Executive Summary

The experiences of the 2004 Hurricane Season epitomize the importance of better integrating hazard mitigation activities into local comprehensive planning. Residents from all over the state experienced significant damages from Hurricanes Charley, Frances, Jeanne, and Ivan by either winds, tornadoes, surge, or flooding. But this was not the only time that we have experienced natural disaster, nor will it be the last. In 1992, Hurricane Andrew devastated South Florida. In 1998 and 1999, most counties in Florida experienced wildfires. In some cases, despite fire fighters best efforts, the fires advanced through neighborhoods and homes were lost. Every year in Central Florida, new sinkholes emerge swallowing homes and damaging infrastructure. The cost of recovery for these various disasters ranges from hundreds of thousands to billions of dollars, significantly taxing local, state, and federal financial sources. Losses covered through federal funding as a result of the 2004 hurricanes alone could reach as high as $7 billion. Worst of all, however, are the many lives that, directly or indirectly, are lost due to natural disasters. It is imperative that we reduce the human and financial costs of natural disasters. Through better integration of natural hazard considerations into local comprehensive planning, we can build safer communities.

This profile of Columbia County has been prepared as part of a statewide effort by the Florida Department of Community Affairs (DCA) to guide local governments on integrating hazard mitigation principles into local comprehensive plans. Through the process outlined in this profile, planners will be able to (1) convey Columbia County's existing and potential risk to identified hazards; (2) assess how well local hazard mitigation principles have been incorporated into the County's Comprehensive Plan; (3) provide recommendations on how hazard mitigation can better be integrated into the Comprehensive Plan; and (4) determine if any enhancements could be made to the LMS to better support comprehensive planning. Best available statewide level data is provided to convey exposure and risk as well as to illustrate the vulnerability assessment component of the integration process.

Summary of Recommendations

Columbia County's Comprehensive Plan has good integration of hazard mitigation principles and its LMS has adequate data and goals to support comprehensive planning. There are goals, objectives, and policies that support risk reduction from flood and sinkholes in the LMS and Comprehensive Plan. However, there are always ways to strengthen such plans, and the following is a summary of options for the County to do so.

Comprehensive Plan Preliminary Recommendations

The following recommendations include hazard mitigation measures through which Columbia County can continue to reduce or eliminate risks from flood, wildfire, and sinkholes. These recommendations pertain to the use of vacant lands and/or redevelopment practices. Based on the land use tabulations, most of the vacant acreage is susceptible to wildfire and sinkholes. Land use tabulations were not provided for flood as the flood zones are not available in shapefile format. However, flood is considered a high risk according the Columbia County LMS. The Comprehensive Plan addresses stormwater discharge into sinkholes in Columbia County, therefore preliminary recommendations are also provided for this hazard. For more information about the methodology and data used for the land use tabulations, please refer to Section 2. Hazard Vulnerability in this hazards profile.

Of the vacant lands, 3,221 acres are susceptible to wildfire, and 2,451 acres are susceptible to sinkholes.

Flood

The georeferenced data was not available to determine the acreage susceptible to flooding, however the LMS deemed flood to be a high risk. Therefore recommendations are included for this hazard.

- The County should continue to give priority to those projects listed on the LMS project list.
- The Comprehensive Plan should continue the implementation of policies for preserving and enhancing the natural environment (i.e., 100-year floodplain) through the enforcement of land development regulations for floodplain management and stormwater management to maintain the natural functions.
- The Comprehensive Plan should continue to require that the County maintain an inventory of environmentally sensitive areas, which shall include 100-year floodplains.
- The County should continue to adopt or amend land development regulations which limit the density of dwelling units within FEMA designated 100-year floodplains such that existing flood storage is maintained and allowable densities do not create potential flood hazards, or degrade the natural functions of the floodplain.
- The County should continue to require that all structures built in the 100-year floodplain include at least one foot freeboard.
- The Comprehensive Plan should consider prohibiting septic tanks in flood hazard areas or wetlands.
- The County should consider policies pertaining to the preparation of a stormwater master plan to further mitigate the impacts of flooding in the community. This should be listed as a prioritized project on their LMS project list for possible funding sources such as FEMA's Hazard Mitigation Grant Program.
- The County should consider including a policy to not approve variances to required flood elevations.
- The County should consider establishing an impact fee and/or other equitable user-oriented revenue sources for the construction of drainage facilities, either county-wide or in districts of high flooding potential.
- The County should consider requiring areas that have not established base flood elevations to be studied prior to development.
- The County should consider calling for compensating storage calculations in flood hazard areas.
- The County should consider programs identifying floodplains for acquisition

Wildfire

About 17% of the 3,221 vacant acres that are susceptible to wildfire are to be developed for residential, commercial, industrial uses or public facilities, indicating that these risk reduction strategies should be considered prior to development of this vacant land.

- Where reasonable, the County should consider creating a policy in the Comprehensive Plan to update the Land Development Regulations for the County to include wildfire mitigation principles, such as defensible space buffering surrounding development or multiple exits for large development. This could also include

provisions for vegetation maintenance and the required removal of exotic vegetation or land cover that could be conducive to wildfire.

- The County should consider including policies for coordination with area volunteer fire departments to ensure fire protection is provided to all areas of the County.
- The County should consider participating in the Firewise Medal Community program to reduce risks within the wildland urban interface.
- The County should consider a requirement for all new development to include and implement a wildfire mitigation plan specific to that development, subject to review and approval by the County Fire Rescue Department.
- The County should consider increasing public awareness of prescribed burning and require management plans for conservation easements that address reduction in wildfire fuels.

Sinkholes

About 22% of the 2,451 vacant acres that are susceptible to sinkholes are to be developed for residential, commercial, industrial uses or public facilities, indicating that these risk reduction strategies should be considered prior to development of this vacant land.

- The County should continue to include policies in the Comprehensive Plan that designate sinkholes as environmentally sensitive areas that are protected through land development regulations.
- The County should consider promoting PDR and TDR in areas highly susceptible to sinkholes.
- Through the Comprehensive Plan and/or the overlay zones, promote the use of cluster development to mitigate sinkhole hazards. In this way, the areas highly susceptible to sinkholes could be preserved as open space, while allowing other areas to be developed at a higher density.

General

- Current growth management techniques such as clustering, conservation of floodplains and wetlands, elevating structures in special flood hazard areas and stormwater mitigation policies are employed by the community to protect natural features and to protect areas from flooding. Therefore, the County should update these policies in the Comprehensive Plan, emphasizing the benefits of hazard mitigation.
- The County should determine whether or not the conserved areas in the County have lifetime designations. In North Florida, some areas that were formally designated as uses with low densities are being slated for rural and urban development. It is important to determine if and when, all of the conservation agreements end, in order to determine if additional actions can be taken in the Comprehensive Plan to ensure that the property is protected.
- The Comprehensive Plan should consider including a policy to incorporate recommendations from existing and future interagency hazard mitigation reports into the Comprehensive Plan, and should consider including these recommendations during the Evaluation and Appraisal Report process as determined feasible and appropriate by the Board of County Commissioners.

