payoff is great.	2 years	Departmental Operating Budgets	Complete	Deferred. Program support is not available as of yet.
DeKalb County	2011	Wind	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 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.	Very High	4A, 4C, 4D, 5B, 5J	DeKalb County Facilities Management, Development Department (Building Inspection), DeKalb County Emergency Management, and LPG designee from each participating city.	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.	N/A	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	Canceled due to financed
DeKalb County	2011	Wind	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.	N/A	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	Deferred. Lack of funding.
DeKalb County	2011	Wind	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 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.	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 other options. Once the most efficient and optimum warning delivery system is identified, the County will seek funds to develop and exercise it.	N/A	Project already in progress.	DHS-FEMA Homeland Security Grant Funds	A complete analysis of alternative warning dissemination systems within 2 years from the date of plan adoption	Deferred	Partial. County has weather-responsive reverse 911 capabilities.

DeKalb County Countywide Hazard Mitigation Actions

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DeKalb County	2011	Wind	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	Project already in progress.	Within 6 months of plan approval	N/A; literature is available for free	Deferred	In progress.
DeKalb County	2011	Winter Storm	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.	N/A	To be determined. County is working with arborist to determine potential cost.	Beginning within 1 year of plan adoption, then annually	County General Fund	Deferred	Deferred.
DeKalb County	2011	Winter Storm	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.	N/A	Anticipated to be cost beneficial.	Within two years of plan adoption have regulations and ordinances modified and adopted	Departmental Budgets	In Progress	In progress. Residential utilities are required to be placed underground for 2 or more lots.
DeKalb County	2011	Winter Storm	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.	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	Project already in progress.	Within 6 months of adoption of plan	Departmental Budgets	In Progress	In progress. A regional task force was implemented for the Atlanta Region as it relates to winter storm.
DeKalb County	2011	Wildfire	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	Project already in progress.	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	In progress. A wildfire report is being performed by DeKalb Fire Rescue in 2015.
DeKalb County	2011	Wildfire	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	To be determined. May bid for services. Expected to be cost beneficial.	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	Deferred. Lack of funding. The County has recently completed its own internal assessment, but not a full Community Wildfire Protection Plan.
DeKalb County	2011	Wildfire	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	Project already in progress.	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	Ongoing.

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DeKalb County	2011	Wildfire	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.	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.	N/A	Project already in progress.	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	In Progress
DeKalb County	2011	Extreme Heat	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.	N/A	Anticipated to be marginally cost beneficial	Within 6 months of plan adoption	Departmental Operating Budgets	Deferred	Deferred. Lower priority to other resource requests.
DeKalb County	2011	Extreme Heat	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	To be determined. Would need to work with vendor on cooling systems for shelters and outreach costs.	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	Deferred. Lack of funding.
DeKalb County	2011	Drought	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	Expected to have favorable cost benefit as there will be minimal expenses as projects could be done by existing staff.	Begin reviewing the drought contingency plan within 2 years of plan adoption	Departmental Operating Budget	In Progress	Deferred. Lower priority to other resource requests.
DeKalb County	2011	Drought	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.	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 supported by the ARC and all incorporated cities	Design an outreach program combining mailings, internet, trainings, and technical assistance. Identify State and Federal agencies to provide support.	N/A	Expected to have favorable cost benefit as there will be minimal expenses as projects could be done by existing staff.	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	Deferred. Lower priority to other resource requests.
DeKalb County	2011	Drought	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.	N/A	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/institution al funding from the water users	In Progress	?
DeKalb County	2011	Lightning	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		N/A	Anticipated to be highly cost beneficial.	Within 2 years of plan adoption	PDM or HMGP grants for construction component for public buildings, private business/institution al funds for privately held buildings	Deferred	Deferred. Lack of funding. Some preliminary talks with the City of Brookhaven about their surge system.

