LAND USE PLANNING FOR HAZARD MITIGATION

Community Report for Fulton County and the Municipalities of Alpharetta, Atlanta, Chattahoochee Hills, College Park, East Point, Fairburn, Hapeville, Johns Creek, Milton, Mountain Park, Palmetto, Roswell, Sandy Springs and Union City

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Department of
Community Affairs

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INTRODUCTION

In 2008 a presidential disaster declaration included 20 Georgia counties and 87 Georgia cities that were impacted by severe storms, tornadoes and flooding. To assist these counties and cities with their ability to prepare for future hazards and to be more disaster resilient by limiting the interruption of the hazards on the local community, the Georgia Department of Community Affairs (DCA) conducted a comparative analysis and assessment of the affected communities' 5-year hazard mitigation plans and 20-year local land use plans (comprehensive plans). Applicable regional plans were also evaluated.

Results of the analyses for each county are presented in Community Reports. Each report provides a framework for understanding the benefits of coordinating land use planning with hazard mitigation planning, and is organized into the following sections:

1. How To: Principles for Integration of Land Use Planning and Hazard Mitigation Planning
2. Key Findings: Comparative Plan Analysis
3. Recommendations: Next Steps for Your Community and Regional Commission

This Community Report specifically addresses Fulton County and the municipalities of Alpharetta, Atlanta, Chattahoochee Hills, College Park, East Point, Fairburn, Hapeville, Johns Creek, Milton, Mountain Park, Palmetto, Roswell, Sandy Springs, and Union City. Fulton County and its municipalities are member jurisdictions of the Atlanta Regional Commission (ARC).

2008 PRESIDENTIAL DISASTER DECLARATION

SEVERE STORMS AND TORNADOES

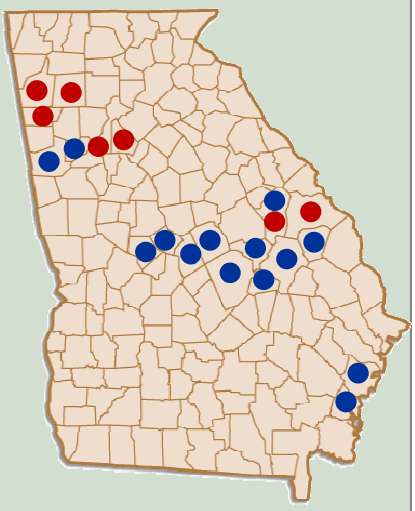
● Counties:

Bartow, Burke, DeKalb, Floyd, Fulton, Jefferson, Polk

SEVERE STORMS AND FLOODING

● Counties:

Bibb, Carroll, Crawford, Douglas, Emanuel, Glynn, Jefferson, Jenkins, Johnson, Laurens, McIntosh, Treutlen, Twiggs, Wilkinson



How To: Principles for Integrating Land Use Planning and Hazard Mitigation Planning

The Role of Local Plans

Most communities in Georgia have an approved hazard mitigation plan in compliance with the requirements of the *Robert T. Stafford Disaster Relief and Emergency Assistance Act*, as amended by the Disaster Mitigation Act of 2000 (DMA). An approved hazard mitigation plan under these regulations ensures a community's continued eligibility for federal pre- and post-disaster assistance.

Most communities in Georgia also have an adopted comprehensive land use plan that complies with DCA guidelines, as well as environmental regulations, zoning regulations and/or land development regulations that implement land use policies. These policies and ordinances are typically enacted to address a wide range of issues including those related to quality of life and economic development. But they can also play an important role in a community's preparedness for natural disasters.

The local planners and others who author comprehensive plans are typically less involved in hazard mitigation planning than comprehensive planning, if they are involved at all. This common gap in coordinated planning can limit a community's ability to fully analyze and reduce risks associated with disasters. Coordinated planning is needed to ensure consistency among local plans, policies and programs. In particular, a comprehensive plan's goals, policies and recommendations should relate to those of the hazard mitigation plan for the community.

Participation by emergency managers, floodplain managers, engineers and planners in planning processes can benefit both hazard mitigation plans and comprehensive plans by strengthening the relationship between the two. A hazard mitigation plan can identify existing vulnerabilities and the preparedness of suitable response and recovery operations in the near term, while a comprehensive plan affords an opportunity to

DEFINITION: HAZARD MITIGATION

The Federal Emergency Management Agency (FEMA) defines mitigation as "the effort to reduce loss of life and property by lessening the impact of disasters." This is achieved through *risk analysis* (mapping, hazard mitigation plans), *risk reduction* (land use and building practices, regulations and mitigation practices) and *risk insurance* (flood insurance).

http://www.fema.gov/mitigation#1

The Code of Federal Regulation defines Hazard Mitigation as "any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards." (44 CFR 201.2)

mitigate longer-term risks by promoting suitable development patterns.

Public Participation in the Planning Process

There is an opportunity for local government officials, planners and emergency managers to leverage the common values of improving community safety and reducing losses of life and property by applying these values to both comprehensive planning and hazard mitigation planning. The public dialogue should be started before disasters strike. Informing the public about the importance of hazard mitigation in a pre-disaster setting can be accomplished through effective public outreach and education.

