

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 Union 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 review into local comprehensive plans. Through the process outlined in this profile, planners will be able to (1) convey Union 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

Union 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 predominantly flood 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 Union 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. 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 Union County LMS. Sinkholes were discussed in the LMS, but the risk was considered to be very low for the entire county. The Comprehensive Plan addresses stormwater discharge into sinkholes in Union 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, 153 acres are susceptible to wildfire.

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 Comprehensive Plan should continue to include policies pertaining to the Suwannee River System 100-Year Floodplain Special Planning Area.
- The County should consider giving 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 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 to identify floodplains for acquisition.
- 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.

Wildfire

About 23% of the 153 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

The LMS has deemed sinkhole hazard to be low risk. However the Comprehensive Plan contains sinkhole goals, objectives, and policies, so recommendations have been provided for this hazard. All of the 38 vacant acres that are susceptible to sinkholes are to be developed for agriculture or environmental sensitive areas at 1 dwelling unit per 5 acres, 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.

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1. County Overview

Geography and Jurisdictions

Union County is the smallest county in the State, located in north-central Florida. It covers a total of 249.7 square miles, of which 240.3 square miles are land and 9.4 square miles are water. There are three incorporated municipalities within Union County, as shown in **Table 1.1**. The City of Lake Butler 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 Union County and the percent change from the 2000 U.S. Census are presented in **Table 1.1**. Most residents live in unincorporated jurisdictions. Union County has experienced significant population growth in recent years, a trend that is expected to continue. Between 1990 and 2000, Union County had a growth rate of 31.1%, which exceeded the statewide average of 23.5% for the same time period.

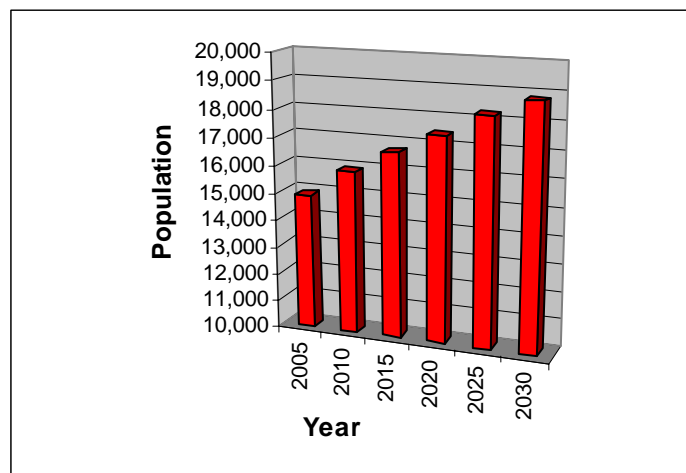
Table 1.1 Population Estimates by Jurisdiction

Jurisdiction	Population (Census 2000)	Population (Estimate 2004)	Percent Change 2000-2004	Percent of Total Population (2004)
Unincorporated	11,135	11,937	7.20%	81.65%
Lake Butler	1,927	1,933	0.31%	13.22%
Raiford	187	271	44.92%	1.85%
Worthington Springs	193	479	148.19%	3.28%
Total	13,442	14,620	8.76%	100.00%

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

According to BEBR (2004), Union County's population is projected to grow steadily and reach an estimated 18,800 by the year 2030, increasing the average population density of 60 to 78 persons per square mile. **Figure 1.1** illustrates medium growth population projections for Union County based on 2004 calculations.

Figure 1.1 Population Projections for Union County, 2005–2030



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

Of particular concern within Union 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 13,442 persons residing in Union County 7.5% are listed as 65 years old or over, 14.4% are listed as having a disability, 14% are listed as below poverty, and 6.9% live in a home where the primary language is other than English.

2. Hazard Vulnerability

Hazards Identification

The highest risk hazards for Union County as identified in the County’s Local Mitigation Strategy (LMS) are floods, and wildfire. Sinkholes were discussed in the LMS, but the risk was considered to be a low risk for the entire county.

Hazards Analysis

The following analysis examines three hazard types: floods, wildfire and sinkhole. 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 FEMA’s designated 100-year flood zones (i.e., A, AE, V, VE, AO, 100 IC, IN, AH) for flood; medium-to-high risk zones from MEMPHIS for wildfire (Level 5 through Level 9); and the combined 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>).

Existing Population Exposure

Table 2.1 presents the population currently exposed to each hazard in Union County. Of the 13,442 (U.S. Census 2000) people that reside in Union County 33.7% are exposed to wildfire. Of the 4,541 people exposed to wildfire, 30% are minorities. No population was determined to be exposed to 100-year flooding or in high sinkhole susceptible areas.

Table 2.1 Estimated Number of Persons Exposed to Selected Hazards

Segment of Population	Wildfire
Total (all persons)*	4,541
Minority	1,378
Over 65	234
Disabled	828
Poverty	379
Language-Isolated	0
Single Parent	146

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 Union 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 Union 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	<i>Not Available</i>				
Gilchrist	6	6	8	8	10
Hamilton	<i>Not Available</i>				
Lafayette	<i>Not Available</i>				
Madison	8	8	8	8	8
Suwannee	<i>Not Available</i>				
Union	<i>Not Available</i>				

Data regarding evacuation clearance times for Union 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.