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DeKalb County	2011	Dam	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.	N/A	Project already in progress.	Within 2 years of plan adoption	PDM planning grant for GIS work and updating this plan with new information.	Complete	Ongoing. Dam breach modeling has been performed for public dams. Spatial data has been collected.
DeKalb County	2011	Earthquake	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.	N/A	Expected to have favorable cost benefit as there will be minimal expenses as projects could be done by existing staff.	Within 2 years of plan adoption	Departmental Operating Budgets, with potential financial and technical assistance from State and Federal agencies.	New Action	Deferred. Lower priority to other resource requests.
DeKalb County	2011	Earthquake	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.	N/A	Would depend upon how large the program is but should be cost/beneficial to community.	Within 2 years of plan adoption	PDM planning grant for planning work and materials associated with vulnerability assessment and public information.	New Action	Deferred. Lower priority to other resource requests.
City of Avondale Estates	2011	Flood	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		Oscar Griffin (information was gathered with assistance from certified P.E.)		>\$1M	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	Deferred. Lack of funding.
City of Brookhaven	2016	Flood	Action #FLD 1: Cooperating Technical Partner - Georgia Flood Map Modernization Program	Ensure that Dekalb County's updated flood studies within the City of Brookhaven will be incorporated into FEMA's Flood Insurance Rate Maps as part of the Georgia Department of Natural Resources Environmental Protection Division Upper Chattahoochee River Basin Project.	High	1,2,3	Public Works Department	City of Brookhaven will enter into a Memorandum of Agreement with Dekalb County, City of Decatur, City of Dunwoody, and the Georgia Department of Natural Resources to ensure that Dekalb County's updated flood studies within the City of Brookhaven will be incorporated into FEMA's Flood Insurance Rate Maps as part of the Georgia Department of Natural Resources Environmental Protection Division Upper Chattahoochee River Basin Project.	<\$50K	\$900 expense for city wide updated more accurate Flood Risk Assessment inherent in updated Flood Insurance Study	Execution of Memorandum of Agreement underway, map completion 2017.	Stormwater Utility Enterprise Fund		In Progress
City of Brookhaven	2016	Flood	Action #FLD 2: Stormwater System Inventory and Assessment	Within Brookhaven exist approximately 200 miles of stormwater conveyances and approximately 9100 stormwater structures. Of the 200 miles of conveyances approximately 115 miles are closed conduit (pipes, culverts, etc). Maintenance and/or improvements at many of the structures and conveyances may improve system performance and reduce risk of flooding and/or other deleterious stormwater impacts within the city.	High	1,2,3	Public Works Department	In 2014 Brookhaven began an inventory and condition assessment of all stormwater system structures and closed conduits throughout the city, undertaking inventory and condition assessment of 20% of the system on an annual basis with task completion expected in 2018. The results of the inventory and condition assessment will be used to develop a maintenance and capital improvement program for the stormwater system.	\$250K-\$500K	Approximately \$250k total cost to obtain data to be used to develop multi-year, multi-million dollar stormwater system maintenance plan to mitigate risk to property throughout city.	2014-2018	Stormwater Utility Enterprise Fund		In Progress
City of Brookhaven	2016	Flood	Action #FLD 3: South Bamby Lane Watershed Improvements	Recurring intense rainfall (typically 1-3 times a year) generates runoff that causes localized flooding on South Bamby Lane and adjacent properties.	High	1/5/2016	Public Works Department	In 2015 Brookhaven retained a consultant to perform an analysis of the watershed and develop concepts for storm system improvements within watershed to mitigate impacts. Next steps include development of construction plans and installation of improvements	\$250K-\$500K	Initial study identifies potential storm system improvements estimated to total \$1 million construction cost. Value of potential impacted properties \$4 million +/-.	2016-2020	Stormwater Utility Enterprise Fund, PDM, HMGP, Corps of Engineers		Initial watershed analysis completed

