

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 Jackson 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 Jackson 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

Jackson 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 many goals, objectives, and policies that support risk reduction from floods 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 in which Jackson County can continue to reduce or eliminate risks from flood and wildfire. Sinkhole risk was deemed to be low according to the County's LMS. 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 flood and wildfire. 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, 3,697 acres are susceptible to 100-year flood, 1,007 acres are susceptible to wildfire, and 332 acres are susceptible to sinkholes. Susceptibility for surge, flood, and wildfire are based on risk, whereas susceptibility for sinkhole is based on exposure. Therefore, further analysis is needed to determine the level of risk associated with sinkhole hazards. According to the Jackson County LMS, the County is deemed to have a low risk from sinkhole hazards.

Flood

About 8% of the 3,697 vacant acres in the 100-year floodplain 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 Comprehensive Plan should continue limiting development in floodprone areas by requiring low densities; acquiring floodplains for open space; and having multi-use public lands.
- The Comprehensive Plan should continue to prohibit most nonresidential development in the 100-year floodplain, require all development to be elevated one foot above the base flood elevation (BFE), and wherever possible public infrastructure two feet above the BFE.
- 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 requiring that stormwater runoff from properties, parking areas or roads not impact adjacent properties; and that post-development run off rates not exceed pre-development rates.
- The Comprehensive Plan should continue requiring new school sites or future expansions be located outside floodplains, floodprone areas, or floodways, and avoid wetlands when possible.
- The Comprehensive Plan should continue to prohibit the storage of hazardous waste or materials in the floodplain,
- The Comprehensive Plan should consider requiring that developers demonstrate that dredge and fill activities are consistent with best management practices to maintain natural topography and hydrological functions of the flood plains, require on-site compensating storage if filling occurs in the 100-year floodplain, and require buffers from creeks and rivers.
- The Comprehensive Plan should consider requiring that new roads be constructed so that the grade of the streets conforms as closely as possible to the existing topography to prevent interruption of natural drainage flows.
- The Comprehensive Plan should consider prohibiting new septic tanks in flood hazard areas or wetlands.
- The Comprehensive Plan should consider disallowing conversions of agricultural land located in wetlands to other land uses and require developments to maintain an open space ratio of the land parcel as determined by the County.
- The Comprehensive Plan should consider requiring that new or expansions of existing critical facilities not occur in floodways and in areas where potential for flooding exists.
- The County should consider retrofitting stormwater management facilities.
- The County should consider including a policy for reducing future losses through transfers of development rights from areas within the 100-year floodplain to areas outside the 100-year floodplain.
- The County should consider including a policy to not approve variances to required flood elevations.
- The County should consider promoting the use of vegetated swales, sodding, landscaping, and retention of natural vegetation as components of the drainage system for natural runoff through the use of landscape and subdivision ordinances.
- The County should consider requiring that the maintenance and operation of private stormwater systems is funded by private sources.

- 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.

Wildfire

About 23% of the 1,007 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.

- The County should consider participating in the Firewise Medal Community program to reduce risks within the wildland urban interface.
- Where reasonable, consideration should be made to design structures and sites within the County to minimize potential for loss of life and property (e.g., outdoor sprinkler systems, fire-resistant building materials or treatments, and landscaping and site design practices); review proposals for subdivisions, lot splits, and other developments for fire protection needs during site plan review process; coordinate with fire protection service or agencies to determine guidelines for use and development in wildfire-prone areas.
- 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.

Sinkhole

Sinkhole risk was considered to be very low in the hazards analysis in the latest version of the Jackson County LMS.

Sinkhole hazards could be evaluated further in the next update of the hazards analysis of the LMS to determine the risk. However, based on available data, it appears that sinkhole risk is very low.

General

- 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 hurricanes, floods, and wildfires, & 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 data layers on hazard maps to illustrate population (i.e., density) or property (i.e., value) exposure.
- Include a future land use maps that include hazard data layers to illustrate which future land use categories are susceptible to each hazard.
- Include a quantitative risk assessment for future development (i.e., loss estimates) or specific critical facilities.
- Use complementary, not contradictory, data in the plans such as the LMS, CEMP, and Comprehensive Plan.