Union County currently has a shelter surplus. According to Florida’s Statewide Emergency Shelter Plan, Union County has an existing shelter capacity of 1,884 people. The 2004 shelter demand for a Category 4 or Category 5 hurricane is 1,210 people, leaving an existing shelter surplus of 674. In 2009, the projected shelter demand is 1,357, leaving an anticipated shelter deficit of 527. However, because Union County is a host County there might not be enough shelter space for its own residents due to the influx of evacuees seeking shelter from nearby counties. Therefore, it is essential that Union 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. Union County could encourage new homes to be built with saferooms, or 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 Exposure

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 Union County by occupancy type that are exposed to each of the four hazards being analyzed. Exposure refers to the number of people or structures that are susceptible to loss of life, property damage and economic impact due to a particular hazard. The estimated exposure of Union County’s existing structures to wildfire and sinkhole hazards was determined through MEMPHIS.

Table 2.3 Estimated Number of Structures Exposed to Selected Hazards

Occupancy Type	Flood	Wildfire	Sinkhole
Single Family	1	605	2
Mobile Home	1	167	1
Multi-Family	0	99	0
Commercial	1	75	0
Agriculture	3	1,087	0
Gov. / Institutional	1	352	7
Total	7	2,385	10

Source: Mapping for Emergency Management, Parallel Hazard Information System

There are 2,402 structures exposed to at least one of the three hazards, of which most are agricultural structures. Of these structures, less than one percent (0.3%) is exposed to flood. Seven 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 is one repetitive loss properties in Union 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.”

About 99% or 2,385 structures are exposed to wildfire, of which 33% are single-family homes. The County is predominantly rural, and the exposure to agriculture, people and property exist throughout the county. The vegetation that remains or grows back after these homes have been built could allow wildfires to spread from the rural parcels into neighborhoods. About 0.4% or 10 structures are located within sinkholes susceptible areas, of which 70% are governmental or institutional facilities.

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 flood, 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. DCA tabulated the total amount of acres and percentage of land in identified hazard exposure areas, sorted by existing land use category for

the unincorporated areas. Existing land use data was acquired from County Property Appraisers and the Florida Department of Revenue in 2004. DCA also tabulated the total amount of acres and percentage of land in the identified hazards areas sorted by their 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. Union County future land use data was acquired in October 2004 from the North Central Florida Regional Planning Council and might not reflect changes per recent future land use amendments.

DCA has provided maps of existing land use within hazard areas based on the 2004 County Property Appraiser geographic information system (GIS) shapefiles. Maps of future land uses in hazard areas were developed using the Union County future land use map dated October 2004. 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. Flood prone areas are located in the northern, northeastern, southeastern, and central portions of the County. Floodplains are concentrated along the Santa Fe River, New River, Olustree Creek and Swift Creek (Union County LMS 2005). 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. The eastern, northern, northwestern, and central portions of the County are vulnerable to wildland fires because of the presence of large tracts of forested lands. These forested pockets of land are also interspersed throughout the southwestern part of the County (Union County LMS, 2006). The total amount of land in the wildfire susceptible areas is 8,572.8 acres. As shown in **Table 2.4**, 86.7% are used for agriculture; 2.9% are used for transportation, communication, and ROWs; and 1.8% is undeveloped. **Table 2.5** shows that of the 153.2 undeveloped acres, 64.8% are designated agricultural with one dwelling per five acres; and 22.7% are to be used for residential with two dwelling units per acre. 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. Though some areas throughout the County are identified as being susceptible to sinkholes, the LMS Risk Assessment (i.e., KAC analysis) indicated the risk to be low. The total amount of land in the sinkhole susceptible areas is 222.7 acres. As shown in **Table 2.4**, 79.8% are used for agriculture with low density residential; 2.1% are used for transportation, communication, and ROWs; and 17% is undeveloped. **Table 2.5** shows that of the 37.9 undeveloped acres, 91.3 are designated for environmentally sensitive areas with one dwelling unit per five acres. The County has the opportunity to further research the vulnerability of the acreage designated for unknown purposes and development to determine if mitigation measures are necessary.