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City of Brookhaven	2016	Flood	Action #FLD 4: Evaluation of Dresden Drive Culvert at North Fork Peachtree Creek Tributary A	Several homes upstream of culvert at Dresden Drive experience flooding due to apparent restriction at culvert.	High	1/5/2016	Public Works Department	In 2016 Brookhaven will retain a consultant to analyze the culvert and associated floodplain. The consultant will evaluate the impact and feasibility of improving culvert performance. Impacts both upstream and downstream of culvert will be evaluated.	\$50K-\$100K	Study cost approximately \$50k. Culvert improvement cost, if feasible, TBD, but reasonable to expect to be less than \$250k. Property value currently at risk that that could benefit exceeds \$7 million.	2016	Stormwater Utility Enterprise Fund		
City of Brookhaven	2016	General	Action #GEN #1 City Facility Feasibility Study and Development of Permanent Facilities	Current City Hall and Police Department facilities and locations are expected to be temporary. Brookhaven needs to perform study to determine feasible permanent locations for these facilities and to include minimization of risk of hazard impact as a criteria for location and facility selection and development.	High	1,3,5	City Manager, Council, and City Departments	In 2016 Brookhaven has retained a consultant to work with City management to conduct a city facility feasibility study. It is expected that results of study will assist city in developing plans for future permanent locations and facilities for city services	\$100K-\$250K	minimize losses due to extended response times and/or interruption in city services	2016-2020	General Fund		In Progress
City of Brookhaven	2016	Winter Storm	Action # ICE 1: Maintain Treatment Capability	Currently Public Works manages a Snow and Ice Removal Plan and contracts out street treatment to a contractor that treats the streets in accordance with Brookhaven's Snow and Ice Removal Plan. The contractor maintains a staging area within the city that includes storage areas for treatment materials. The current staging area may not be permanently available.	High		3 Public Works, City Manager	Review and assess opportunities to secure a permanent staging area within the city for use during winter storms and for general Public Works operational use. May be coordinated with Action GEN #1.	<\$50K	A permanent staging area within City will help reduce losses due to extended response times	2016-2020	General Fund		
City of Chamblee	2011	General	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.	N/A	Expected to be cost beneficial leveraging ongoing projects and funding.	ongoing	TBD	In Progress	In Progress
City of Chamblee	2011	General	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.	N/A	To be determined. Will vary depending on solution chosen.	Within 2 years of plan adoption	TBD	Deferred	Deferred
City of Chamblee	2011	Flood	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.	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 along Peachtree Industrial Blvd. (state route 141) to avoid flooding and road closure during heavy rain.	N/A	Project already in progress.	Within 2 years of plan adoption	PDM, HMGP, Local Funds	In Progress	In Progress
City of Chamblee	2011	Flood	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.	N/A	To be determined. Expected to be cost beneficial as acquisitions almost always have B/C greater than 1.	In progress	PDM, HMGP, Stormwater Utility, Local Funds	Deferred	Deferred
City of Chamblee	2011	Flood	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.	N/A	Project already in progress.	In progress	Local Funds, PDM, Stormwater Utility	In Progress	In Progress
City of Chamblee	2011	Wind	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.	N/A	To be determined. Would depend of siren technology chosen.	to be determined by the County	PDM, HMGP	Deferred	Deferred
City of Chamblee	2011	Wind	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.	N/A	To be determined. Engineer would need to provide a cost assessment.	Within 3 years of plan adoption, funding dependent	PDM, HMGP, Local Funds	Deferred	Deferred

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City of Chamblee	2011	Winter Storm	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.	N/A	Project already in progress.	ongoing	TBD	Deferred	Ongoing
City of Clarkston	2011	General	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 Clarkston's borders are included. Clarkston will coordinate with the County to make sure all the correct facilities are listed.	N/A	N/A. Project completed.	Within 1 year of plan adoption	General Fund	Complete	Complete
City of Clarkston	2011	General	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		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.	N/A	Project already in progress.	Within 6 months of plan adoption, if funds are available	General Fund	In Progress	In Progress
City of Clarkston	2011	Flood	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.	N/A	Project already in progress.	Have study begun or contracted out within 2 years of plan adoption, provided funding is available.	PDM, FMA, General Fund, Stormwater Utility	In Progress	In Progress
City of Clarkston	2011	Flood	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.	N/A	Project already in progress.	Within 5 years of plan adoption, funding dependent.	general fund, stormwater utility	In Progress	In Progress
City of Clarkston	2011	Flood	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.	N/A	To be determined. Expected to be cost beneficial as acquisitions almost always have B/C greater than 1.	To be performed within 5 years, funding dependent.	PDM, HMGP, FMA	Deferred	Deferred
City of Clarkston	2011	Flood	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.	N/A	Project already in progress.	Within 3 years of plan adoption, funding dependent.	PDM, HMGP, FMA	In Progress	In Progress
City of Clarkston	2011	Lightning	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.	N/A	To be determined. Would depend on technology chosen.	Within 1 year of plan adoption, funding dependent.	PDM, General Fund	Deferred	Deferred
City of Clarkston	2011	Wind	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.	Medium	1B	Department of Public Works	Hire a structural engineer to survey the building and make recommendations. Secure funds for the retrofit.	N/A	To be determined. Engineer would need to provide a cost assessment.	Within 2 year of plan adoption, funding dependent.	PDM, General Fund	Deferred	Deferred
City of Decatur	2011	Flood	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	Jennings Bell, Project Civil Engineer	Replace culverts and downstream storm lines with a system that provides adequate capacity so that ponding does not occur..	N/A	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 2015/16 and FY2016/17.	Funding for this work will come from the Stormwater Utility Fund.	Deferred	In progress.