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1. County Overview

Geography and Jurisdictions

Jackson County is located in the Florida Panhandle, bordered by the state of Georgia to the north. It covers a total of 954.6 square miles, of which 915.6 square miles are land and 38.9 square miles are water. There are eleven incorporated municipalities within Jackson County, as shown in **Table 1.1**. The City of Marianna 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 Jackson County and the percent change from the 2000 U.S. Census are presented in **Table 1.1**. While some residents live in incorporated jurisdictions, approximately 66% live in unincorporated areas of the county. Jackson County has experienced moderate population growth in recent years, a trend that is expected to continue. Between 1990 and 2000, Jackson County had a growth rate of 13%, which is slightly more than half the statewide average of 23.5% for the same time period.

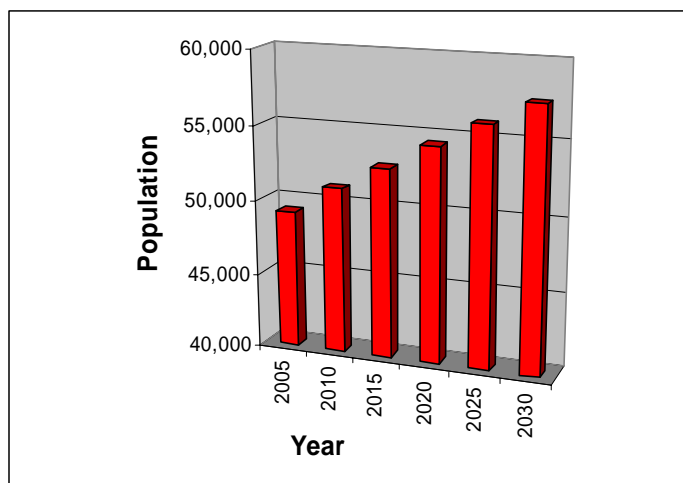
Table 1.1 Population Estimates by Jurisdiction

Jurisdiction	Population (Census 2000)	Population (Estimate 2004)	Percent Change 2000-2004	Percent of Total Population (2004)
Unincorporated	30,736	32,275	5.01%	66.04%
Alford	466	484	3.86%	0.99%
Bascom	106	109	2.83%	0.22%
Campbellton	212	216	1.89%	0.44%
Cottondale	869	901	3.68%	1.84%
Graceville	2,402	2,484	3.41%	5.08%
Grand Ridge	792	902	13.89%	1.85%
Greenwood	735	763	3.81%	1.56%
Jacob City	281	291	3.56%	0.60%
Malone	2,007	2,041	1.69%	4.18%
Marianna	6,230	6,444	3.43%	13.19%
Sneads	1,919	1,960	2.14%	4.01%
Total	46,755	48,870	4.52%	100.00%

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

According to BEBR (2004), Jackson County's population is projected to grow steadily and reach an estimated 57,500 by the year 2030, increasing the average population density of 53 to 63 persons per square mile. **Figure 1.1** illustrates medium growth population projections for Jackson County based on 2004 calculations.

Figure 1.1 Population Projections for Jackson County, 2005–2030



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

Of particular concern within Jackson 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 46,755 persons residing in Jackson County, 14.6% are listed as 65 years old or over, 28.3% are listed as having a disability, 17.2% are listed as below poverty, and 4.4% live in a home where the primary language is other than English.

2. Hazard Vulnerability

Hazards Identification

The highest risk hazards for Jackson County as identified in the County's Local Mitigation Strategy (LMS) are high winds, floods, landslides and erosion, and wildfire. Although Jackson County is not a coastal county, storm surge that is pushed through the Apalachicola River from the Gulf of Mexico could pose a flood risk to areas in the southeastern and eastern parts of the county. Sinkhole risk was deemed to be low.