- Include each hazard layer on the existing and future land use maps to determine where risks are possible to target hazard mitigation strategies.
- The Comprehensive Plan should consider including a policy to incorporate applicable provisions of the Comprehensive Plan into the Comprehensive Emergency Management Plan and the Local Mitigation Strategy.
- Continue educating the public, especially those at high risk from floods and wildfires, and make them aware of proactive steps they can take to mitigate damage.

Local Mitigation Strategy Preliminary Recommendations

The following data and information could be included in an update of the LMS. This information could help convey how and where disasters impact the population and the built environment to support comprehensive planning.

- Include hazard maps with data layers to illustrate population (i.e., density) or property (i.e., value) exposure.
- Include a future land use map with hazard data layers (i.e., one FLUM per hazard) to illustrate which future land use categories are susceptible to each hazard.
- Include loss estimates by land use.
- Reference or include a list and/or map of repetitive loss properties.
- Include a quantitative risk assessment for existing and future development (i.e., loss estimates) or specific critical facilities.

Table of Contents

1. County Overview

Geography and Jurisdictions

Columbia County is located in north-central Florida along the Georgia border. It covers a total of 801 square miles, of which approximately 797 square miles are land and four square miles are water. There are two incorporated municipalities within Columbia County, as shown in **Table 1.1**. Lake City serves as the county seat.

Population and Demographics

According to the April 1, 2004 population estimate by the University of Florida's Bureau of Economic and Business Research (BEBR), population estimates for all jurisdictions within Columbia County and the percent change from the 2000 U.S. Census are presented in **Table 1.1.** While some residents live in incorporated jurisdictions, nearly 82% live in the county's unincorporated areas. Columbia County has experienced rapid population growth in recent years, a trend that is expected to continue. Between 1990 and 2000, Columbia County had a growth rate of 32.6%, which is over one-third higher than the statewide average of 23.5% for the same time period.

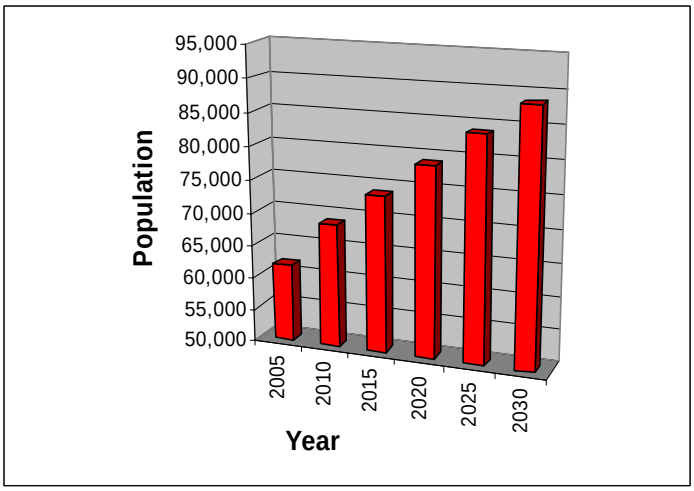
Table 1.1 Population Estimates by Jurisdiction

Jurisdiction	Population (Census 2000)	Population (Estimate 2004)	Percent Change 2000-2004	Percent of Total Population (2004)
Unincorporated	46,124	49,373	7.04%	81.67%
Fort White	409	423	3.42%	0.70%
Lake City	9,980	10,657	6.78%	17.63%
Total	**56,513**	**60,453**	**6.97%**	**100.00%**

Source: University of Florida, Bureau of Economic and Business Research, 2004

According to BEBR (2004), Columbia County's population is projected to grow steadily and reach an estimated 88,500 by the year 2030, increasing the average population density of 76 to 111 persons per square mile. **Figure 1.1** illustrates medium growth population projections for Columbia County based on 2004 calculations.

Figure 1.1 Population Projections for Columbia County, 2005–2030



Source: University of Florida, Bureau of Economic and Business Research, 2004

Of particular concern within Columbia County's population are those persons with special needs or perhaps limited resources such as the elderly, disabled, low-income or language isolated residents. According to the 2000 Census, of the 56,513 persons residing in Columbia County 14% are listed as 65 years old or over, 26.8% are listed as having a disability, 15% are listed as below poverty, and 5.1% live in a home where the primary language is other than English.

2. Hazard Vulnerability

Hazards Identification

The highest risk hazards for Columbia County as identified in the County's Local Mitigation Strategy (LMS) are tropical cyclone generated high winds, flooding, wildfires, and sinkholes. Storm surge was discussed in the LMS, but the county is not considered to be at risk to this hazard due to its inland location.

Hazards Analysis

The following analysis examines three hazard types: flood, wildfire and sinkholes. All of the information in this section was obtained through the online Mapping for Emergency Management, Parallel Hazard Information System (MEMPHIS). MEMPHIS was designed to provide a variety of hazard related data in support of the Florida Local Mitigation Strategy DMA 2K Project, and was created by Kinetic Analysis Corporation (KAC) under contract with the Florida Department of Community Affairs (DCA). Estimated exposure values were determined using the FEMA's designated 100-year flood zones (A, AE, V, VE, AO, 100 IC, IN, AH) for flood; all medium-to-high risk zones from MEMPHIS for wildfire (Level 5 through Level 9); and high, very high, extreme and adjacent zones for sinkhole based on the KAC analysis. For more details on a particular hazard or an explanation of the MEMPHIS methodology, consult the MEMPHIS Web site (http://lmsmaps.methaz.org/lmsmaps/index.html).

Because the Columbia County LMS considers storm surge to be a negligible hazard and MEMPHIS data indicates that no persons or structures are exposed to storm surge, no further analysis was conducted for this hazard.

Existing Population at Risk

Table 2.1 presents the population currently exposed to each hazard throughout Columbia County. Of the 56,513 (U.S. Census 2000) people that reside in Columbia County, none are exposed to 100-year flooding, 24% are exposed to wildfire, and only 1% is exposed to sinkholes.

Table 2.1 Estimated Numbers of Persons Exposed to Selected Hazards

Segment of Population	Wildfire	Sinkhole
Total (all persons)*	**13,636**	**611**
Minority	3,162	244
Over 65	1,469	71
Disabled	5,149	233
Poverty	1,708	120
Language-Isolated	22	0
Single Parent	853	81

Source: Mapping for Emergency Management, Parallel Hazard Information System

*Note: The "Total" amount does not equal the sum of all segments of the population, but indicates the total population at risk to the selected hazards.