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

Existing Land Use Category		Wildfire Susceptible Areas		Sinkhole Susceptible Areas	
		Acres	%	Acres	%
Agriculture	Acres	7,431.8		177.7	
	%	86.7		79.8	
Places of Worship	Acres	7.6		0.0	
	%	0.1		0.0	
Commercial	Acres	5.3		0.0	
	%	0.1		0.0	
Government, Institutional, Hospitals, Education	Acres	124.8		0.0	
	%	1.5		0.0	
Industrial	Acres	0.0		0.0	
	%	0.0		0.0	
Parks, Conservation Areas, Golf Courses	Acres	226.9		0.0	
	%	2.6		0.0	
Residential Group Quarters, Nursing Homes	Acres	0.0		0.0	
	%	0.0		0.0	
Residential Multi-Family	Acres	4.7		0.0	
	%	0.1		0.0	
Residential Mobile Home, or Commercial Parking Lot	Acres	218.7		0.4	
	%	2.6		0.2	
Residential Single-Family	Acres	149.4		2.0	
	%	1.7		0.9	
Transportation, Communication, Rights-Of-Way	Acres	250.4		4.7	
	%	2.9		2.1	
Vacant	Acres	153.2		37.9	
	%	1.8		17.0	
Total	Acres	8,572.8		222.7	
	%	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 - 2 (1 d.u. per 20 acres)	Acres	1,917.2	18.7	0.0	0.0
	%	22.4	12.2	0.0	0.0
Agriculture - 2 (1 d.u. per 10 acres)	Acres	825.3	0.0	0.0	0.0
	%	9.6	0.0	0.0	0.0
Agriculture - 2 (1 d.u. per 5 acres)	Acres	4,636.3	99.2	179.7	3.3
	%	54.1	64.8	80.7	8.7
Environmentally Sensitive Areas -1 (1 d.u. per 40 acres)	Acres	309.0	0.0	0.0	0.0
	%	3.6	0.0	0.0	0.0
Environmentally Sensitive Areas -3 (1 d.u. per 5 acres)	Acres	1.1	0.0	43.0	34.6
	%	0.0	0.0	19.3	91.3
Public	Acres	415.1	0.4	0.0	0.0
	%	4.8	0.3	0.0	0.0
Residential – 1 (2 d.u. per acre)	Acres	468.8	34.8	0.0	0.0
	%	5.5	22.7	0.0	0.0
Total	Acres	8,572.8	153.2	222.7	37.9
	%	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 Union 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. No municipalities were determined to be exposed to sinkhole hazards. Raiford has the most acres in the wildfire susceptible areas, and Worthington Springs has the largest proportion of wildfire 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 Union 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	
		Total	Vacant
Lake Butler	Acres	21.6	0.4
	%	29.3	1.8
Raiford	Acres	47.9	0.4
	%	64.9	0.8
Worthington Springs	Acres	4.2	0.2
	%	5.7	4.76
Total Municipal Acres	Acres	73.8	1.1
	%	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. 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 Union County LMS (adopted in 2004) was assessed to determine if the hazard analysis and vulnerability assessment (i.e., flood, wildfire, and sinkhole) 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 Union County to determine if the capital improvement projects are included in the LMS hazard mitigation project list.

Hazard Analysis and Vulnerability Assessment (Section 4, pp. 1-74)

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

Strengths:

- Provides a hazards analysis and a quantitative vulnerability and risk assessment for each hazard.
- Provides information about demographic, income, and special needs population.
- Provides a clear description of geographic areas exposed to each of the hazards, as well as the potential hazards impacts.
- Includes maps for each of the hazards.
- Provides population (general) exposure to multi-hazards.
- Provides property exposure (building count and dollar value) by structure type to multi-hazards.
- Includes loss estimates for each hazard by structure type.

- Provides a list and map of critical facilities and their respective vulnerability scores.
- Includes examples of how to reduce lower or eliminate claims for repetitive loss properties.
- Provides information about environmental, historical and cultural resources, though does not include exposure or loss estimates to any hazards.
- Provides potential savings for flood and wind mitigation through a comparison of property exposure prior to and after the implementation of mitigation measures.

Weaknesses:

- Does not include special needs population exposure to multi-hazards.
- 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 map for the county or municipalities 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 reference or include list or map of repetitive loss properties, but provides examples of how to mitigate repetitive loss properties.

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 Union County LMS Guiding Principles section contains a list of policies for the county and each municipality. They are categorized by those that address public health, safety and welfare; stormwater management; floodplain management; natural resource protection; land development regulations; infrastructure/critical facilities; pre-disaster preparedness; affordable housing; intergovernmental coordination; hazards assessment; historical and cultural resources; recovery and mitigation; and hazardous materials. The Guiding Principles section 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 Union 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 and objectives 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, Union County, and PBS&J. The following is a summary of the LMS goals that support comprehensive plan GOPs.

Goal 1 refers to developing local capacity to implement effective hazard mitigation. Objectives include preparing a countywide geographic information system (GIS) mapping system, and creating and maintaining an all-hazards database; a countywide critical facility inventories and periodically update in order to maintain current, accurate data; and a post-disaster redevelopment plan.

Goal 2 supports the optimization of the effective use of available resources. Objectives include identifying, monitoring and updating potential funding sources; seeking technical assistance from agencies such as Suwannee River Water Management District, North Central Regional Planning

Council, and FDCA; and establishing procedures that strengthen intergovernmental coordination and cooperation.

Goal 3 emphasizes the reduction of the loss of life and property and potential recurrence in areas vulnerable to the effects of natural, technological, and societal hazards. Objectives include reducing flooding and/or wind damage; eliminating or retrofitting repetitive loss properties; retrofitting and/or constructing new critical facilities; protecting natural resources from the adverse affects of hazards; improving local roadways to ensure safe, efficient evacuation; reducing the potential threat of fires, wildland and structural; increasing public awareness of hazards and their impacts; and evaluating codes, policies, ordinances, and regulations dealing with natural hazards.

Comprehensive Emergency Operations Plan (CEMP)

The Union County CEMP references the LMS in the Mitigation Annex and outlines how the LMS is developed and used to prioritize pre- and post-disaster mitigation strategies and projects to reduce risk. The CEMP notes that all mitigation strategies, guiding principles, hazard identification and vulnerability assessment are generated by the LMS Committee, which involves participation by all county and municipal agencies including the Building Department and the Property Appraiser.

The CEMP discusses hazard mitigation in the context of standard operating procedures, activities, responsibilities and available programs. This includes post-disaster implementation of the Hazard Mitigation Grant Program and related disaster mitigation, response and recovery assistance programs, as well as pre-disaster mitigation programs such as the National Flood Insurance Program.