Engaging citizens, stakeholders, regional agencies and state agencies is a requirement of the DMA planning process. Most comprehensive planning processes involve the types of public meetings and participation activities that can also contribute to the hazard mitigation planning process.

To broaden the extent of public input for hazard mitigation planning, public participation programs for comprehensive plans (and any other plans with hazard-related land use implications) should include community discussions about natural hazards. In many communities, a land use planning process, such as an update to a local comprehensive plan or a neighborhood area plan, is more interesting and visible to the public than the hazard mitigation planning process, and can therefore generate additional public input beneficial to hazard mitigation planning.

Planning Cycles & Plan Updates

Hazard mitigation plans must be updated every five years for communities to remain eligible for federal pre- and post-disaster assistance. Local governments must also prepare, adopt, maintain, and implement a comprehensive plan in order to maintain qualified local government certification, and thereby remain eligible for selected state funding and permitting programs.

According to DCA's Minimum Standards and Procedures for Local Comprehensive Planning (Chapter

WHO SHOULD BE INVOLVED?

- Planners / Zoning Administrators
- Emergency Managers
- Elected Officials
- City or County Manager / Administrator
- Planning Commission Members
- Building Officials
- Fire Officials
- Floodplain Managers
- Public Works Employees
- Parks and Recreation Employees
- Transportation Planners and Engineers
- GIS Managers
- Environmental Officials
- Economic Development Officials
- Business Leaders / Developers
- Public Information Officers
- Citizens
- Non-Profit Agencies
- State and Federal Agencies
- Academia

110-12-1, Effective January 1, 2013), local governments are required to prepare either annual or five year updates to the comprehensive plan's Community Work Program (CWP, previously called the Short-Term Work Program in the 2005 Minimum Standards and Procedures) and five-year updates to the following plan elements: Needs and Opportunities, CWP, and Land Use. Hazard Mitigation is an optional element that is not identified in the standards but is appropriate for a community to consider including.

In order to remain eligible for state funding programs, each Regional Commission must prepare, adopt, maintain, and implement a regional plan. In accordance with DCA's Standards and Procedures for Regional Planning ("Regional Planning Requirements," Chapter 100-12-6, Effective July 1, 2009), a regional plan is required to be updated every five years. In addition, annual updates to the five-year Regional Work Program are required. The annual update also facilitates policy or mapping adjustments that may be needed to address hazard mitigation.

The established 2016 deadlines for updating Fulton County's hazard mitigation plan and the comprehensive plans for the County and the majority of its municipalities (see table at right) provide an opportunity for the principles of hazard mitigation planning and land use planning to be addressed in a coordinated process. Where established deadlines for updating the hazard mitigation plan and local comprehensive plans do not align, it is advisable that the respective municipalities work with ARC and DCA to align the plan update deadlines.

In the near-term, minor updates to the local comprehensive plans can identify common goals that are supported by comprehensive plans and hazard mitigation plans. Amendments can be made to the CWP element, which is the comprehensive plan's implementation program that lists the specific actions to be undertaken annually by the local government over five years.

Although the CWP for each jurisdiction is not required to be updated until the local comprehensive plan updates beginning in 2015 (with the exception of the required 2013 update to the CWP element for Johns Creek), an annual update is an option. This would allow community leaders to pull action items from the hazard mitigation

PLAN RECERTIFICATION DEADLINES:
FULTON COUNTY AND CITIES

County Hazard Mitigation Plan:

September 2016

Short-Term Work Program/ Community Work Program:

October 2013 (Johns Creek)

Local Comprehensive Plan:

October 2015 (Palmetto & Union City)

October 2016 (Fulton County, Alpharetta, Atlanta, Chattahoochee Hills, College Park, Fairburn, Hapeville, Milton, Mountain Park & Roswell)

October 2017 (East Point & Sandy Springs)

October 2018 (Johns Creek)

plan and amend them in the CWP. Supporting action items can also be amended into the CWP, such as:

- "Review comprehensive plan goals, objectives and policies to identify those that relate to hazard mitigation (e.g. future development, natural resource protection, community facilities and services, and transportation)"
- "Coordinate with the County Emergency Management Agency on the development of the hazard mitigation plan update, anticipated for 2016"
- "Include or incorporate by reference the County's hazard mitigation plan in future updates to the comprehensive plan"
- "Include Hazard Mitigation element in future comprehensive plan update"

Mapping Makes a Difference

Floodplain Mapping

The detail and quality of the maps in hazard mitigation plans and comprehensive plans is an important factor in effectively demonstrating potential dangers to homes, businesses and critical facilities. This is especially true for floodplain mapping, where depth grids can indicate the potential depth of water on an individual property (see Figure 1), offering greater detail and information about potential risk. At a minimum, a community's current Flood Insurance Rate Map (FIRM) should be used in hazard mitigation planning and comprehensive planning to depict floodplains, ideally with parcels and major roads also shown on the map. The FIRM identifies Special Flood Hazard Areas (SFHA), which are the areas that would be covered by waters of the base flood ("100-year flood" or "1 percent annual chance flood").

