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MEMORANDUM

To: Honorable Mayor and City Council

From: Billy Grogan, Chief of Police

Date: December 12, 2016

Subject: Update to DeKalb County Multi-Jurisdictional Hazard Mitigation Plan

ITEM DESCRIPTION

In order to continue to qualify for grants through the Georgia Emergency Management Agency (GEMA) and the Federal Emergency Management Agency (FEMA) for hazard mitigation the city must adopt the updated 2016 DeKalb County Multi-Jurisdictional Hazard Mitigation Plan. The 2016 plan is an update to the adopted plan from 2011.

BACKGROUND

In 2011, the City of Dunwoody became a full participant of the DeKalb County Hazard Mitigation Planning effort. Unlike other planning efforts, hazard mitigation planning focuses on steps and actions the City can complete or can complete working with the County, our Emergency Management Agency, GEMA, and FEMA.

For Dunwoody, flooding and winter storms were identified as "frequent and historical" hazards with tornados identified as "historical" hazards. The plan also includes a prioritization and implementation strategy for hazard mitigation action items to address each of the identified top hazards. Actual implementation for each mitigation action will be further dictated by the City Council through the annual budgeting process and the City's efforts to secure grant awards based on Council's priorities.

The updated plan has been reviewed by the Police Department and Public Works.

RECOMMENDED ACTION

Staff recommends the City adopt the updated DeKalb County Multi-Jurisdictional Hazard Mitigation Plan by Resolution. By doing so, Dunwoody will be eligible to apply for grants through GEMA and FEMA to begin working to reduce and eliminate long term effects of disasters in our community.

NATHAN DEAL Governor



JIM BUTTERWORTH Director

October 31, 2016

DIS

Mr. Lee May Interim Chief Executive Officer DeKalb County 1300 Commerce Drive 6th Floor Decatur, Georgia 30030

Dear Mr. May:

The Federal Emergency Management Agency (FEMA) has completed its review of the DeKalb County Multi-Jurisdictional Hazard Mitigation Plan for compliance with the programmatic requirements of the Federal Hazard Mitigation Planning Standards contained in 44 CFR Section 201.6(b)-(d). FEMA has determined that the DeKalb County Hazard Mitigation Plan Update is compliant with Federal standards, subject to formal community adoption.

The county and each municipality must pass individual resolutions adopting the Plan. Please forward the adopted and signed resolutions to Laura Radford, Hazard Mitigation Planner, so that we may submit them to FEMA for inclusion in your plan for formal federal review and approval. Upon submittal of a copy of the participating jurisdictions' adoption documentation as well as documentation of the final public meeting, FEMA will issue formal approval of the DeKalb County Multi-jurisdictional Mitigation Plan. Should you have any questions or need additional information, please contact Laura Radford, Hazard Mitigation Planner, at (404) 635-7517.

incerely.

Terry K. Junn Hazard Mitigation Division Director

tkl/lrg

cc: Sue Loeffler, Director

DeKalb County Emergency Management Agency DeKalb County Municipalities Sheri Russo, Area Coordinator Georgia Emergency Management and Homeland Security Agency

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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 DEKALD 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.

Contents





Plan Highlights	1
Executive Summary	2
Planning Process	6
Hazard Identification and Risk Assessment	10
Mitigation Strategy	36
Plan Review, Evaluation, and Implementation	61
Plan Adoption	62
Additional Resources and Plan Documentation	63



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	
D11*	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 agen	cy	10		

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 in 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 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.

PLANNING PROCESS

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)



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



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.

Ussard	Number of	Property Damage	Crop Damage	Deaths	Iniurioa
паzaru	Events	(initiated)	(innated)	Deaths	injunes
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)

	Period of	Period of Annualized		Annualized Crop	
Hazard	Record	Events	Property Damage	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.