Evacuation and Shelters

As discussed in the previous sections, population growth in Columbia County has been steady, and the trend is projected to continue. Additionally, storm events requiring evacuation typically impact large areas, often forcing multiple counties to issue evacuation orders simultaneously and placing a greater cumulative number of evacuees on the roadways which may slow evacuation time further. Evacuees from coastal counties will likely evacuate to inland areas, seeking shelter in host counties such as Columbia County. Thus, it is important to consider evacuation times for all counties in the region as shown in **Table 2.2**. As the population increases in the future, the demand for shelter space and the length of time to evacuate will increase, unless measures are taken now. Also, it should be noted that population that will reside in new housing stock might not be required to evacuate as new construction will be built to higher codes and standards.

Table 2.2 County Clearance Times per Hurricane Category (Hours)

(High Tourist Occupancy, Medium Response)

County	Category 1 Hurricane	Category 2 Hurricane	Category 3 Hurricane	Category 4 Hurricane	Category 5 Hurricane
Alachua	10.25	12	17.75	17.75	17.75
Bradford	18	18	18	18	18
Columbia	*Not Available*				
Gilchrist	6	6	8	8	10
Hamilton	*Not Available*				
Lafayette	*Not Available*				
Madison	8	8	8	8	8
Suwannee	*Not Available*				
Union	*Not Available*				

Source: DCA, DEM Hurricane Evacuation Study Database, 2005

Note: This is best available data in 2005, although data is not available for some counties.

Data regarding evacuation clearance times for Columbia County is not yet available. The data in Table 2.2 was derived from eleven regional Hurricane Evacuation Studies that have been produced by FEMA, the U.S. Army Corps of Engineers, and Florida Regional Planning Councils. The study dates range from 1995 to 2004. These regional studies are updated on a rotating basis with Northeast Florida region scheduled for completion in the fall of 2005.

Similar to most of Florida's coastal counties, Columbia County currently has a significant shelter deficit. According to Florida's Statewide Emergency Shelter Plan, Columbia County has an existing shelter capacity of 614 people. The 2004 shelter demand for a Category 4 or Category 5 hurricane is 5,658 people, leaving an existing shelter deficit of 5,044. In 2009, the projected shelter demand is 6,371, leaving an anticipated shelter deficit of 5,757. This deficit is likely to be greater due to the influx of evacuees seeking shelter from nearby counties, as Columbia is a host county. Therefore, it is essential that Columbia County continue to coordinate with nearby counties for evacuation and shelter planning. The opportunity also exists to construct new facilities to standards that will allow them to serve as shelters, and to construct future public facilities outside of floodplain areas.

It is important for counties to maintain or reduce hurricane evacuation times. This could be accomplished by using better data to determine the hazard risk to populations to evaluate which areas to evacuate, and increasing the ability to shelter in place to decrease the number of evacuees. Columbia County could encourage new homes to be built with saferooms, community centers in mobile home parks or developments to be built to shelter standards (outside of the

hurricane vulnerability zones), or require that new schools be built or existing schools be retrofitted to shelter standards; which would be based on FEMA saferoom and American Red Cross shelter standards. Additionally, the county could establish level of service (LOS) standards that are tied to development.

Existing Built Environment

While the concern for human life is always highest in preparing for a natural disaster, there are also substantial economic impacts to local communities, regions, and even the state when property damages are incurred. To be truly sustainable in the face of natural hazards, we must work to protect the residents and also to limit, as much as possible, property losses that slow down a community's ability to bounce back from a disaster. **Table 2.3** presents estimates of the number of structures in Columbia County by occupancy type that are exposed to each of the hazards being analyzed. The estimated exposure of Columbia County's existing structures to the flood, wildfire, and sinkhole hazards was determined through MEMPHIS.

Table 2.3 Estimated Numbers of Structures Exposed to Selected Hazards

Occupancy Type	Flood	Wildfire	Sinkhole
Single Family	110	4,327	686
Mobile Home	32	1,476	541
Multi-Family	11	687	46
Commercial	4	693	88
Agriculture	64	2,192	56
Gov. / Institutional	14	986	212
Total	**235**	**10,361**	**1,629**

Source: Mapping for Emergency Management, Parallel Hazard Information System

There are 12,225 structures exposed to at least one of the three hazards. Of these structures, only 2% are exposed to flood. There are 235 structures are located within the 100-year floodplain. According to the latest National Flood Insurance Program Repetitive Loss Properties list, as of March 2005, there are 22 repetitive loss properties in Columbia County. Under the National Flood Insurance Program (NFIP), repetitive loss properties are defined as "any NFIP-insured property that, since 1978 and regardless of any change(s) of ownership during that period, has experienced: a) four or more paid flood losses; or b) two paid flood losses within a 10-year period that equal or exceed the current value of the insured property; or c) three or more paid losses that equal or exceed the current value of the insured property."

Over 84%, or 10,361 structures, are exposed to wildfire, of which approximately 42% are single family dwellings and 21% are used agriculture. In Columbia County, wildfire potential is highest in the northeastern portion of the unincorporated area of the County (Columbia County LMS, 2005). There are 1,629 structures that are within high or adjacent risk zones to sinkholes, with 42% of those being single family homes.

In addition to understanding exposure, risk assessment results must also be considered for prioritizing and implementing hazard mitigation measures. The risk assessment takes into account the probability (how often) and severity (e.g., flood depth, wildfire duration) of the hazard as it impacts people and property. Risk can be described qualitatively, using terms like high, medium or low; or quantitatively by estimating the losses to be expected from a specific hazard event expressed in dollars of future expected losses. Although people and property are exposed to hazards, losses can be greatly reduced through building practices, land use, and structural hazard mitigation measures. The next section of this report examines the existing and future land use acreage in hazard areas. This information can be useful to consider where to implement risk reducing comprehensive planning measures.

Analysis of Current and Future Vulnerability Based on Land Use

The previous hazards analysis section discussed population and existing structures exposed to flooding, sinkholes, and wildfire according to MEMPHIS estimates. This section is used to demonstrate the County's vulnerabilities to these hazards in both tabular format and spatially, in relation to existing and future land uses. Existing land use data was acquired from County Property Appraisers and the Florida Department of Revenue in 2004 for tabulation of the total amount of acres and percentage of land in identified hazard areas, sorted by existing land use category for the unincorporated areas. The total amount of acres and percentage of land in the identified hazards areas was tabulated and sorted by future land use category according to the local Future Land Use Map (FLUM), as well as the amount of these lands listed as vacant according to existing land use. Columbia County future land use data was acquired in February 2001 from the North Central Florida Regional Planning Council and might not reflect changes per recent future land use amendments. Maps of existing land use within hazard areas are based on the 2004 County Property Appraiser geographic information system (GIS) shapefiles. Maps of future land uses in hazard areas were developed using the Columbia County future land use map dated February 2001. A series of maps were created as part of the analysis and are available as attachments to the county profile. All maps are for general planning purposes only.