Though the identification of mitigation opportunities lies predominately with the County Emergency Management Director and the LMS working group, the document lists numerous activities and supporting agencies to assist in supporting mitigation in the County. The Union County Emergency Management Agency does not have any formal agreements with agencies to assist in post- disaster mitigation activities. There is an annual agreement in place with the North Central Florida Regional Planning Council to coordinate mitigation planning activities. The Emergency Management Agency works closely with the damage assessment teams in the field and the building inspectors for Union County and the municipalities to identify potential mitigation opportunities. The Union County Property Appraiser, Union County Road Department, Union County Health Department, Union County Building/Zoning Department and Municipal Public Works, Building and Zoning Departments are the supporting agencies that work closest with the Union County Emergency Management Agency in post-disaster mitigation assessment.

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)

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

National Flood Insurance Program/Community Rating System

Union County participates in the National Flood Insurance Program (NFIP), but does not participate in the NFIP Community Rating System (CRS).

4. Comprehensive Plan Review

Purpose and Intent

The Union County Comprehensive Plan (Adopted December 1991, updated December 1995) was reviewed for the purpose of developing this profile. This review was undertaken in order to

assess what steps Union 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 Union County as identified in the County's Local Mitigation Strategy (LMS) are floods and wildfires. The LMS risk assessment indicated sinkholes to be a low risk hazard for Union County. However, the Comprehensive Plan included a number of objectives and policies related to sinkhole hazard mitigation, sufficient to warrant a discussion of those policies in this assessment.

Union County Comprehensive Plan primarily focuses on the protection of environmentally sensitive areas including, natural drainage features, wetlands, floodplains and aquifer recharge zones. Policies discuss hazard mitigation to protect sensitive areas, and vulnerable properties and populations through development controls and environmental management. However, references to emergency management are limited in the Plan.

Union County is not a coastal county, so policies are not geared toward coastal management and coastal resource protection. There is an intergovernmental coordination component integrated into the Plan. This element primarily focuses on resource and infrastructure related coordination with surrounding municipalities and the Suwannee River Water Management District.

Flooding

Flooding is addressed from two vantage points, the protection and restoration of natural resources, and protection of vulnerable populations and properties. There are several policies directed at minimizing flooding and stormwater runoff. Suwannee River System 100-year Floodplain Special Planning Area policies are incorporated as a section of the Future Land Use Element. This section of the plan includes policies geared toward the relationship between development and re-development and the protection of the Suwannee River System. Policies also center on locating development outside of the 100-year floodplain, in order to protect life and property from the flood hazard.

Stormwater concurrency requirements are discussed extensively in the Sanitary Sewer, Solid Waste, Drainage, Potable Water and Natural Groundwater Aquifer Recharge Element. There are detailed policies to prevent the exacerbation of stormwater issues brought on by new development. For example, there is a policy in place to ensure that post-development stormwater runoff is no greater than pre-development stormwater runoff. There are additional buffering and filtering requirements for existing and proposed developments aimed at mitigating for and preventing stormwater runoff.

Flood hazard related policies include elevation requirements within the 100-year floodplain. Non-residential structures in all areas of special flood hazard must either be elevated one (1) foot

above base flood elevation, or flood-proofed as certified by a registered professional engineer or architect.

Sheltering

As with many inland counties in Florida, in the event of a hurricane, Union County may receive evacuees from coastal counties. The County is currently in a favorable position to shelter storm evacuees, with a shelter surplus. According to Florida's Statewide Emergency Shelter Plan, Union County has an existing shelter capacity of 1,884 people. The 2004 shelter demand for a Category 4 or Category 5 hurricane is 1,210 people, leaving an existing shelter surplus of 674. However, because Union County is a host County there might not be enough shelter space for its own residents due to the influx of evacuees seeking shelter from nearby counties. Therefore, it is essential that Union 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

The Future Land Use Element, Conservation Element, and Sanitary Sewer, Solid Waste, Drainage, Potable Water and Natural Groundwater Aquifer Recharge Elements contain numerous policies that directly relate to sinkhole hazards, karst features, groundwater recharge and aquifer protection. Policies deal with both environmental protection of natural features, as well as mitigation of the risk of sinkholes to people, property and infrastructure. Numerous Plan policies strive to limit and regulate development in and approximate to prime groundwater recharge areas. Language is also included to protect recharge areas by preventing drainage wells and sinkholes from use for stormwater disposal.

Wildfire

Policies directly relating to the wildfire hazard were not found during this review.

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.

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.

State of Florida. 2005 Hurricane Evacuation Study Database. 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 (2005)

- 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 available at:

http://lmsmaps.methaz.org/lmsmaps/final_cty/

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.

- The rating scale in the “Wildfire Susceptibility Index” GIS coverages has a range of 0 to 100,000 in north Florida counties, and a range of 0 to 1.0 in south Florida counties.

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 the Sinkhole Susceptible Areas

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

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

Goal 1. Develop local capacity to implement effective hazard mitigation

Objective 1.2 Prepare a countywide geographic information system (GIS) mapping system, and create and maintain an all-hazards database.

Objective 1.3 Prepare countywide critical facility inventories and periodically update in order to maintain current, accurate data.

Objective 1.4 Prepare a post-disaster redevelopment plan.