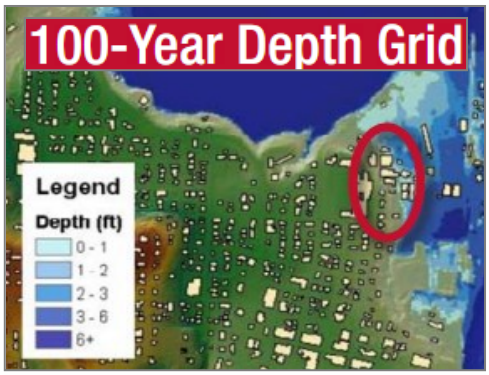


Figure 1. Example of Use of Depth Grids in Floodplain Mapping (not Fulton County)

Historical Mapping

Historical mapping can give a perspective on how development can be impacted by future events. In hazard mitigation planning, it is common practice to include maps showing reported tornado event tracks and to factor this historic information into analysis and recommendations. Consideration of this type of

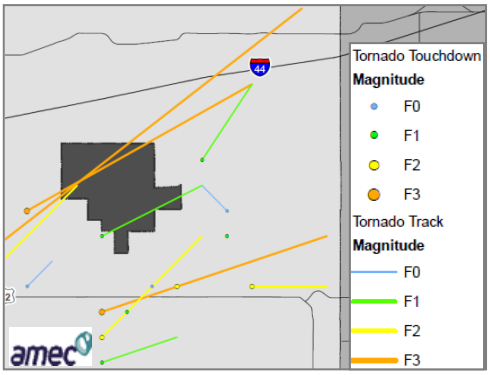


Figure 2. Example of Tornado Touchdowns and Paths Mapping (not Fulton County)

information in comprehensive land use planning could result in land use recommendations that would lead a community to become more disaster resilient (see definition at right). Figure 2 shows an example of tornado touchdowns and paths mapping.

Hazus-MH Mapping

In recognition of the importance of planning in mitigation activities, the Federal Emergency Management Agency (FEMA) developed the Hazards-United States Multi-Hazards (Hazus-MH) tool. It is a powerful disaster risk assessment tool based on geographic information systems (GIS). This tool enables communities of all sizes to predict estimated losses from floods, hurricanes, earthquakes, and other natural disasters and also to measure the beneficial impact of various mitigation practices that might help reduce those losses.

In 2012, DCA partnered with The Polis Center at Indiana University-Purdue University Indianapolis (IUPUI) to develop detailed risk assessments using Hazus-MH. The assessments are focused on defining risk from hurricanes, riverine floods, coastal floods and tornados. They will identify the characteristics and potential consequences of a natural disaster, show how much of the community could be affected, and estimate the potential for damage to community assets. These reports can be used for hazard mitigation planning by identifying strategies for protection of existing buildings and infrastructure, and also by providing information to support future development decisions, ultimately enhancing local communities' ability to be disaster resilient.

DCA plans to provide three reports to each of the 20 counties in the 2008 Presidential Disaster Declaration free of charge. These will include:

1. A multi hazard risk assessment supplement report (based on a Hazus-MH Level 2 study of the County that incorporates local inventories of buildings, essential facilities and other infrastructure)
2. The Hazus-MH Level 2 dataset, with the analysis and reports that were used to produce the multi hazard risk assessment report

DEFINITION: DISASTER RESILIENT

The Community and Regional Resilience Institute (CARRI) defines a disaster resilient community as one that is able to: *effectively prepare for, respond to, and successfully recover from a manmade or natural disaster, by having the ability to quickly:*

- *Return citizens to work*
- *Reopen schools and businesses*
- *Restore the essential services needed for a full and swift economic and social recovery*

http://www.ResilientUs.org

3. An existing land use map "conflicts report" showing where developed areas overlap with FEMA-designated Special Flood Hazard Areas (see also "Existing Land Use Mapping" on p. 7)

Each community is strongly encouraged to work with state and federal initiatives to produce more detailed risk assessments for their hazard mitigation plans.

Existing Land Use Mapping

Under the new DCA minimum planning standards, effective January 1, 2013, comprehensive plans are not required to include an existing land use (ELU) map. An ELU map is an important tool for hazard mitigation planning. Communities are encouraged to maintain an ELU map that can be used in both comprehensive and hazard mitigation planning, and DCA can provide an alternative suitable map to communities that have limited staff or technical resources with an alternative suitable map. Specifically, DCA can download a county's WinGAP tax database into Hazus to produce a parcel-based land use map and a local building stock map (based on county-provided "essential facilities" data that are incorporated into the Hazus Level 2 database). The resulting map can provide accurate information for risk assessment.

Future Land Use/Development Mapping

Informed land use planning should give consideration to potential natural hazards. Land use plans that encourage development in areas that can be at risk of flood damage may be compromising hazard mitigation efforts. When this is the case, it is an indication that planning for future development has not taken into account the potential impacts of natural hazards. Addition of a "Special Flood Hazard Area" or "Floodplain" category on future land use/development maps can highlight areas not suitable for certain types of development (see Figure 3).