For the purposes of this profile, the identified hazard areas include flood zones in relation to the 100-year flood, wildfire susceptible areas, and sinkhole susceptible areas.

In **Attachment A**, two maps present the existing and future land uses within a 100-year flood zone. These areas are scattered across the county, especially in areas adjacent to the Suwanee and Sante Fe Rivers. Land use data and shapefiles for flood are not currently available for analysis and are therefore not included in this analysis. Maps were made from scanned images of the flood zones overlaid with the existing land use maps and FLUMs. Data was obtained from the Suwannee River Water Management District.

In **Attachment B**, two maps present the existing and future land uses within wildfire susceptible areas. These areas are primarily located in the central and southern sections of the county. The total amount of land in the wildfire susceptible areas is 30,984.8 acres. As shown in **Table 2.4**, 55.1% are used for agriculture; 17.3% are used for parks, conservation areas and golf courses; and 10.4% are undeveloped. **Table 2.5** shows that of the 3,220.9 undeveloped acres, 79.8% are designated for agricultural use with less than one dwelling unit per five acres; 6.2% are designated for low density residential use with less than two dwelling units per acre; and 3.2% are designated for unknown uses. The County should continue to take measures to reduce wildfire risk within the urban/rural interface.

In **Attachment C**, two maps present the existing and future land uses within sinkhole susceptible areas. These areas are primarily located in central and southern portions of the county. The total amount of land in the sinkhole susceptible areas is 14,191.3 acres. As shown in **Table 2.4**, 49.5% are used for agriculture; 17.3% are undeveloped; and 11.7% are residential mobile homes or commercial parking lots. **Table 2.5** shows that of the 2,450.7 undeveloped acres, 60.1% are designated for agricultural use with less than one dwelling unit per five acres; 17.5% are designated for environmentally sensitive areas with less than one dwelling unit per ten acres; and 8.5% are designated for low density residential use with less than two dwelling units per acre. The County has taken proactive measures in designating lands in sinkhole susceptible areas for predominantly conservation, recreational, and low density uses.

Table 2.4
Total Unincorporated Acres in Hazard Areas by Existing Land Use Category

Existing Land Use Category		Wildfire Susceptible Areas	Sinkhole Susceptible Areas
Agriculture	Acres	17,062.6	7,024.1
	%	55.1	49.5
Attractions, Stadiums, Lodging	Acres	25.4	61.5
	%	0.1	0.4
Places of Worship	Acres	34.8	43.5
	%	0.1	0.3
Commercial	Acres	33.9	124.4
	%	0.1	0.9
Government, Institutional, Hospitals, Education	Acres	576.7	77.4
	%	1.9	0.5
Industrial	Acres	23.6	72.5
	%	0.1	0.5
Parks, Conservation Areas, Golf Courses	Acres	5,369.0	653.0
	%	17.3	4.6
Residential Group Quarters, Nursing Homes	Acres	1.3	0.0
	%	0.0	0.0
Residential Multi-Family	Acres	64.9	52.4
	%	0.2	0.4
Residential Mobile Home, or Commercial Parking Lot	Acres	2,013.7	1,661.1
	%	6.5	11.7
Residential Single-Family	Acres	1,758.7	1,175.7
	%	5.7	8.3
Transportation, Communication, Rights of Way	Acres	778.3	768.9
	%	2.5	5.4
Utility Plants and Lines, Solid Waste Disposal	Acres	21.0	26.1
	%	0.1	0.2
Vacant	Acres	3,220.9	2,450.7
	%	10.4	17.3
Total	**Acres**	**30,984.8**	**14,191.3**
	%	**100.0**	**100.0**

Source: Department of Community Affairs

Table 2.5
Total Unincorporated Acres in Hazard Areas by Future Land Use Category

Future Land Use Category		Wildfire Susceptible Areas		Sinkhole Susceptible Areas	
		Total	Vacant	Total	Vacant
Agriculture - 1 (<1 d.u. per 20 acres)	Acres	5,024.6	19.4	0.0	0.0
	%	16.2	0.6	0.0	0.0
Agriculture - 2 (<1 d.u. per 10 acres)	Acres	85.6	0.0	35.7	0.2
	%	0.3	0.0	0.3	0.0
Agriculture - 3 (<1 d.u. per 5 acres)	Acres	17,388.8	2,569.9	10,949.7	1,474.0
	%	56.1	79.8	77.2	60.1
Commercial	Acres	58.9	22.3	405.3	111.7
	%	0.2	0.7	2.9	4.6
Conservation	Acres	4,333.3	1.8	418.2	8.9
	%	14.0	0.1	2.9	0.4
Environmentally Sensitive Areas (< 1 d.u. per 10 acres)	Acres	746.4	93.4	933.0	428.9
	%	2.4	2.9	6.6	17.5
Highway Interchange	Acres	19.8	1.6	81.8	18.7
	%	0.1	0.0	0.6	0.8
Industrial	Acres	181.2	88.3	63.1	14.7
	%	0.6	2.7	0.4	0.6
None	Acres	8.5	3.3	0.0	0.0
	%	0.0	0.1	0.0	0.0
Public	Acres	430.5	13.4	15.6	6.9
	%	1.4	0.4	0.1	0.3
Recreation	Acres	47.0	0.2	40.6	2.7
	%	0.2	0.0	0.3	0.1
Residential - High Density (< 20 d.u. per acre)	Acres	27.4	4.9	61.3	12.9
	%	0.1	0.2	0.4	0.5
Residential - Low Density (< 2 d.u. per acre)	Acres	1,532.4	201.1	645.4	208.4
	%	4.9	6.2	4.5	8.5
Residential - Med/High Density (< 14 d.u. per acre)	Acres	2.0	1.6	0.0	0.0
	%	0.0	0.0	0.0	0.0
Residential - Medium Density (< 8 d.u. per acre)	Acres	45.9	14.3	32.8	1.6
	%	0.1	0.4	0.2	0.1
Residential - Moderate Density (< 4 d.u. per acre)	Acres	6.2	0.9	0.0	0.0
	%	0.0	0.0	0.0	0.0
Residential - Very Low Density (< 1 d.u. per acre)	Acres	760.6	81.8	164.3	17.4
	%	2.5	2.5	1.2	0.7
Unknown	Acres	285.6	102.8	344.4	143.6
	%	0.9	3.2	2.4	5.9
Total	**Acres**	**30,984.8**	**3,220.9**	**14,191.1**	**2,450.7**
	%	**100.0**	**100.0**	**100.0**	**100.0**

Source: Department of Community Affairs

The amount of total land and existing vacant land in identified hazard areas was also tabulated for each of Columbia County's two incorporated municipalities. These amounts are listed in **Table 2.6.** The intent of this table is to show the vacant acreage in hazard zones in each municipality, and to show the percentage of vacant acreage in each hazard zone for each municipality. In the total column for each hazard, the percentage for each municipality is the hazard zone acreage as a percent of total hazard acreage for all municipalities. In the vacant column for each hazard, the percentage for each municipality is the percent of area in the hazard zone for the respective municipality. The total municipal percent of vacant acreage is the percent of acreage in the hazard zones for all municipalities.