Goal 2. Optimize effective use of available resources.

Objective 2.1 Identify, monitor and update potential funding sources.

Objective 2.2 Seek technical assistance from agencies such as Suwannee River Water Management District, North Central Regional Planning Council, and FDCA.

Objective 2.4 Establish procedures that strengthen intergovernmental coordination and cooperation.

Goal 3. Reduce the loss of life and property and potential recurrence in areas vulnerable to the effects of natural, technological, and societal hazards.

Objective 3.1 Reduce flooding and/or wind damage.

Objective 3.2 Eliminate or retrofit repetitive loss properties

Objective 3.3 Retrofit and/or construct new critical facilities.

Objective 3.4 Protect natural resources from the adverse affects of hazards.

Objective 3.5 Improve local roadways to ensure safe, efficient evacuation.

Objective 3.6 Reduce the potential threat of fires, wildland and structural.

Objective 3.7 Increase public awareness of hazards and their impacts.

Objective 3.8 Evaluate codes, policies, ordinances, and regulations dealing with natural hazards.

ATTACHMENT E
Union County Comprehensive Plan Excerpts Pertaining to Hazard Mitigation

FUTURE LAND USE ELEMENT

OBJECTIVE I.1 The County shall coordinate future population growth and associated urban development to urban development areas through the establishment of such urban development areas within this Comprehensive Plan upon the adoption of this Comprehensive Plan. The total area of all the County's urban development areas shall be limited to 10 percent of the total acreage within the County.

Policy I.1.3 The County shall, prior to action on a proposed subdivision, determine the sufficiency of proposed screens and buffers to preserve internal and external harmony and compatibility with uses inside and outside the proposed development so that proposed urban development near agricultural or forested areas, wetlands and 100-year floodplain areas avoids adverse impact upon such areas.

Policy I.2.2 The County's land development regulations shall be based on and be consistent with the following land use classifications and corresponding standards for densities and intensities within the rural area of the County. For the purpose of this policy and Comprehensive Plan, the phrase "other similar uses compatible with" shall mean land uses that can co-exist in relative proximity to other uses in a stable fashion over time such that no other uses within the same land use category are unduly negatively impacted directly or indirectly by the use. Lands classified as Environmentally Sensitive are areas which are considered in need of special planning and treatment regarding land development regulation, Environmentally Sensitive Areas are lands which lie within the areas of the 100-year flood, as designated by the Federal Emergency Management Agency. Flood Insurance Rate Map, dated August 4, 1988, located along the Santa Fe River, along Olustee Creek and additional areas as identified within the Future Land Use Plan Map of this Comprehensive Plan as Environmentally Sensitive Areas. This designated corridor area shall conform with the following densities provided that within the Environmentally Sensitive Areas -3 category 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 5 acres be maintained on site. All lots within Environmentally Sensitive Areas shall have an average length to average width ratio no greater than 3 to 1.

OBJECTIVE 1.3 The County shall include within the site plan review process to be adopted as part of the land development regulations, that adjacent land uses shall not be adversely impacted by any change in land use.

Policy I.3.5 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.

SUWANEE RIVER SYSTEM 100-YEAR FLOODPLAIN SPECIAL PLANNING AREA

OBJECTIVE S.I To help ensure that proposed subdivision wholly or partially within that part of the 100-year floodplain of the Suwannee River system as shown on the Future Land Use map are conducted in accordance with the physical limitations of this environmentally sensitive area, the County shall establish coordination provisions between the County and 11 agencies with jurisdiction within this area by May 1, 1992. Such coordination provisions shall provide a mechanism for all such agencies to review and make comment on such proposals or activities.

Policy S.I.1 The County shall request the Suwannee River Management District to provide a complete set of topographic maps delineating the 100-year and 10-year flood elevations within the County's jurisdiction along the Suwannee River system.

Policy S.1.2 The County shall have the Suwannee River Water Management District notified of preliminary subdivision plats, site and development plans, rezoning or reclassification of lands, and special exception hearings within that part of the 100-year floodplain of the Suwannee River system as shown on the Future Land Use Map. The purpose of such notification is to provide opportunity for the District to coordinate, among appropriate agencies, the review and commenting on the potential impact of such plans or proposals on the natural resources of the Suwannee River system. The review and comment period shall be within the development review timeframes established in the County's land development regulations.

OBJECTIVE S.2 The County shall take the actions identified within the following policies by May 1, 1992 to protect unique natural areas within the Suwannee River System, including but not limited to springs and spring runs, critical habitat areas for fish and wildlife, unique vegetative communities, and public recreation areas.

Policy S.2.2 The County shall require a 18 foot undisturbed regulated buffer along the property lines of public lands within the 100-year floodplain of the Suwannee River system for the purposes of visual screening, stormwater runoff and erosion control, public safety, and buffering potentially incompatible land uses. Variations in the width of this buffer shall be made only for cases of undue hardship and on a site-specific review.

Policy S.2.3 The County shall monitor the use of County-owned facilities on or within the 100-year floodplain of the Suwannee River system to ensure that the public use of these facilities does not threaten the facility or adjacent natural resources. Such facilities shall be maintained in order to prevent any potential adverse impacts to the Suwannee River system such as erosion, release of inadequately treated stormwater or wastewater, or the accumulation of trash and debris.