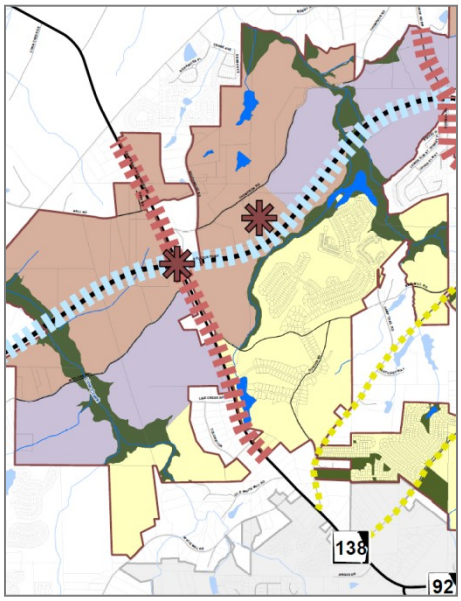


Figure 3. The floodplain is included in the Union City Future Development Map (part of the "Natural-Open Space" character area, shown in dark green)

Many hazard mitigation plans also do not effectively incorporate land use mapping. Coordination of land use mapping and potential natural hazards analysis is critical to reducing damage and making communities more disaster resilient. This coordination can be achieved by preparing hazard mitigation and comprehensive plan

updates at the same time to ensure mapping consistency. If plan updates occur at different times, it is important to include the most recent version of the community's future land use/development map in the hazard mitigation planning process.

Integration: Tools & Techniques

A variety of tools and techniques can be used to link hazard mitigation planning and land use planning. Successful approaches can include:

- Establish complementary goals, policies and recommendations in hazard mitigation plans and comprehensive plans (e.g. land use, natural resource protection/environmental management, transportation, public safety, etc.)
- Implement hazard mitigation recommendations/objectives through capital improvement programs and policies (e.g. water/sewer line extension, construction of public facilities) and development regulations (e.g. zoning ordinance, subdivision regulations, building and housing codes)
- Compile, maintain and share current data, trends and maps (e.g. demographic data, growth trends, development patterns, existing land use and future development maps, environmental/natural hazard maps, critical facility and infrastructure maps, etc.)
- Use the hazard mitigation plan and comprehensive plan to promote a strong culture of preparedness and mitigation
- Use state and federal laws such as the Disaster Mitigation Act of 2000 and other provisions of the Stafford Act, and state planning and zoning enabling laws as leverage while focusing on community need
- Employ proactive and coordinated outreach and stakeholder involvement in planning processes
- Insert hazard mitigation plan action items into the STWP/CWP of the comprehensive plan
- Include a "Special Flood Hazard Area" or "Floodplain" character area/land use category in future land use plans
- Coordinate with the Regional Commission and DCA to align plan update deadlines for hazard mitigation plans and comprehensive plans
- Include a Hazard Mitigation element in a future comprehensive plan update
- Integrate hazard mitigation plans with other local plans, which can include:
    - Area Plans - also known as subarea, small area, sector, or character area plans, they focus on specific parts of a community like a downtown business district, neighborhood or traffic corridor
    - Functional Plans - focus on particular community services or functions, such as sewer and water, transit, parks and recreation, or stormwater management
    - Operational Plans – focus on procedural protocols such as emergency operations or continuity of operations for government agencies

KEY FINDINGS: FULTON COUNTY

The Hazard Mitigation Planning Analysis table on the following page is an assessment of how the current hazard mitigation plan, local comprehensive plans (individual plans for the County and each municipality) and regional plan address topics that are required by FEMA to be included in a hazard mitigation plan. Recommendations pertaining to each topic identified as an "opportunity for improvement" are provided in the next section.

It should be noted that DCA minimum planning standards do not require local and regional comprehensive plans to identify and discuss some important topics in the context of hazard mitigation: *Hazard Identification*, *Critical Facilities*, and *Infrastructure and Utilities.* Local comprehensive plans and regional plans are also not required to specifically address *Review of Mitigation Measures*. As such, the local comprehensive plans and regional plans may not address a required hazard mitigation topic at all, or the plans may provide information on a topic that meets or exceeds comprehensive planning requirements but lacks sufficient detail when compared to hazard mitigation planning requirements. This issue is reflected in Table 1 on the following page, which indicates the level of detail provided in each plan relative to FEMA's hazard mitigation planning requirements. Topics where the level of detail in two or more plans is low are identified as providing an opportunity for improvement and are further described in this section.

HAZARD MITIGATION PLANNING ANALYSIS OVERVIEW

Methodology:

The analysis identifies linkages and disconnects between county hazard mitigation plans prepared under the FEMA Disaster Mitigation Act (DMA) planning requirements and local and regional comprehensive plans prepared under DCA standards and procedures for planning.

Outcome:

Recommendations for the communities and regional commission to consider as they engage in future planning efforts.