Flood zone shapefiles were not available to perform calculations of acreage in the flood zone for the municipalities. Lake City has the most acres in the wildfire susceptible areas and the largest proportion of wildfire susceptible acres out of its vacant land area. Lake City also has the most acres in sinkhole susceptible areas, as well as the largest proportion of sinkhole susceptible acres out of its vacant land area.

Vacant land is often destined to be developed. It is prudent to conduct further analyses of what the vacant lands will be used for, to determine whether they will be populated, and at what level of intensity/density, to ensure that hazard risks are minimized or eliminated. Each of the municipalities in Columbia County has vacant lands that are in hazard areas. Since hazards cross jurisdictional boundaries, it is important to consider all hazard areas to collaboratively formulate hazard mitigation strategies and policies throughout the county.

Table 2.6
Total Land and Existing Vacant Land in Hazard Areas by Municipal Jurisdiction

Jurisdiction		Wildfire Susceptible Areas		Sinkhole Susceptible Areas	
		Total	Vacant	Total	Vacant
Fort White	Acres	72.7	26.8	150.9	64.0
	%	20.8	23.4	26.5	26.2
Lake City	Acres	277.3	87.6	418.9	180.1
	%	79.2	76.6	73.5	73.8
Total Municipal Acres	**Acres**	**350.0**	**114.4**	**569.8**	**244.1**
	%	**100.0**	**100.0**	**100.0**	**100.0**

Source: Department of Community Affairs\

3. Existing Mitigation Measures

Local Mitigation Strategy (LMS) Assessment –

The Local Mitigation Strategy is suited to be a repository for all hazard mitigation analyses (i.e., vulnerability and risk assessment), programs, policies and projects for the county and municipalities. The LMS identifies hazard mitigation needs in a community and alternative structural and nonstructural initiatives that can be employed to reduce community vulnerability to natural hazards. The LMS is multi-jurisdictional and intergovernmental in nature. Communities can reduce their vulnerability to natural hazards by integrating the LMS analyses and mitigation priorities into the local government comprehensive plan.

As noted in DCA's *Protecting Florida's Communities* Guide, one significant strategy for reducing community vulnerability is to manage the development and redevelopment of land exposed to natural hazards. Where vacant land is exposed to hazard forces, local government decisions about allowable land uses, and the provision of public facilities and infrastructure to support those uses, can have major impacts on the extent to which the community makes itself vulnerable to natural hazards. Where communities are already established and land is predominately "built

out," local governments can take initiatives to reduce existing levels of vulnerability by altering current land uses both in the aftermath of disasters, when opportunities for redevelopment may arise, and under "blue sky" conditions as part of planned redevelopment initiatives.

Per the *DCA's Protecting Florida's Communities* Guide, LMSes prepared pursuant to the state's guidelines (Florida Department of Community Affairs, 1998) have three substantive components:

> Hazard Identification and Vulnerability Assessment (HIVA). This section identifies a community's vulnerability to natural hazards. Under Florida rules, the HIVA is required to include, at a minimum, an evaluation of the vulnerability of structures, infrastructure, special risk populations, environmental resources, and the economy to any hazard to which the community is susceptible. According to FEMA, LMSes revised pursuant to the Disaster Mitigation Act of 2000 (DMA 2000) criteria must include maps and descriptions of the areas that would be affected by each hazard to which the jurisdiction is exposed, information on previous events, and estimates of future probabilities. Vulnerability should be assessed for the types and numbers of exposed buildings, infrastructure, and critical facilities with estimates of potential dollar losses. Plan updates will be required to assess the vulnerability of future growth and development.
>
> Guiding Principles. This section lists and assesses the community's existing hazard mitigation policies and programs and their impacts on community vulnerability. This section typically contains a list of existing policies from the community's Comprehensive Plan and local ordinances that govern or are related to hazard mitigation. Coastal counties frequently include policies from their PDRPs.
>
> Mitigation Initiatives. This component identifies and prioritizes structural and non-structural initiatives that can reduce hazards vulnerability. Proposals for amendments to Comprehensive Plans, land development regulations, and building codes are often included. Structural projects typically address public facilities and infrastructure, and buy-outs of private structures that are repetitively damaged by flood. Many of these qualify as capital improvement projects based on the magnitude of their costs and may also be included in the capital improvements elements of the counties' and cities' Comprehensive Plans.

The Columbia County LMS (adopted in 2005) was assessed to determine if the hazard analysis and vulnerability assessment (i.e., flood, and wildfire; sinkhole was deemed by the LMS committee to pose a low risk) data can support comprehensive planning, whether the guiding principles include a comprehensive list of policies for the county and municipalities, and whether the LMS goals and objectives support comprehensive planning goals, objectives, and policies (GOP). Future updates to the assessment will include working with Columbia County to determine if the county's capital improvement projects are included in the LMS hazard mitigation project list.

Hazard Analysis and Vulnerability Assessment (LMS pp. 3 - 68)

The strengths and weaknesses of the Hazard Analysis and Vulnerability Assessment are as follows:

Strengths:

- Provides brief demographic information.
- Provides information about population and property exposure to certain hazards.
- Provides a hazards analysis and a qualitative vulnerability assessment for the county.
- Includes maps for multi-hazards for the county.
- Includes a list of types and map of critical facilities.
- Includes a qualitative risk assessment for each hazard, along with tabular data showing risks to the county and its municipalities.

Weaknesses:

- Does not provide information regarding special needs populations or income.
- Hazard maps do not include data layers to illustrate population (i.e., density) or property (i.e, value) exposure.
- Does not include a future land use maps that include hazard data layers to illustrate which future land use categories are susceptible to each hazard.
- Does not include loss estimates by land use.
- Does not provide a list and map of repetitive losses.
- Does not include a quantitative risk assessment for existing and future development (i.e., loss estimates) or specific critical facilities.