Hazards Analysis

The following analysis examines four hazard types: surge from tropical cyclones, 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 Category 3 Maxima Scenario for storm surge; FEMA's designated 100-year flood zones (i.e., 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 the combined high, very high, extreme and adjacent zones for sinkhole based on the KAC analysis. Storm surge exposure data is a subset of flood exposure; therefore, the storm surge results are also included in the flood results. 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 Jackson 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 Exposure

Table 2.1 presents the population currently exposed to each hazard in Jackson County. Of the 46,755 (U.S. Census 2000) people that reside in Jackson County, no persons are exposed to storm surge, 3.6% are exposed to 100-year flooding, 12.9% are exposed to wildfire, and 9.4% are exposed to sinkholes. Of the 1,695 people exposed to flood, 68% are disabled and 18.2% are over age 65.

Table 2.1 Estimated Number of Persons Exposed to Selected Hazards

Segment of Population	Flood	Wildfire	Sinkhole
Total (all persons)*	1,695	6,015	4,401
Minority	189	2,313	1,387
Over 65	308	647	641
Disabled	1,153	1,387	1,551
Poverty	265	590	406
Language-Isolated	74	0	0
Single Parent	116	222	181

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 Jackson 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. Thus, it is important to not only consider evacuation times for Jackson County, but also for other counties in the region as shown in **Table 2.2**. Also, 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
Calhoun	24	24	24	30	30
Gadsden	<i>Not Available</i>				
Holmes	6.25	7	7	10.25	10.25
Jackson	5.5	8.25	8.25	11	11
Liberty	<i>Not Available</i>				
Washington	6.25	6.5	6.5	8.5	8.5

Source: DCA, DEM Hurricane Evacuation Study Database, 2005

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

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. Currently, it is expected to take between 5.5 and 11 hours to safely evacuate Jackson County depending on the corresponding magnitude of the storm, as shown in **Table 2.2**. This data was derived from eleven regional Hurricane Evacuation Studies that have been produced by FEMA, the United States Army Corps of

Engineers and Regional Planning Councils in Florida. The study dates range from 1995 to 2004. These regional studies are updated on a rotating basis.

Similar to most of Florida’s coastal counties, Jackson County currently has a significant shelter deficit. According to Florida’s Statewide Emergency Shelter Plan, Jackson County has an existing shelter capacity of 3,401 people. The 2004 shelter demand for a Category 4 or Category 5 hurricane is 3,989 people, leaving an existing shelter deficit of 588. In 2009, the projected shelter demand is 4,219, leaving an anticipated shelter deficit of 818. This deficit is likely to be greater due to the influx of evacuees seeking shelter from nearby counties, as Jackson is a host county. Therefore, it is essential that Jackson 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. Jackson 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 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 Jackson County by occupancy type that are exposed to each of the 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 Jackson County’s existing structures to the storm surge, flood, wildfire, and sinkhole hazards was determined through MEMPHIS.

Table 2.3 Estimated Number of Structures Exposed to Selected Hazards

Occupancy Type	Storm Surge*	Flood	Wildfire	Sinkhole
Single Family	1	3,365	2,212	310
Mobile Home	0	769	517	89
Multi-Family	0	1,803	687	9
Commercial	0	1,517	788	81
Agriculture	0	8,228	3,891	17
Gov. / Institutional	0	1,023	732	79
Total	1	16,705	8,827	585

Source: Mapping for Emergency Management, Parallel Hazard Information System

*Note: Storm surge related flooding building exposure results are a subset of the flood results.

There are 26,117 structures exposed to at least one of the four hazards, of which most are used for agriculture. Of these structures, 64% are exposed to flood. Over 16,700 structures are located within the 100-year floodplain, of which only one structure, a single-family home, is exposed to storm surge induced flooding. According to the latest National Flood Insurance Program Repetitive Loss Properties list, as of March 2005, there is one repetitive loss property in

the unincorporated areas of Jackson 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.”