Table 1 Hazard Mitigation Planning Analysis

Topic	*Level of Detail*			Comments	Opportunity for Improvement
	Hazard Mitigation Plan	County & Cities Comprehensive Plans	Regional Plan		
Hazard Mapping[1]	Low	Low	Low	The hazard mitigation plan includes 100-year flood maps for about half of the cities at varying levels of detail; a map is not provided for the county. The comprehensive plans provide GIS-based 100-year floodplain maps, but they do not use the original FIRM and generally do not include parcel data. Six communities also map the 500-year floodplain. The regional plan's Regionally Important Resources (RIR) Map does not delineate the floodplain. None of the three types of plans include any other hazard mapping.	✓ *See p. 12*
Hazard Identification	Medium	Low	Low	The hazard mitigation plan has a more robust discussion of flood hazards than the other plans. The comprehensive plans generally summarize the location of floodplains with some discussion of the relationship between development and flooding. The regional plan briefly reviews impacts (including flooding) of land use changes on watershed hydrology.	✓ *See pp. 12-13*
Land Use Mapping[2]	Low	Medium	Low	The hazard mitigation plan does not include future land use maps. Future development/land use maps in the local comprehensive plans are generally parcel-based with streets shown (some labeled); four communities map the floodplain. The regional plan provides a 2040 Projected Development Patterns Map, but the "Conservation" and "RIR" categories do not delineate the floodplain. In addition, the PLAN 2040 Unified Growth Policy Map (UGPM) illustrates predominant land use patterns in the region but does not map the floodplain.	✓ *See p. 14*
Land Use Discussion	Low	High	Medium	Existing and future land uses/development is more fully discussed in the local comprehensive plans. The regional plan discussion addresses the overall region and the hazard mitigation plan discusses existing, but not future, land uses.	
Critical Facilities Definition & List	Low	Low	Low	Critical facilities are not defined in any of the plans. The hazard mitigation plan provides a list of some facilities, whereas the other plans describe "community facilities," some of which can be classified as critical facilities.	✓ *See pp. 14-15*
Infrastructure & Utilities Definition & List	Low	Low	Low	A definition of infrastructure and utilities is not included in any of the plans. The local hazard mitigation plan does not provide a list of utilities and infrastructure. The local comprehensive plans and regional plan describe the transportation network and address the availability of primary utilities, but they do not describe or define infrastructure/utilities which could be impacted by natural hazards.	✓ *See pp. 14-15*

Topic	*Level of Detail*			Comments	Opportunity for Improvement
	Hazard Mitigation Plan	County & Cities Comprehensive Plans	Regional Plan		
Planning Process Discussion (timeframe, no. of meetings & use of media)	High	High	High	The plans generally provide complete summaries of the planning processes undertaken or proposed for each effort, with details regarding timeframe, number/type of meetings and use of media.	
Planning Process Participants	High	High	High	The plans identify planning participants, including steering committees and stakeholder groups.	
Review of Mitigation Measures	Low	Low	Low	All three plans excluded a comprehensive discussion of mitigation measures and why certain approaches might be better than others to address natural hazards and promote mitigation.	✓ *See pp. 15-17*
Vulnerable Population, Economy/Tax Base & Cultural/Historic Resources Discussion	Low	Medium	Medium	The hazard mitigation plan does not address any of the topics. The local and regional comprehensive plans address all topics, with more information provided on economy/tax base and cultural/historic resources than vulnerable populations.	

[1] Hazard mapping detail is categorized with respect to the potential to provide estimates of exposure and losses to flood risks, as follows:

- High Detail – parcel based, shows comprehensive road network, includes official FIRM
- Medium Detail – not parcel based, shows comprehensive road network, includes official FIRM
- Low Detail – not parcel based, does not show comprehensive road network, does not include official FIRM

[2] Land use mapping detail is categorized with respect to the Future Land Use / Future Development Map's potential to provide estimates of exposure and losses to flood risks, as follows:

- High Detail – parcel based, shows comprehensive road network, includes Special Flood Hazard Area or Floodplain category
- Medium Detail – not parcel based, shows comprehensive road network, includes Special Flood Hazard Area or Floodplain category
- Low Detail – not parcel based, does not show comprehensive road network, does not include Special Flood Hazard Area or Floodplain category

RECOMMENDATIONS: NEXT STEPS FOR YOUR COMMUNITY & REGIONAL COMMISSION

Hazard Mapping

Improved hazard mapping should be a primary focus for both hazard mitigation and comprehensive planning. More detailed floodplain mapping will increase public awareness of the dangers of living within or close to a Special Flood Hazard Area. Methods to achieve better mapping in local comprehensive plans and hazard mitigation plans include showing roads and parcel boundaries as overlays on floodplains, as well as generating depth grids that show property owners the potential depth of floodwaters on their property. Participation in FEMA's Hazus Program is another way to achieve more robust hazard mapping. Additional detail can be found in the "Mapping Makes a Difference" section of this report, beginning on page 5.

Figure 4. DCA can generate flood depth grids to illustrate the potential extent of flooding in a community

At the regional planning level, floodplains should be delineated on the Regionally Important Resources (RIR) Map. This map is used to develop the "RIR and Conservation" category in the ARC regional plan's Projected Development Patterns Map and the "Regionally Important Resources" category in the Unified Growth Policy Map (UGPM).

DCA can assist the County and its municipalities with hazard mapping.