Incorporating land use and population data into the risk assessment of the LMS provides a better source of data for planners to use in policy making and policy evaluation of the local comprehensive plan. The LMS also sets a standard for the quality of data that should be used in determining risk and thereby used to determine mitigation policies.

Guiding Principles

The Columbia County LMS Mitigation Strategy section contains a list of policies and programs for the county and each municipality. This Policies and Programs table includes the Category (e.g. policy or objective), source and location in source (e.g. policy number, section, article, task), event applicability (e.g. flood, tornado, hurricane) and notes on design, implementation or enforcement (e.g. proposed strategies to achieve success). This section of policies and programs which serve as guiding principles is found in most counties' LMSes and is useful in providing the different jurisdictions ideas for enhancing their own plans or providing the LMS committee an analysis of where there may be weaknesses in implementing mitigation strategies.

LMS Goals and Objectives

The Columbia County LMS has goals that support mitigation principles that are found in the comprehensive plan. A list of the LMS goals pertaining to comprehensive planning can be found in **Attachment D**. An assessment of whether the LMS goals are reflected in the comprehensive plan (and vice versa) is provided in **Table 5.1** as part of the preliminary recommendations. Final recommendations will result from a collaborative process between DCA, Columbia County, and PBS&J. The following is a summary of the LMS goals that support comprehensive planning:

Goal 3.1 seeks to maintain current levels and rates of riverine erosion by limiting development within, and directing development away from the 100-year floodplains of rivers, streams and creeks.

Goal 4.1 strives to minimize damage to future buildings and infrastructure by identifying/ mapping sinkholes and areas of known sinkhole formation and providing policy direction in local government comprehensive plans which limits and/or guides development away from such areas.

Goals 6.1 and 6.2 aim to reduce the number of buildings without public utility services, as well as the length of time that buildings are without public utility services, in the aftermath of a hurricane or coastal storm. Goal 6.3 hopes to reduce the susceptibility to damage of existing and future buildings to damage caused by high winds associated with hurricanes and tropical storms.

Goals 7.1and 8.1 strive to minimize damage to existing/ future buildings/infrastructure as a result of flooding and wildfires, respectively.

Goal 10.1 seeks to minimize declines in water table levels as a result of drought. Goals 10.2, 11.1, and 12.1 aim to minimize loss of lives as a result of droughts and heat waves, winter storms and freezes, and tornado events, respectively.

Maintaining consistent language for outlining goals and objectives in both the LMS and comprehensive plan presents a united front on decreasing risk in the county. While the LMS may not be able to regulate land use as the comprehensive plan does, having these common goals and objectives increases the likelihood of the jurisdictions of Columbia County adopting and implementing corresponding policies that are legally enforceable.

Comprehensive Emergency Operations Plan (CEMP)

The Columbia County CEMP references the LMS in Annex B: Columbia County Mitigation Strategy. The CEMP notes that the purpose of this annex is to serve as a bridge between the County's Comprehensive Plan, CEMP, the Five Year Strategic Plan, and the County Land Development Regulations (LDR) Article 8. Mitigation projects will be prioritized in a joint meeting between the Columbia County Board of Commissioners with an invitation to the municipality officials to present their views on the prioritization of the mitigation project, and the Emergency Management Director or the County Mitigation Committee chairperson will present the county's view and recommendation. The CEMP discusses mitigation initiatives through policies in the County's LDR, municipal comprehensive plans, the County Chamber of Commerce Economic Development Workload Strategy, and County Building Code. The CEMP also supports participation in the National Flood insurance Program (NFIP) as well as plans to request enrollment to the NFIP Community Rating System program in the near future.

The CEMP identifies the overall mitigation requirements and the mitigation strategy provides the implementation mechanism for accomplishing the specific goals for mitigation. The document also lists numerous supporting agencies and their basic functions to assist in supporting pre- and post-disaster mitigation in the County. The CEMP specifically outlines the mitigation functions that are provided by each municipal Public Works Department, Building and Zoning Department, and Fire Department. It also notes that the private sector has expressed an interest in participating in the LMS process.

As such, the CEMP is a good tool for planners which includes collaborative procedures for working with emergency managers to reduce vulnerability from hazards.

Post-Disaster Redevelopment Plan (PDRP)

Columvia County is not required to develop a PDRP, but it is recommended.

National Flood Insurance Program/Community Rating System

Columbia County (unincorporated areas) and the municipality of Lake City participate in the National Flood Insurance Program (NFIP). The municipality of Fort White does not participate in the NFIP. Columbia County (unincorporated areas) participate in the NFIP Community Rating System (CRS), with a rating of 9. No municipalities in Columbia County participate in the CRS program.

4. Comprehensive Plan Review

Purpose and Intent

The Columbia County Comprehensive Plan (Adopted June 13, 1991, updated October 30, 1997) was reviewed for the purpose of developing this profile. This review was undertaken in order to assess what steps Columbia County has taken to integrate hazard mitigation initiatives from their Local Mitigation Strategy (LMS), and hazard mitigation initiatives in general, into the local planning process. Each Element of the Plan was evaluated to establish the extent to which the principles from the LMS were incorporated into the objectives and policies of the existing Comprehensive Plan.

Approach

This review includes an assessment of the flooding, wildfire and sinkhole hazards. A preliminary list of objectives and policies currently contained in the Plan that pertain to hazard mitigation and any policies related to these hazards is found in **Attachment E**. The following is a discussion of the extent to which the Plan appears to address each of the hazards. Recent policy amendments may not have been available for review, or proposed policies might be in the process of creation, which address these hazards. As a result, this assessment is considered preliminary and subject to input from the local government.

Summary of Findings

The highest risk hazards for Columbia County as identified in the County's Local Mitigation Strategy (LMS) are flooding, wildfires, and sinkholes. Storm surge was discussed in the LMS, but the county is not considered to be at risk to this hazard due to its inland location.

Columbia County is not a coastal county, so policies are not geared toward coastal management and coastal resource protection. Policies relating to hazard mitigation within the Plan primarily include those relating to flooding and stormwater control. Wildfire mitigation is not a hazard referred to in the Plan.

The Columbia County Comprehensive Plan primarily focuses on the protection of natural features such as floodplains and sinkholes, through development controls and stormwater management. References to emergency management were not located in the Plan.

Flooding

Flooding is addressed primarily to protect the natural features within the 100-year flood plain of the Suwannee River, the Santa Fe River and the Olustee Creek as well as the Ichetucknee Trace. However, these policies consequently protect life and property within the 100-year floodplain and some policies exist to direct development out of flood prone areas. Development standards include, clustering outside of flood prone areas and lower densities inside flood hazard areas. In addition, the County participates in the National Flood Insurance Program to regulate development inside the flood hazard areas.