11

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			V	
DR	1858	Severe Storm(s)	Severe Storms And Flooding	9/18/2009	v		٧	٧
DR	1750	Severe Storm(s)	Severe Storms And Tornadoes	3/14/2008	V	٧	٧	٧
EM	3218	Hurricane	Hurricane Katrina Evacuation	8/27/2005			٧	
DR	1554	Hurricane	Hurricane Ivan	9/14/2004	V	V	V	V
DR	1311	Severe Storm(s)	Severe Winter Storm	1/22/2000			V	V
DR	1209	Severe Storm(s)	Severe Storms And Flooding	2/14/1998		٧	٧	
DR	1071	Hurricane	Hurricane Opal	10/4/1995		V	V	V
EM	3097	Snow	Severe Snowfall, Winter Storm	3/13/1993			٧	٧
EM	3044	Drought	Drought	7/20/1977			V	V
DR	370	Tornado	Tornadoes & Flooding	4/4/1973		V	V	V

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.

IH = Individuals and Households Program

IA = Individual Assistance Program

PA = Public Assistance Program

HM = Hazard Mitigation Program

HIRA – Hazard Priorities

Hazard	Hazard Type	B		Impact		Hazard Planning	Hazard Planning
Section	назаго туре	Probability	Affected Area	Primary Impact	Secondary Impacts	Consideration 2011	Consideration 2016
Flooding	Flooding	Highly Likely	Medium	Critical	High	Significant	Significant
Flooding	Dam Failure	Unlikely	Isolated	Critical	High	Limited	Limited
	Wind (Straightline)	Highly Likely	Large	Limited	Moderate	Significant	Significant
Wind	Tornado	Highly Likely	Isolated	Critical	Moderate	Moderate	Significant
Wind	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	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)



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 Tornados 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)

			Impact	Hazard	Hazard	
Hazard	Probability	Affected Area Primary Secondary Impact Impacts			Consideration 2011	Consideration 2016
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 10year 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

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

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.

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

Community		Policy Statistic (as of 9/2015	cs)	Claim Statistics (as of 9/2015)		
Name	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 <i>,</i> 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 <i>,</i> 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	

(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.

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.

19

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 Analys	sis 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 <u>approximation</u> 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 F	isk Ana	alysis Rep	oort 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

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

According to the <u>National Inventory of Dams</u>, 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, 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.

	Duchahilitar		Impact		Hazard	Hazard
Hazard	Probability	Affected Area	Primary Impact	Secondary Impacts	Consideration 2011	Consideration 2016
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
THUNDER STORMS /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

The figure above 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.

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 tornados (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 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.

0	1	\$25K	0.0854181			
0			33°51'N	84°15'W	33°51'N	84°12'W
1	1	\$250K	33°34'N	84°21'W	Unknown	Unknown
0	0	\$250K	Unknown	Unknown	33°42'N	84°06'W
1	9	\$250K	33°41'N	84°21'W	33°42'N	84°18'W
0	0	\$25K	33°39'N	84°34'W	Unknown	Unknown
0	8	\$2.5M	33°39'N	84°19'W	33°41'N	84°18'W
0	0	\$250K	33°54'N	84°17'W	Unknown	Unknown
0	0	\$25K	33°46'N	84°14'W	Unknown	Unknown
1	0	\$25.0M	33°57'N	84°20'W	33°57'N	84°16'W
0	0	\$50K	33°44'N	84°21'W	33°43'N	84°19'W
	0	0 0	1 0 \$25.00 0 0 \$50K	1 0 \$25.0M \$557 N 0 0 \$50K 33°44'N	1 0 \$25.00 53.57 N 84.20 W 0 0 \$50K 33°44'N 84°21'W	1 0 \$25.001 35.57 N 84.20 W 55.57 N 0 0 \$50K 33°44'N 84°21'W 33°43'N

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.**

	Period of	Annualized	Annualized Property
Hazard	Record	Events	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

Bachability		Impact		Hazard	Hazard
Probability	Affected Area	Primary Impact	Secondary Impacts	Planning Consideration 2011	Planning Consideration 2016
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 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 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 upperlevel 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

Dee he hiliter		Impact		Hazard	Hazard
Probability	Affected Area	Primary Impact	Secondary Impacts	ndary Impacts 2011	
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

Deskahiliter		Impact		Hazard	Hazard
Probability	Affected Area	Primary Impact	Secondary Impacts	Planning Consideration 2011	Planning Consideration 2016
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



Duck a bility		Impact		Hazard	Hazard	
Probability	Affected Area	Primary Impact Secondary Impacts		Planning Consideration 2011	Planning Consideration 2016	
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 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		
				То	tal	\$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 causalities. 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

Deskahiliter		Impact		Hazard	Hazard
Probability	Affected Area	Primary Impact	Secondary Impacts	Planning Consideration 2011	Planning Consideration 2016
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

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

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.