Hazard Identification

When preparing an update to the comprehensive plan, the County and its municipalities should incorporate discussion of natural hazards that are addressed in the hazard mitigation plan. Discussion about natural hazards should occur in public meetings conducted during the planning process, and results should be reflected in the plan itself, either in the Needs and Opportunities section or by the addition of a Hazard Mitigation element. The hazard identification process brings forth an awareness of the impact natural hazards pose to the health, safety

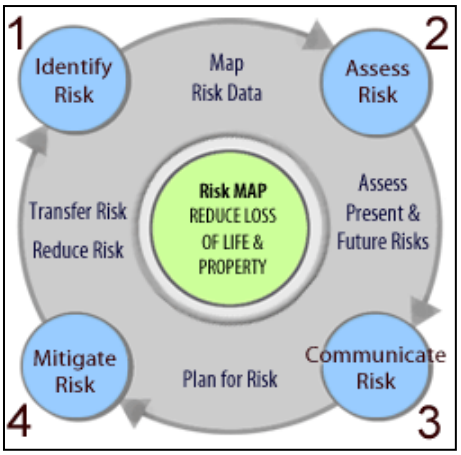


Figure 5. FEMA's Risk MAP (Mapping, Assessment & Planning) lifecycle illustrates the process of identifying risks by utilizing flood hazard mapping and data

and welfare of the community. Bringing hazard identification into the comprehensive planning process can contribute to recommendations and policies that will result in more disaster resilient communities.

The regional plan's Implementation Program provides an opportunity to establish policies and performance standards that address identified hazards. An example of a regional policy that can be used by any local government in decision-making would be a statement such as "New development will be encouraged to locate outside of special flood hazard areas." Performance standards are achievement thresholds ("Minimum" and "Excellence") that identify specific ordinances, programs, or requirements that may be implemented by local governments for consistency with the regional plan.

Items identified as minimum standards are *essential* activities that local governments are expected to attain within three years of adoption of the regional plan or risk losing Qualified Local Government (QLG) status. The excellence standard, by contrast, is intended to apply to *desirable* activities that are included in a menu of recommended best practices. Any local government that attains the excellence threshold may be eligible for the DCA Signature Community Program. Examples of performance standards that address identified hazards include:

Minimum:

- Our community has an approved hazard mitigation plan
- Our Future Development Map includes a "Floodplain," "Special Flood Hazard Area" or similar category that delineates the 100-year floodplain
- Our community directs development of public infrastructure (e.g. water and sewer facilities, roads, etc.) to encourage growth in appropriate areas and discourage it in inappropriate areas (including floodplains)

Excellence:

- Our community participates in FEMA's Community Rating System (CRS) program to reduce flood losses, to facilitate accurate insurance ratings and to promote the awareness of flood insurance
- Our community has standards such as a conservation subdivision ordinance or provides incentives for new developments to include open/green space for the protection of park land, greenways, and environmentally sensitive areas
- Our community has an environmental resource inventory that maps environmentally sensitive areas (e.g. floodplains, wetlands, significant stands of old growth trees, etc.) in order to make informed decisions about areas best suited to set aside as open space

It is recommended that the ARC regional plan incorporate the performance standards listed above into the Local Government Plan Implementation portion of the plan.

ARC and/or DCA can assist the County and its municipalities with hazard identification.

Land Use Mapping

The future land use map or future development map should be used to guide development away from high hazard areas. Specifically, showing the floodplain on these maps clearly indicates areas not suitable for certain types of development. In addition, parcel-level data and details such as major streets make it easier to identify where the floodplain overlaps with properties. While character-area based future development maps generally focus on development patterns rather than parcel-specific uses, the addition of parcels along with a "Floodplain" or "Special Flood Hazard Area" character area makes the map a more effective hazard mitigation tool (see Figure 6).

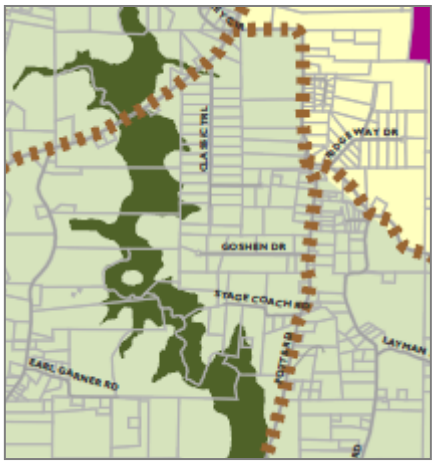


Figure 6. Example of a parcel-based Future Development Map that includes a category for the floodplain (in dark green) and shows/labels roads

It is recommended that future development maps and future land use maps show parcel lines, the floodplain boundary, and major streets (with street labels). At the regional planning level, consideration should be given to mapping floodplains separately in the Projected Development Patterns Map and Unified Growth Policy Map (UGPM) so that floodplain boundaries within the Regionally Important Resources (RIR) and Conservation categories are clearly shown.

ARC and DCA can assist the County and its municipalities with land use mapping.