The County has also adopted level of service standards for drainage to include Florida Administrative Code standards. Peak rate of post development runoff cannot exceed the peak-rate of pre-development runoff for storm events. In addition, the County requires construction of structure or landscape alterations which maintain natural drainage flows including sheet flow and flow to isolated wetland systems

Sheltering

As with many inland counties in Florida, in the event of a hurricane, Columbia County may receive evacuees from coastal counties. Similar to most of Florida's coastal counties, Columbia County currently has a significant shelter deficit. According to Florida's Statewide Emergency Shelter Plan, Columbia County has an existing shelter capacity of 614 people. The 2004 shelter demand for a Category 4 or Category 5 hurricane is 5,658 people, leaving an existing shelter deficit of 5,044. This deficit is likely to be greater due to the influx of evacuees seeking shelter from nearby counties, as Columbia is a host county. Therefore, it is essential that Columbia County continue to coordinate with nearby counties for evacuation and shelter planning. The opportunity also exists to construct new facilities to standards that will allow them to serve as shelters, and to construct future public facilities outside of floodplain areas.

Sinkholes

Policies found during this review to reduce sinkhole hazards included prohibition of the discharge of stormwater into sinkholes, or reducing the quantity of water into such sinkholes. Stormwater conveyance must be designed to percolate 80 percent of the runoff from a three year, one hour design storm within 72 hours after a storm event. No policies were located that prohibit development within an identified sinkhole area.

Wildfire

No policies were identified in the Columbia County Comprehensive Plan to reduce wildfire hazards.

5. Data Sources

County Overview:

Florida Statistical Abstract – 2004 (38th Edition). Bureau of Economic and Business Research, Warrington College of Business, University of Florida. Gainesville, Florida.

State and County QuickFacts. U.S. Census Bureau. Data derived from 2000 Census of Population and Housing.

State of Florida. 2005 Hurricane Evacuation Study Database. Florida Department of Community Affairs, Division of Emergency Management.

Hazard Vulnerability:

Florida Repetitive Loss List March 05. Florida Department of Community Affairs, Division of Emergency Management, Flood Mitigation Assistance Office. March 2005.

Mapping for Emergency Management, Parallel Hazard Information System (MEMPHIS). Florida Department of Community Affairs, Division of Emergency Management. http://lmsmaps.methaz.org/lmsmaps/

Protecting Florida's Communities – Land Use Planning Strategies and Best Development Practices for Minimizing Vulnerability to Flooding and Coastal Storms. Florida Department of Community Affairs, Division of Community Planning and Division of Emergency Management. September 2004.

State of Florida 2004 Statewide Emergency Shelter Plan. Florida Department of Community Affairs, Division of Emergency Management.

GIS Data:

Flood Zone FLOOD GIS DATA NOT AVAILABLE—ONLY IMAGES
Source: FEMA FIRM maps, supplied by Suwannee River Water Management District (digitized images)

Sinkhole Hazard GIS Data
Source: Kinetic Analysis Corporation web site (2005),
at: http://lmsmaps.methaz.org/lmsmaps/final_cty/

- Areas shown/analyzed are those areas in the "Rawsink1.shp" GIS coverage supplied by KAC, where the value in the field "Gridcode" is 3 to 6, representing "High", or Very High", "Extremely High", or "Adjacent", based on the classification system used in the sinkhole hazard maps found at the above website.

Wildfire Susceptibility GIS Data
Source: Florida Department of Agriculture and Consumer Services/Division of Forestry, Florida Fire Risk Assessment System (FRAS) data, 2004.

- Areas shown as "wildfire susceptible areas" and that were analyzed are those areas with a "Wildfire Susceptibility Index" value of greater than 10,000 (in north Florida counties) or greater than 0.1 (in south Florida counties)*, based on the FRAS model, and that are also within areas of forest or shrub vegetation or "low impact urban" land cover, based on the Florida Fish and Wildlife Conservation Commission "Florida Vegetation and Land Cover - 2003" GIS data.

Municipal Boundaries

Source: Boundaries of municipalities were extracted from the U.S. Census 2000 “Places” GIS coverage for the State of Florida.

ATTACHMENT A
Maps of the Existing and Future Land Uses within the 100-year Floodplain

ATTACHMENT B
Maps of the Existing and Future Land Uses within Wildfire Susceptible Areas

ATTACHMENT C
Maps of the Existing and Future Land Uses within Sinkhole Susceptible Areas

ATTACHMENT D
Local Mitigation Strategy Goals and Objectives Related to Comprehensive Planning

Columbia County's LMS includes the following goals that are directly related to local comprehensive planning and growth management:

- ***Goal 3.1*** *– Maintain current levels and rates of riverine erosion by limiting development within, and directing development away from the 100-year floodplains of rivers, streams and creeks.*

- ***Goal 4.1*** *– Minimize damage to future buildings and infrastructure by identifying and mapping sinkholes and areas of known sinkhole formation and providing policy direction in local government comprehensive plans which limits and/or guides development away from such areas.*

- ***Goal 7.1*** *– Minimize damage to existing and future buildings and infrastructure as a result of flooding.*

- ***Goal 8.1*** *– Minimize damage to existing and future buildings and infrastructure as a result of wildfires.*

ATTACHMENT E
Columbia County Comprehensive Plan Excerpts Related to Hazard Mitigation

FUTURE LAND USE ELEMENT

OBJECTIVES AND POLICIES FOR URBAN DEVELOPMENT AREAS

Policy I.1.6 (in part)
Environmentally Sensitive Land Use
Environmentally Sensitive Areas, which are lands within the areas of the 100-year flood, as designated by the Federal Emergency Management Agency, Flood Insurance Rate Map, dated January 6**,** 1988, and located in the Santa Fe River Corridor, Suwannee River Corridor, Olustee Creek Corridor and Ichetucknee Trace shall conform with the following density:

Environmentally Sensitive Areas L_< 1 d.u. per 10 acres

Further, provided that within the Environmentally Sensitive Areas, dwelling units may be clustered on smaller lots with no lot being less than 5 acres, if the site is developed as a Planned Residential Development and a density of 1 dwelling unit per 10 acres is maintained on site as follows:

(e) the developed area of the development, shall be located outside of (I) wetlands; (2) floodplains; (3) native upland vegetation; and (4) active agricultural areas, unless the entire development site consists of any or a combination of such areas. If the entire development site consists of any or a combination of such areas, the developed area shall be located in the least sensitive of such areas. Least sensitive areas shall be determined according to the order of priority of the above listing of such areas from most sensitive to least sensitive. In addition, if any developed area is located within any such sensitive areas, the development of such area shall be in accordance with Policies V.2.7 and V.2.8.