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

HIRA – Summary

Hazard Category	Hazard	Annualized Events	Annualized Property Damage	Annualized Crop Damage
Flood	Flood	0.61	\$445,276	N/A
FIOOD	Flash Flood	1.7	\$414,645	N/A
	Wind	2.7	\$36,762	N/A
Wind	Hail	1.9	\$285,245	N/A
(and Related	Tornado	0.14	\$778,263	N/A
Hazards)	Hurricane	0.23	N/A	N/A
	Lightning	0.65	\$49,255	N/A
Minter Cterres	Winter Weather	0.96	\$26,591	N/A
winter Storms	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:

-221-

- 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.

<u>ה</u> #20.

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 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 12 supporting objectives

DeKalb County (Proposed Actions)

Many of 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
А.	Planner(s) or engineer(s) with knowledge of land development and land management practices	Y	Dept. of Planning and Development
В.	Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Dept. of Public Works and Dept. of Watershed <u>Managament</u>
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
Н.	Scientists familiar with the hazards of the community	Y	Various
١.	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 ordnances, 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)
Α.	Building code	Y	Ν
В.	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	Ν
F.	Site plan review requirements	Y	Ν
G.	General or comprehensive plan	Y	Ν
Н.	A capital improvements plan	Y	N
١.	An economic development plan	Y	Ν
J.	An emergency response plan	Y	N
к.	A post-disaster recovery plan	N	Ν
L.	A post-disaster recovery ordinance	N	Ν
М.	Real estate disclosure requirements	N	Ν

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 erostion.

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

-234-

- 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

-235

• 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).

-236-

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
 - o 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)
 - o THD2 Wind Retrofit for Police Station (Deferred pending move into proposed City Complex)



Clarkston Entranceway Sign, E Ponce de Leon Ave, Clarkston GA

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

-237-

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

-238-

- 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

-239-

- 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

-240-

- 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
 - o FLD1 Stormwater system infrastructure mapping
 - GEN1 Emergency alert and warning system
- Ongoing Actions

-242-

- o 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

-243-

- 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

-245-

- FLD1 Hydrology and hydraulic study (additional modeling is ongoing)
- o 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

-246-

- 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
 - o 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 DeKall County, Georgia this 22nd day of March, 2011.

SSIONERS

APPROVED BY the Chief Executive Officer of DeKalb County, Googla this 22nd day of March,

W. BURRELL ELLIS

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

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



RESOLUTION 2016-

A RESOLUTION TO ADOPT THE DEKALB COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

- WHEREAS, the City of Dunwoody understands the need to work with DeKalb County to develop a hazard mitigation plan in order for DeKalb County and all incorporated municipalities to comprehend their vulnerability to natural and man-made hazards, and the actions needed to reduce or eliminate those risks; and
- **WHEREAS,** the City of Dunwoody 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, the City of Dunwoody understands that in order for the City 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, including the City of Dunwoody, are required to maintain a Pre-Disaster Mitigation Plan that fulfills the Federal requirements of the Disaster Mitigation Act of 2000; and
- WHEREAS, the City of Dunwoody has been a full participant in the updating process of the DeKalb County Multi-Jurisdictional Hazard Mitigation Plan, attached hereto and incorporated by reference, 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, including the City of Dunwoody, and has been revised to reflect their concerns.

NOW THEREFORE, BE IT RESOLVED, by the Mayor and City Council of the City of Dunwoody and it is resolved by the authority of said City Council, that by passage of this Resolution the City of Dunwoody Mayor and City Council approve and adopt the DeKalb County Multi-Jurisdictional Hazard Mitigation Plan.

SO RESOLVED AND EFFECTIVE this 12th day of December, 2016.

Approved:

Denis L. Shortal, Mayor

Attest:

Sharon Lowery, City Clerk

Seal