OBJECTIVE S.3 The County will adopt land development regulations by May 1, 1992 that regulate land use for all lands within that part of the 100 year flood-plain of the Suwannee River System as shown on the Future Land Use map

Policy S.3.1 The County hereby designates those lands within the County's jurisdiction lying within that part of the 100 year flood-plain of the Suwannee River System as shown on the Future Land Use map as an environmentally sensitive area.

Policy S.3.2 The areas within that part of the 100 year flood-plain of the Suwannee River System as shown on the Future Land Use map which are located outside the designated urban development areas shall conform with the densities specified within the Environmentally Sensitive Areas-1 and Environmentally Sensitive Areas-3 categories, provided that within the Environmentally Sensitive Areas-3 category, dwelling units may be clustered on smaller lots with no lot being less than 2.5 acres, if the site is developed as a Planned Residential Development and a density of 1 dwelling unit per 10 acres be maintained on site in accordance with the criteria listed in Policy 1.1.2. All lots within Environmentally Sensitive Areas shall have an average length to average width ratio no greater than 3 to 1. In addition, the County's land development regulations shall prohibit the location of intensive agriculture (the term intensive agriculture means all areas of concentrated animal density generally associated with milking barns, feedlots, chicken houses and holding pens).

Policy S.3.3 The County shall, inside designated urban development areas within that part of the 100 year flood plain of the Suwannee River System as shown on the Future Land Use map, limit dwelling unit density of residential uses to no greater than 1.0 dwelling units per 5 acres in areas not served by centralized potable water systems and sanitary sewer systems and 4.0 dwelling units per acre, provided a centralized potable water system and sanitary sewer system exists and each individual parcel conforms to all applicable state and County regulations. This higher density shall require approval of an amendment to the Future Land Use Plan Map to establish a district which allows 4.0 dwelling units per acre.

OBJECTIVE S.4 The County shall ensure that all development and redevelopment occurring in that part of the 100 year flood plain of the Suwannee River System as shown on the Future Land Use map meet the building and design standards of the National Flood Insurance Program, the County, and the Suwannee River Water Management Districts.

Policy S.4.1 The County's land development regulations shall conform to the National Flood Insurance Program requirements for construction activities undertaken in that part of the 100 year flood plain of the Suwannee River System as shown on the Future Land Use map.

Policy S.4.2 The County's land development regulations shall require all habitable structures be elevated no less than 1 foot above the 100-year flood elevation without the use of fill materials in the regulatory floodway of the Suwannee River system.

Policy S.4.3 The County's land development regulations shall require all road construction and improvement projects within that part of the 100 year flood plain of the Suwannee River System as shown on the Future Land Use map be designed in such a manner as to avoid any increase in floodway obstruction, any increase in the peak rate or volume of stormwater runoff, and any increase in pollutant loading to the receiving waters.

HOUSING ELEMENT

OBJECTIVE III.2 The County shall promote the maintenance of a safe and sanitary housing stock and the elimination of substandard housing conditions, as well as the establishment of provisions for the structural and aesthetic improvement of housing through adoption of minimum housing standards by May 1, 1992.

Policy III.2.1 The County, to address the quality of housing and stabilization of neighborhoods, shall include minimum housing standards for structural strength, stability sanitation, adequate light and ventilation and safety to life and property from fire and other hazards incident to the construction, alteration, repair, removal, demolition, use and occupancy of residential buildings within the adopted land development regulations based upon the following criteria:

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

Objective IV.2 The County shall coordinate the extension of, or increase in the capacity of facilities by scheduling the completion of public facility improvements, upon adoption of this Comprehensive Plan, and requiring that they are concurrent with projected demand beginning on March 1, 1992.

Policy IV.2.8 The County hereby establishes the following level of service standards for drainage facilities: For all projects not exempted from 40B-4 and 17-25, Florida Administrative Code, in effect upon adoption of this Comprehensive Plan within the County, stormwater management systems must be installed such that the peak rate of post-development runoff will not exceed the peak rate of pre-development runoff for storm events up through and including either: 1. A design storm with a 10-year, 24-hour rainfall depth with Soil Conservation Service Type II distribution falling on average antecedent moisture conditions for projects serving exclusively agricultural, forest, conservation or recreational uses; or 2. A design storm with 100-year critical duration rainfall depth for projects serving any land use other than agricultural, silvicultural, conservation, or recreational uses. 3. Facilities which directly discharge into an Outstanding Florida Water shall include an additional level of treatment equal to the runoff of the first 1.5 inches of rainfall from the design storm consistent with Chapter 17-25.025(9), Florida Administrative Code, in effect upon the adoption of this Comprehensive Plan, in order to meet the receiving water quality standards of Chapter 17-302, Florida Administrative Code, in effect upon the adoption of this Comprehensive Plan. Stormwater discharge facilities shall be designed so as not to lower the receiving water quality below the minimum conditions necessary to assure the suitability of water for the designated use of its classification as established in Chapter 17-302, Florida Administrative Code,

in effect upon the adoption of this Comprehensive Plan. Any development exempt from Chapter 17-25 or 40B-4 as cited above and which is adjacent to or drains into a surface water, canal, or stream, or which empties into a sinkhole, shall first allow the runoff to enter a grassed swale or other conveyance designed to percolate 80% of the runoff from a three year, one-hour design storm within 72 hours after a storm event. In addition, any development exempt from Chapter 17-25 or 40B-4, as cited above, which is directly discharged into an Outstanding Florida Water shall include an additional level of treatment equal to the runoff of the first 1.5 inches of rainfall from the design storm consistent with Chapter 17-25.025(9), Florida Administrative Code, in effect upon adoption of this Comprehensive Plan, in order to meet the receiving water quality standards of Chapter 17-302, F.A.C. Stormwater discharge facilities shall be designed so as not to lower the receiving water quality below the minimum condition necessary to assure the suitability of water for the designated use of its classification as established in Chapter 17-302, Florida Administrative Code, in effect upon the adoption of this Comprehensive Plan.