Critical Facilities Definition & List; Infrastructure & Utilities Definition & List

In the context of hazard mitigation planning, critical facilities[1] are structures the community identifies as essential to the health and welfare of the population, and that are especially important following a disaster. They include, but are not limited to: hospitals and other medical facilities, fire and police stations, primary communications facilities, emergency operations centers (EOCs), schools, shelters, and other facilities required in an emergency. Infrastructure and utilities include power stations, water and wastewater treatment facilities, water lines, gas lines, electric lines, roads and bridges.

[1]The term "essential facilities" is another term used in hazard mitigation planning. Essential facilities are, generally, a subset of critical facilities that include: medical facilities, police and fire stations, emergency operations centers, evacuation shelters and schools, and other structures that house first responder equipment or personnel.

CODES AND DEFINITIONS

Facility Type (Column AD)		Structural Type (Column AB)		
ID	Description	ID	Value	Description
1	Private Two-Year College	1	C1	Concrete Moment Fr
2	Public Two-Year College	3	C2	Concrete Shear Wall
3	Private Four-Year College	4	C3	Concrete Frame with
4	Public Four-Year College	5	MH	Manufactured Housi
5	Airport	6	O	Other Building Type
6	City Hall	7	P1	Precast Concrete Til
7	City Jail	8	P2	Precast Concrete Fra
8	County Correctional Institution	9	RM1	Reinforced Masonry
9	County Jail	10	RM2	Reinforced Masonry
10	Courthouse	11	S1	Steel Moment Fram
11	Federal Penitentiary	12	S2	Steel Braced Frame
12	Fire Station	13	S3	Steel Light Frame
13	High School	15	S4	Steel Frame with Ca
14	High School, Public	16	S5	Steel Frame with Un
15	Hospital, Admissions Entrance	17	URM	Unreinforced Mason
16	Hospital, Emergency Entrance	18	UNK	Unknown Building T
17	Library	19	W1	Wood, Light Frame
18	Marshals Office	20	W2	Wood, Commercial &
19	Police Station			
20	Private School	Occpancy Class (Column AC)		
21	Sheriffs Office	ID	Value	Description
22	State Prison	1	COM1	Retail Trade
23	Private University	2	COM2	Wholesale Trade
24	Public University	4	COM3	Personal And Repair
25	Public Vocational Technical School	5	COM4	Professional/Techni
26	Wastewater Treatment Plant	7	COM5	Banks
27	Water System	8	COM6	Hospital
28	C&D	9	COM7	Medical Office and C
29	Landfill	10	COM8	Entertainment & Re
30	MSWL	11	COM9	Theaters
31	SL	12	COM10	Parking Garages

Figure 7. GEMA's Mitigation Planning Documents webpage includes a Critical Facility Data Collection Spreadsheet (www.gema.ga.gov)

Identifying and mapping the locations of critical facilities and infrastructure provides communities an instant analysis to identify facilities that may be at risk due to flooding, tornadoes and severe storms. Policies and procedures for protecting or removing critical facilities can then be prioritized. Mapping can also aid in future placement of critical facilities to avoid at-risk locations. The comprehensive plan can include appropriate policies for protecting critical facilities and infrastructure.

Local comprehensive plans address the topics of "community facilities and services" and "transportation," and often provide an inventory of facilities, infrastructure and utilities that can also be identified as "critical facilities." However, a common definition of "critical facilities" is needed. The term should be incorporated into the local comprehensive plans so that these facilities are recognized by everyone. It is appropriate to develop a broader definition for critical facilities which includes infrastructure and utilities. In future plan updates, which will follow the 2013 Minimum Planning Standards, this topic can be addressed in the required "Needs and Opportunities" section, or under a separate (optional) "Hazard Mitigation" section.

The regional plan can include a definition of critical facilities in the Regional Assessment and can include policy recommendations to address future critical facility siting and infrastructure expansion in the Implementation Program.

On-line GEMA resources can be used to assist the County and its municipalities with this task (see Figure 7).

MITIGATION MEASURE CATEGORIES

1. Prevention
2. Property Protection
3. Natural Resource Protection
4. Emergency Services
5. Structural Projects
6. Public Education and Awareness

Review of Mitigation Measures

Overview

A comprehensive review of mitigation measures within the hazard mitigation plan document is required under the Disaster Mitigation Act of 2000 (DMA) to identify the appropriate mitigation actions for implementation. This review allows a community to identify whether all reasonable measures have been evaluated, and also to determine the most appropriate ones to select for implementation.

Factors such as cost of a project, potential funding sources, community capability, and outside support are some of the variables that are typically incorporated into the decision-making process. FEMA's STAPLEE approach (**S**ocial, **T**echnical, **A**dministrative, **P**olitical, **L**egal, **E**conomic and **E**nvironmental) should also be included in the process of evaluating alternative mitigation actions. A STAPLEE worksheet is available in FEMA's Mitigation Planning "How-to" Guides (see the list of resources on page 17 of this report).

A mitigation project can fall under one of the six categories shown on the previous page. County and city codes, regulations and standards are examples of prevention measures. Since local planning and/or zoning staff administer building and development regulations, it is important to have a coordinated review of existing regulations and potential changes or additions to support hazard mitigation goals. Needed changes or additions can be included in the Community Work Program (CWP) of the comprehensive plan.