DeKalb County Countywide Hazard Mitigation Actions

Jurisdiction	Year Added to HMP	Hazards Addressed	Title	Description	Priority	Objectives Addressed	Coordinating Individual/ Organization	Implementation Strategy	Estimated Cost	Benefit vs. Cost	Timeframe for Implementation	Potential Funding Source	2011 Interpreted Status	2015 Status
City of Decatur	2011	Flood	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 Maximuk, DEC Director	Remove structures from floodplain and return area to its natural state.	N/A	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	Deferred.
City of Decatur	2011	General	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.	High	1B, 1C, 1D	Hugh Saxon, Deputy City Manager, David Junger, Assistant City Manager, Andrea Arnold, Assistant City Manager	Utilize continuity of government strategies in City building projects.	N/A	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.	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 programs.	Deferred	Completed.
City of Decatur	2011	Wind	Action # Ice/Wind 1: City Tree Maintenance	Annual Tree Maintenance	Medium	1B, 1C, 1D, 1E	John Maximuk, DEC Director and India Woodson, Landscape Infrastructure Coordinator/City Arborist	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.	N/A	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	Ongoing.
City of Doraville	2011	Flood	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		City of Doraville Maintenance Department/Inspection 1 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.	\$50K-\$100K	Project already in progress.	Completion within 2 years of plan adoption provided funding is available.	Storm Water Utility	In Progress	In Progress
City of Doraville	2011	Flood	Action # FLD 2: Storm Drain Infrastructure	The storm drain infrastructure within the City of Doraville is old and needs updating and replacing.	High		Engineering Consultant/Contracting 1 with DeKalb County	Implement a priority list of outdated or faulty storm drain infrastructure and start replacing outdated or faulty storm drain infrastructure.	N/A	Project already in progress.	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	In Progress
City of Doraville	2011	Wind	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		City of Doraville Maintenance Department/Power 2 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.	\$100K-\$250K	Project already in progress.	Within 6 months of plan adoption provided sufficient funds and labor are available. This action will be ongoing.	Maintenance Department/Power Companies	In Progress	In Progress
City of Doraville	2011	Lightning	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.	\$50K-\$100K	Project already in progress.	Within 2 years of adoption of plan, provided sufficient funds are available.	General Funds	In Progress	In Progress
City of Dunwoody	2011	Flood	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.	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.	N/A	By gathering data regarding the condition of the structures and conveyances, the City can better evaluate replacement costs and remaining service life.	Fiscal Year 2010-2012 or earliest feasible date.	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.	Deferred	Complete

Jurisdiction	Year Added to HMP	Hazards Addressed	Title	Description	Priority	Objectives Addressed	Coordinating Individual/ Organization	Implementation Strategy	Estimated Cost	Benefit vs. Cost	Timeframe for Implementation	Potential Funding Source	2011 Interpreted Status	2015 Status
City of Dunwoody	2011	Flood	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.	\$500K-\$1M	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	In progress
City of Dunwoody	2011	Flood	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.	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.	\$50K-\$100K	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	In progress
City of Dunwoody	2011	Flood	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.	>\$1M	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	Deferred
City of Dunwoody	2011	General	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.	N/A	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	Complete
City of Dunwoody	2011	Winter Storm	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.	\$250K-\$500K	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 2011 or earliest feasible date.	This program could be funded through the Community Forestry Program Budget.	Deferred	In progress
City of Lithonia	2011	Flood	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.	N/A		3 years	PDM, HMGP	Deferred	Deferred