Nearly 34%, or 8,827 structures are exposed to wildfire, of which 44% are used for agriculture and 25.1% are single-family homes. The Jackson County LMS notes that wildfires can occur in any part of the county due to the forest lands and annual burn-off of crop lands. The structures most vulnerable to wildfires are those in close proximity to areas where the urban environment intersects with large tracts of heavily wooded land. Only 2.2% or 585 structures are located within sinkholes susceptible areas, of which 53% are 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, storm surge velocity, 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 surge, 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. Jackson County future land use data was acquired in March 2002 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 Jackson County future land use map dated March 2002. 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. There are flood-prone areas scattered across the County. However, a majority of the large swaths surround the many creeks, streams and rivers such as the Apalachicola and Chattahoochee Rivers in the eastern part of the county, the Chipola River east of Marianna, and Lake Seminole in the southeast. The total amount of land in the special flood hazard area is 111,091.8 acres. As shown in **Table 2.4**, 72.7% are in agricultural use; 13% are parks, conservation areas and golf courses; 8.2% are used for government, institutional, hospitals or education purposes; and 3.3% are currently undeveloped. **Table 2.5** shows that of the 3,696.6 undeveloped acres, 64% are designated for conservation. The County has taken favorable action in designating most vacant acreage in the 100-year flood zone for conservation.

In **Attachment B**, two maps present the existing and future land uses within wildfire susceptible areas. Several small areas are scattered across the County. The total amount of land in the wildfire susceptible areas is 7,887.5 acres. As shown in **Table 2.4**, 76.9% are in agricultural use; 12.8% are currently undeveloped; 3.9% are parks, conservation areas and golf courses; and 2.9% are used for residential mobile homes or commercial parking lots. **Table 2.5** shows that of the 1,006.5 undeveloped acres, 73% are designated for agriculture. 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 isolated areas are located in southeastern portion of the county, as well as in the City of Greenwood and to the east of Marianna. The total amount of land in the sinkhole susceptible areas is 3,961 acres. As shown in **Table 2.4**, 56.9% are in agricultural use; 15.5% are used for government, institutional, hospitals or education purposes; 8.4% are currently undeveloped; and 8% are used for residential single-family homes. **Table 2.5** shows that of the 332.2 undeveloped acres, 63.7% are designated for agricultural use, and 16% are designated for conservation. The county has taken favorable action in designating areas susceptible to sinkhole for agriculture and conservation.