Implementation of mitigation measures can be facilitated by the ARC. Specific actions include the addition of key mitigation measures in the regional plan's Implementation Program, as well as the provision of technical assistance to help the County and its municipalities implement the recommended activities.

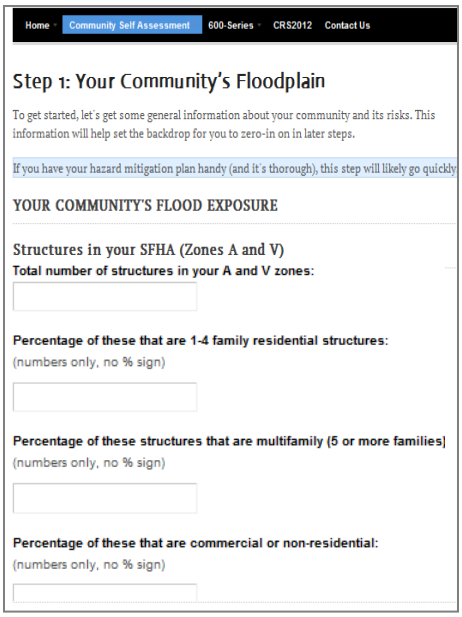


Figure 8. The CRS Community Self Assessment is a tool that can help communities develop programs and identify CRS activities most appropriate for their particular flood risks

www.crs2012.org/self-assessment/the-community-self-assessment/

Community Rating System Program

FEMA's National Flood Insurance Program's (NFIP) Community Rating System (CRS) Program was created as a comprehensive mitigation approach to encourage communities to implement floodplain management activities that go above and beyond the minimum requirements of the NFIP. The NFIP has been effective in requiring new buildings to be protected from damage by a 1% chance flood, also known as the "100-year" or "base" flood. However, flood damage still results from floods that exceed the base flood, from flooding in unmapped areas, and from flooding that affects buildings constructed before the community joined the NFIP.

Under the CRS, communities can be rewarded for doing more than simply regulating construction of new buildings to the minimal national standards. The CRS Program results in a community's residents' flood insurance

premiums being discounted to reflect that community's work to reduce flood damage to existing buildings, manage development in areas not mapped by the NFIP, protect new buildings beyond the minimum NFIP protection level, preserve and/or protect natural functions of floodplains, help insurance agents obtain flood data and help people obtain flood insurance.

There are 19 creditable floodplain management activities, organized under four categories: Public Information, Mapping and Regulations, Flood Damage Reduction, and Warning and Response. A community's CRS application must result in 500 credit points under the 19 activities to be eligible for a 5% discount on flood insurance premiums. Every additional 500 points results in an additional 5% reduction.

Fulton County and the Cities of College Park and Roswell participate in the CRS Program and are encouraged to improve their CRS classification by undertaking new mitigation and floodplain management activities that earn them more credit points. All other cities in Fulton County do not participate in the CRS Program and are encouraged to do so.

FEMA Region IV and the Georgia Department of Natural Resources (DNR) Floodplain Management Office can assist with the CRS application process.

Hazard Mitigation Planning Resources:

2013 Community Rating System (CRS) Coordinator's Manual website http://www.crs2012.org

Community and Regional Resilience Institute, "Resilient Communities, Resilient Regions, A Resilient Nation" http://www.resilientus.org/publications/presentations/index.html

Federal Emergency Management Agency, Hazard Mitigation Planning Resources, Mitigation Planning "How-To" Guides http://www.fema.gov/hazard-mitigation-planning-resources#1

Federal Emergency Management Agency, Hazard Mitigation Planning Resources, Sustainability in Mitigation Planning http://www.fema.gov/hazard-mitigation-planning-resources#1

Georgia Department of Community Affairs, Community Development Division: *Best Practices and Georgia Examples* http://www.dca.state.ga.us/development/PlanningQualityGrowth/programs/BestPractices.asp

Georgia Department of Community Affairs, Community Development Division: Community Planning Institute (CPI) http://www.dca.ga.gov/development/PlanningQualityGrowth/programs/opqg.asp

Georgia Department of Community Affairs, Community Development Division: Construction Codes http://www.dca.state.ga.us/development/ConstructionCodes/index.asp

Georgia Emergency Management Agency/Homeland Security: Hazard Mitigation http://www.gema.ga.gov/gemaohsv10.nsf/4f697eb5f4cbd51d8525772900493 1f8/d8f78c52e7d3d068852577270056ca2b?OpenDocument

Natural Hazard Mitigation Association in cooperation with StormSmart http://www.freeboard.stormsmart.org

FEDERAL FUNDING SOURCES: HAZARD MITIGATION PLANNING

Pre-Disaster Mitigation (PDM) Program

www.fema.gov/government/grant/pdm/index.shtm

Mitigation 404 – Hazard Mitigation Grant Program (HMGP)

www.fema.gov/government/grant/hmgp/index.shtm

Flood Mitigation Assistance (FMA) Program

www.fema.gov/government/grant/fma/index.shtm