DeKalb County Countywide Hazard Mitigation Actions

Jurisdiction	Year Added to HMP	Hazards Addressed	Title	Description	Priority	Objectives Addressed	Coordinating Individual/ Organization	Implementation Strategy	Estimated Cost	Benefit vs. Cost	Timeframe for Implementation	Potential Funding Source	2011 Interpreted Status	2015 Status
City of Lithonia	2011	General	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, 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 strategies.	N/A	Expected to have favorable cost benefit as there will be minimal expenses as projects could be done by existing staff.	2 years	TBD	Deferred	Deferred
City of Lithonia	2011	Winter Storm	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.	N/A	Costs may be shared by neighboring community improving B/C ratio	3 years	PDM, HMGP	Deferred	Deferred
City of Lithonia	2011	Wind	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.	N/A	Expected to be costs beneficial depending on shutter and door materials utilized. Need to work with vendor.	2 years	PDM, HMGP	Deferred	Deferred
City of Pine Lake	2011	Flood	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.	N/A	Project already in progress.	Within 12 months of plan adoption	General Fund, Stormwater Utility	In Progress	In Progress
City of Pine Lake	2011	Flood	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.	N/A	Project already in progress.	ongoing	To be determined.	In Progress	In Progress
City of Pine Lake	2011	Flood	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)	N/A	Project already in progress.	Within 2 years of adoption of plan, funding dependent	PDM, HMGP, Stormwater Utility	In Progress	In Progress
City of Pine Lake	2011	Wildfire	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.	N/A	Expected to have favorable cost benefit as there will be minimal expenses as projects could be done by existing staff.	Ongoing	TBD	Deferred	In Progress
City of Stone Mounta	2015	Flood	Action # FLD 1: Increase Capacity of Stormwater Infrastructure	Projects have been identified that will mitigate flooding of streets and potential damage to public and private property.	High	1. A.	Public Works Department	Identify additional sources of revenue	\$500K-\$1M	Estimated damages are: 10 year flood = \$80-\$120K; 25 year flood = \$120-\$200K; 50 year flood = \$200-\$400K; 100 year flood = \$500-1,200K. Damages from the 2009 flood were \$514,506.	Continuous; one major project every three years	Federal, State grants and stormwater utility fees; revenue and/or GO bonds		The design phase of one major project is complete; the city is seeking additional funds for its construction
City of Stone Mounta	2015	Flood	Action # FLD 2: Repair Existing Stormwater Infrasturcure	Address in a timely manner repairs to stormwater infrastructure	High	1. B.	Public Works Department	Estimate and fund the financial reserve necessary to respond to needed repairs	\$500K-\$1M	Estimated damages are: 10 year flood = \$80-\$120K; 25 year flood = \$120-\$200K; 50 year flood = \$200-\$400K; 100 year flood = \$500-1,200K. Damages from the 2009 flood were \$514,506.	Continuous	Federal, State grants and stormwater utility fees; revenue and/or GO bonds		The stormwater utility is underfunded
City of Stone Mounta	2015	Wind	Action # WIN/ICE 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 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	2. A. and 3. A.	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.	<\$50K	Estimated benefit/cost is \$1:\$1	Continuous	General Funds		Ongoing
City of Stone Mounta	2015	Winter Storm	Action # ICE 1: Maintain Treatment Capability	Maintain materials and equipment to treat roads in advance of ice storms	High	3. A.	Public Works Department	Monitor weather reports carefully to take action in time to mitigate hazards due to ice	<\$50K	Estimated benefit/cost is \$5:\$1; Public works did an excellent job during the ice storm of 2011.	Continuous	General Funds		Ongoing

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. The Director of DeKalb County's Emergency Management (DEMA) 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 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.

In addition to these activities, many of the education and outreach activities described in Section 5.3.2 will contribute to continued public involvement in the plan implementation process.

6.1.6 Increased Stakeholder Involvement

In addition to maintaining and increasing public involvement in subsequent updates to this plan, the County and the cities are committed to increasing the level of other stakeholder involvement in the planning process. Between now and the first submitted update of the plan, each jurisdiction will recruit at least one business and one institutional stakeholder to review and provide input to the plan and update process. Monitoring of progress for this task will be included during the twice per year meetings of the MAC and LPGs. The MAC is also interested in utilizing social media as well as Community 101 outreach programs to increase participation by residents and businesses.