OBJECTIVES AND POLICIES FOR RURAL AREAS

Policy I.2.2 (in part) Within the Agriculture - 3 land use classification all Planned Rural Residential Developments shall be developed as follows:

(e) the developed area of the development, shall be located outside of (1) wetlands; (2) floodplains; (3) native upland vegetation; and (4) active agricultural areas, unless the entire development site consists of any or a combination of such areas. If the entire development site consists of any or a combination of such areas, the developed area shall be located in the least sensitive of such areas. Least sensitive areas shall be determined according to the order of priority of the above listing of such areas from most sensitive to least sensitive. In addition, if any developed area is located within any such sensitive areas, the development of such area shall be in accordance with Policies V.2.7 and V.2.8

Environmentally Sensitive areas, which are lands within the areas of the 100-year flood, as designated by the Federal Emergency Management Agency, Flood Insurance Rate Map, dated January 6, 1988, and located in the Santa Fe River Corridor, Suwannee River Corridor, Olustee Creek Corridor and Itchetucknee Trace shall conform with the following density:

Environmentally Sensitive Areas /1 d.u. per 10 acres.

Further, provided that within the Environmentally Sensitive Areas, dwelling units may be clustered on smaller lots with no lot being less than 5 acres, if the site is developed as a Planned Residential Development and a density of 1 dwelling unit per 10 acres is maintained on site as follows:

(e) the developed area of the development, shall be located outside of (1) wetlands; (2) floodplains; (3) native upland vegetation; and (4) active agricultural areas, unless the entire development site consists of any or a combination of such areas. If the entire development site consists of any or a combination of such areas, the developed area

shall be located in the least sensitive of such areas. Least sensitive areas shall be determined according to the order of priority of the above listing of such areas from most sensitive to least sensitive. In addition, if any developed area is located within any such sensitive areas, the development of such area shall be in accordance with Policies V.2.7 and V.2.8.

OBJECTIVES AND POLICIES FOR BOTH URBAN DEVELOPMENT AND RURAL AREAS

Policy I.3.7 The County shall participate in the National Flood Insurance Program and regulate development and the installation of utilities in flood hazard areas in conformance with the program's requirements.

Policy I.7.5 (in part) The County shall protect high groundwater aquifer recharge areas by: preventing drainage wells and sinkholes to be used for stormwater disposal;

Policy I.7.7 The County's high groundwater aquifer recharge areas as shown on Illustration A-XI of this Comprehensive Plan are defined as areas of high groundwater aquifer recharge where limestone is at or nearly at the land surface and infiltration is immediate (cenotes may be a common feature on this terrain) and where limestone is covered by a limited (approximately 20 feet or less) thickness of highly permeable sediment and infiltration is rapid, movement of water between the limestone and the overlying surficial (sic) sediments is unrestricted, small, cover-collapse sinkholes may be common and some may expose limestone in the bottom and groundwater level may be either below the top of the limestone or in the surficial (sic) sediments, depending on local conditions.

SANITARY SEWER, SOLID WASTE, DRAINAGE, POTABLE WATER AND NATURAL GROUNDWATER AQUIFER RECHARGE ELEMENT

OBJECTIVE IV. 1 The County, upon the adoption of this Objective shall correct existing and projected deficiencies by undertaking capital improvement projects in accordance with the schedule contained in the Capital Improvements Element of this Comprehensive Plan.

Policy IV.2.9 The County's land development regulations shall include provisions which prohibit the construction of structures or landscape alterations which would interrupt natural drainage flows, including flow to isolated wetland systems.

CONSERVATION ELEMENT

Policy V.2.5 The County shall, through the development review process, require that post-development runoff rates and pollutant loads do not exceed pre-development conditions.

Policy V.2.6 The County's land development regulations shall require all new development to maintain the natural functions of environmentally sensitive areas, including but not limited to wetlands and 100-year floodplains so that the long term environmental integrity and economic and recreational value of these areas is maintained.

Policy V.2.7 The County shall provide for the regulation of development within 100-year floodplains of the Santa Fe River, Suwannee River, Olustee Creek, as well as, the Ichetucknee Trace, by establishing these areas as Environmentally Sensitive in accordance with Policy 1.2.2. In addition, the County shall participate in the National Flood Insurance Program and regulate all development and the installation of utilities in the County within flood hazard areas in conformance with the program requirements. Further, the County shall require all structures in the County to be clustered on the non-flood prone portion of a site. Where the entire site is in a flood prone area, or an insufficient buildable area on the non-flood prone portion of a site exists, all structures, located in floodplains, shall be elevated no lower than 1 foot above base flood elevation. Non-residential structures located in floodplains, may be flood proofed in lieu of being

elevated provided that all areas of the structure below the required elevation are watertight. In addition, where the entire site is in a flood prone area or an insufficient buildable area on the non-flood prone portion of site exists, all structures located in areas of shallow flooding shall be elevated at least two feet above the highest adjacent grade.

Policy V.2.8 Where the alternative of clustering all structures on the non-wetland portion of the site exists, the County shall conserve wetlands by prohibiting any development, which alters the natural function of wetlands and regulating mining operations as provided for in Policy 1.3.4 within wetlands. Mitigation efforts shall be required for activities, which alter the natural functions of wetlands in accordance with Chapter 17-3 12, Florida Administrative Code, in effect upon the adoption of this policy. Such mitigation shall result in no net loss of wetlands and all restored or created wetlands shall be of the same ecological type, nature and function.

Where the alternative of clustering all structures on the non-wetland portion of a site does not exist, the County shall allow only minimal residential development activity in those areas defined as wetlands within this Comprehensive Plan and such development activity shall conform to the density requirement for the land use classification applicable to the location of the wetland. However, in no case shall residential dwelling unit density be greater than 1 dwelling unit per 5 acres. In addition, such development activity shall comply with the following densities and performance standards:

1. Residences and any support buildings shall be elevated no lower than 1 foot above the highest recorded flood level in the wetland. If flooding data is not available, residences and any support buildings shall be built at least 2 feet above the highest seasonal water level.

INTERGOVERNMENTAL COORDINATION ELEMENT

Policy VII.1.1 The County shall establish a procedure, as part of the Comprehensive Plan review and amendment process, that all plan amendments proposed within the Comprehensive Plan are coordinated with adjacent local governments, the School Board, Water Management District, Regional Planning Council, Florida Department of Natural Resources, Florida Department of Environmental Regulation, Division of Historical Resources, Florida Department of State, Florida Department of Community Affairs and other units of government providing services but not having regulatory authority over the use of land.

CAPITAL IMPROVEMENTS ELEMENT

Policy VIII.1.2 The County shall, upon identification of a need for drainage facility improvements due to deficiencies based upon the established level of service standards within the Comprehensive Plan, coordinate plans for improvements with the Water Management District prior to scheduling such drainage facility improvement.