Policy IV.2.9 The County shall prohibit the construction of structures or landscape alterations which would interrupt natural drainage flows, including sheet flow and flow to isolate wetland systems.

Policy IV.2.11 The County, by May 1, 1991, in response to written recommendations of the Florida Department of Environmental Regulations, shall request the Florida Department of Environmental Regulation to fund and conduct a detailed stormwater study and prepare a stormwater master plan to (1) determine the design, capacities and hydraulic demands on the County's stormwater management facilities, (2) assess the performance of existing facilities with regard to flood control, water quality treatment and impact on the area's surface and groundwater, and (3) identify opportunities and funding options to correct existing quality and quantity problems. Upon completion of this master plan, and if stormwater management facilities are determined to be needed or modified, the County shall request the Florida Department of Environmental Regulation to fund and construct such needed facilities to be turned over to the County for subsequent operation and maintenance provided that funding for such is made available by the State. The County shall amend this Comprehensive Plan to include the findings and recommendations (including projects in the five-year schedule of capital improvements) of the master plan.

OBJECTIVE IV.4 The County shall require that, upon adoption of this Comprehensive Plan, no sanitary sewer facility have any discharge into designated prime groundwater recharge areas.

Policy IV.4.1 The County shall require that, during the development review process, all proposed development within the drainage basin of any designated priority water body shall be coordinated with the Water Management District. Further, the County shall ensure that any proposed development is consistent with any approved management plans within that basin.

OBJECTIVE IV.5 The County, upon adoption of this Comprehensive Plan, shall coordinate with the Water Management District to protect the functions of natural groundwater recharge areas and natural drainage features by requiring all proposed subdivision plats be reviewed by the Water Management District prior to final approval of the plat.

Policy IV.5.1 The County's land development regulations shall provide for the limitation of development adjacent to natural drainage features to protect the functions of the feature by establishing a design standard that require all development to conform with the natural contours of the land and leave natural drainage ways undisturbed. In addition, no development shall be constructed so that such development impedes the natural flow of water from higher adjacent properties across such development.

Policy IV.5.2 The County shall provide for the limitation of development and associated impervious surfaces in prime groundwater recharge areas designated by the Water Management District to protect the functions of the recharge area through requirement of the following: (a) Stormwater management practices shall not include drainage wells and sinkholes for stormwater

disposal where recharge is into potable water aquifers. Where development is proposed on private property with existing private drainage wells, these wells shall be abandoned, including adequate sealing and plugging according to Chapter 17-28, Florida Administrative Code, and as administered and regulated by the Water Management District, in effect upon adoption of this Comprehensive Plan; (b) Well construction, modification or closure shall be regulated in accordance with the criteria established by the Water Management District and the Florida Department of Health and Rehabilitative Services; (c) Abandoned wells shall be closed in accordance with the criteria established in Chapter 17-28, Florida Administrative Code, and as administered and regulated by the Water Management District in effect upon adoption of this Comprehensive Plan; (d) No person shall discharge or cause to or permit the discharge of a regulated material as listed in Chapter 442, Florida Statutes, in effect upon adoption of this Comprehensive Plan, to the soils, groundwater, or surface water; and (e) No person shall tamper or bypass or cause or permit tampering with or bypassing of the containment of a regulated material storage system, except as necessary for maintenance or testing of those components.

OBJECTIVE IV.6 The County, by May 1, 1992, shall include within the land development regulations a requirement that construction activity undertaken shall protect the functions of natural drainage features.

Policy IV.6.1 The County's land development regulations shall include a provision which requires a certification by the preparer of the permit plans that all construction activity undertaken shall incorporate erosion and sediment controls during construction to protect the functions of natural drainage features.

OBJECTIVE V.2 The County, in order to protect the quality and quantity of current and projected water sources, hereby establishes a 300 foot wellfield protection areas around community water system wells. In addition, the County in order to protect prime water recharge areas shall limit development in these areas as specified in Policy IV.5.2 of this Comprehensive Plan.

Policy V.2.6 The County shall require all new development to maintain the natural functions of wetlands as provided in Policies V.2.4 and V.2.8) and 100-year floodplains as provided in Policy 1.3.51 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 that part of the 100-year floodplain of the Santa Fe River as shown on the Future Land Use map by establishing these areas as Environmentally Sensitive in accordance with Policy 1.2.1. In addition, in order to maintain the flood carrying and flood storage capacities of the floodplains and reduce the risk of property damage and loss of life, by May 1, 1992, the County shall adopt flood damage prevention regulations and in the interim shall continue to enforce the provisions of the National Flood Insurance Program.

Policy V.2.8 Where the alternative of clustering all structures on the non-wetland portion of a site exists. The County shall conserve wetlands by prohibition and development, which alters the natural function of wetlands and regulating mining operations as provided for in Policy 1.3.2 within wetlands. Mitigation efforts shall be required for activities which alter the natural functions of wetlands in accordance with Chapter 17-312, 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. 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. 2. Clearing or removal of native vegetation shall not exceed 1/2 acre per 5 acres. Exotic vegetation may be removed without regard to this limitation provided that, if the area cleared of exotic vegetation exceeds the 1/2 acre limitation, it is replanted with native wetland vegetation. 3. Walking paths and driveways to the residence shall use permeable fill and shall be constructed with a sufficient number and size of culverts to allow the natural flow of water to continue. For the purposes of this Comprehensive Plan, wetlands shall be generally located as shown on Illustration A-VI, entitled Wetlands, and more specifically described and defined as follows: Wetlands mean those areas that are inundated or saturated by surface water or around water at a frequency and a duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soils. Soils present in wetlands generally are classified a hydric or alluvial, or possess characteristics that are associated with reducing soil conditions. The prevalent vegetation in wetlands generally consists of facultative or obligate hydrophytic macrophytes that are typically adjusted to areas having soil conditions described above. These species, due to morphological, physiological, or reproductive adaptations, have the ability to grow, reproduce or persist in aquatic environments or anaerobic soil conditions. Florida wetlands generally include swamps, marshes, bayheads, bogs, cypress domes and strands, sloughs, wet prairies, riverine swamps and marshes, hydric sewage slopes, tidal marshes, mangrove swamps and other similar areas. Florida wetlands generally do not include longleaf or slash pine flatwoods with an understory dominated by saw palmetto. The delineation of actual wetland boundaries may be made by any professionally accented methodology consistent with the type of wetlands being delineated, but shall be consistent with any unified statewide methodology for the delineation of the extent of wetlands ratified by the Legislature.

Policy V.2.11 The County shall, as part of the developmental review process, limit development to low density and nonintensive uses in prime groundwater aquifer recharge areas designated by the Water Management District, in order to maintain the natural features of these areas.

Policy V.2.12 The County as part of the development review process shall require the maintenance of the quantity and quality of surface water runoff within freshwater stream to sink watersheds by limiting commercial and prohibiting industrial development within these areas.

INTERGOVERNMENTAL COORDINATION ELEMENT

OBJECTIVE VII.1 The County shall coordinate its comprehensive planning with the School Board, Water Management District, adjacent local government comprehensive plans of other local governments within the County and other units of local government providing services but not having regulatory authority over the use of the land by May 1, 1992.

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 within the County, the School Board, Water Management District,

OBJECTIVE VIII.2 The County shall require by May 1, 1992 all decisions regarding the issuance of development orders or permits shall be consistent with the established level of service standards adopted for public facilities within the Comprehensive Plan.

Policy VIII.2.1 The County hereby establishes the following level of service standards for drainage facilities: LEVEL OF SERVICE STANDARD: County shall comply with all rules and regulations of Suwannee River Water Management District pertaining to drainage facilities. For all projects not exempted from Chapter 40B-4 and 17-25, Florida Administrative Code. In effect upon adoption of this policy, within the County, stormwater management systems will be installed such

that the peak rate of post-development runoff will not exceed the peak rate of pre-development runoff.1. Such storm water management systems shall design for storm events up through and including either: a. A storm with a 10-year, 24 hour rainfall depth with U.S. Soil Conservation Service Type I1 distribution falling on average antecedent moisture conditions for projects serving exclusively agricultural, forest, conservation or recreational uses: or b. A storm with 100-year critical duration rainfall depth for projects serving any land use other than agricultural, silvicultural, conservation or recreational uses. Facilities which directly discharge into an Outstanding Florida Water shall include an additional level of treatment equal to the runoff of the first 1.5 inches of rainfall from the design storm consistent with Chapter 17-25.025(9), Florida Administrative Code, in effect upon adoption of this policy. In order to meet the receiving water quality standards of Chapter 17-302, Florida Administrative Code, in effect upon adoption of this Policy. Stormwater discharge facilities shall be designed so as not to lower the receiving water quality below its designated classification as established in Chapter **17-302**. Florida Administrative Code, in effect upon adoption of this policy. Any development exempt from Chapter **17-25** or **40B-4**, Florida Administrative Code, in effect upon adoption of this policy, as cited above and which is adjacent to or drains into a surface water, canal or stream, or which enters a ditch which empties into a sinkhole. shall first allow the runoff to enter a grassed swale or other conveyance designed to percolate **80** percent of the runoff from a 3-year, 1-hour design storm within **72** hours after a storm. Chapter **17-25** or **40B-4**, Florida Administrative Code, in effect upon adoption of this policy. As cited above, that which is directly discharged into an Outstanding Florida Water shall include an additional level of treatment equal to the runoff of the first **1.5** inches of rainfall from the design storm, consistent with Chapter **17-25.025(9)**, Florida Administrative Code, in effect upon adoption of this policy, in order to meet the receiving water quality standards of Chapter **17-302**, Florida Administrative Code. Such stormwater discharge facilities shall be designed so as not to lower the receiving water quality below its designated classification as established in Chapter **17-302**. Florida Administrative Code, in effect upon adoption of this policy.

FEMA FIRM map is included in land use map appendix of Comprehensive Plan.