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

Existing Land Use Category		Flood Zones	Wildfire Susceptible Areas	Sinkhole Susceptible Areas
Agriculture	Acres	80,767.1	6,065.9	2,253.4
	%	72.7	76.9	56.9
Attractions, Stadiums, Lodging	Acres	5.6	0.0	0.0
	%	0.0	0.0	0.0
Places of Worship	Acres	69.6	16.1	72.9
	%	0.1	0.2	1.8
Commercial	Acres	52.6	9.1	85.8
	%	0.0	0.1	2.2
Government, Institutional, Hospitals, Education	Acres	9,150.4	72.7	612.6
	%	8.2	0.9	15.5
Industrial	Acres	3.8	0.0	10.9
	%	0.0	0.0	0.3
Parks, Conservation Areas, Golf Courses	Acres	14,428.0	304.1	120.8
	%	13.0	3.9	3.0
Residential Group Quarters, Nursing Homes	Acres	6.0	0.0	0.0
	%	0.0	0.0	0.0
Residential Multi-Family	Acres	5.1	2.7	0.0
	%	0.0	0.0	0.0
Residential Mobile Home, or Commercial Parking Lot	Acres	543.7	226.3	148.5
	%	0.5	2.9	3.7
Residential Single-Family	Acres	1,024.8	175.9	316.3
	%	0.9	2.2	8.0
Transportation, Communication, Rights-Of-Way	Acres	14.3	1.3	7.6
	%	0.0	0.0	0.2
Utility Plants and Lines, Solid Waste Disposal	Acres	1,324.2	6.9	0.0
	%	1.2	0.1	0.0
Vacant	Acres	3,696.6	1,006.5	332.2
	%	3.3	12.8	8.4
Total Acres	Acres	111,091.8	7,887.5	3,961.0
	%	100.0	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		Flood Zones		Wildfire Susceptible Areas		Sinkhole Susceptible Areas	
		Total	Vacant	Total	Vacant	Total	Vacant
Agriculture 1	Acres	4,309.5	102.3	889.5	35.4	0.0	0.0
	%	3.9	2.8	11.3	3.5	0.0	0.0
Agriculture 2	Acres	25,642.3	922.5	5,798.6	699.3	2,669.8	211.6
	%	23.1	25.0	73.5	69.5	67.4	63.7
Commercial	Acres	8.9	2.7	7.1	2.7	130.6	33.0
	%	0.0	0.1	0.1	0.3	3.3	9.9
Conservation	Acres	79,144.2	2,367.5	633.8	37.2	446.1	53.3
	%	71.2	64.0	8.0	3.7	11.3	16.0
Industrial	Acres	119.3	49.7	3.6	0.0	0.0	0.0
	%	0.1	1.3	0.0	0.0	0.0	0.0
Mixed Use Urban Transitional	Acres	1,115.1	119.3	190.4	32.3	97.9	11.4
	%	1.0	3.2	2.4	3.2	2.5	3.4
Public	Acres	166.1	0.2	82.7	34.3	505.8	21.8
	%	0.1	0.0	1.0	3.4	12.8	6.6
Recreation	Acres	292.0	1.1	28.1	0.0	110.8	1.1
	%	0.3	0.0	0.4	0.0	2.8	0.3
Residential	Acres	288.9	131.3	250.1	165.2	0.0	0.0
	%	0.3	3.6	3.2	16.4	0.0	0.0
Rural Mobile Home Park	Acres	0.0	0.0	3.6	0.0	0.0	0.0
	%	0.0	0.0	0.0	0.0	0.0	0.0
Unknown	Acres	5.6	0.0	0.0	0.0	0.0	0.0
	%	0.0	0.0	0.0	0.0	0.0	0.0
Total Acres	Acres	111,091.8	3,696.6	7,887.5	1,006.5	3,961.0	332.2
	%	100.0	100.0	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 Jackson County’s eleven 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.

The City of Graceville has the most acres in the flood zone but Grand Ridge has the largest proportion of flood zone acres out of its vacant land area. The City of Grand Ridge has the most acres in the wildfire susceptible areas, but Alford has the largest proportion of wildfire susceptible acres out of its vacant land area. The City of Greenwood is the only municipality which contains sinkhole susceptible areas.

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 Jackson 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		Flood Zones		Wildfire Susceptible Areas		Sinkhole Susceptible Areas	
		Total	Vacant	Total	Vacant	Total	Vacant
Alford	Acres	108.8	14.9	5.1	1.6	0.0	0.0
	%	100.0	13.7	100.0	30.4	0.0	0.0
Bascom	Acres	0.0	0.0	0.0	0.0	0.0	0.0
	%	0.0	0.0	0.0	0.0	0.0	0.0
Campbellton	Acres	47.5	0.0	0.0	0.0	0.0	0.0
	%	100.0	0.0	0.0	0.0	0.0	0.0
Cottondale	Acres	144.7	16.7	12.9	0.0	0.0	0.0
	%	100.0	11.6	100.0	0.0	0.0	0.0
Graceville	Acres	372.3	29.6	8.7	0.0	0.0	0.0
	%	100.0	8.0	100.0	0.0	0.0	0.0
Grand Ridge	Acres	279.6	40.8	41.9	1.3	0.0	0.0
	%	100.0	14.6	100.0	3.2	0.0	0.0
Greenwood	Acres	3.8	2.9	4.5	0.0	696.2	72.9
	%	100.0	76.5	100.0	0.0	100.0	10.5
Jacob City	Acres	250.6	9.6	5.6	0.7	0.0	0.0
	%	100.0	3.8	100.0	12.0	0.0	0.0
Malone	Acres	29.2	0.0	0.0	0.0	0.0	0.0
	%	100.0	0.0	0.0	0.0	0.0	0.0
Marianna	Acres	662.8	76.7	0.0	0.0	0.0	0.0
	%	100.0	11.6	0.0	0.0	0.0	0.0
Sneads	Acres	342.4	8.2	11.6	0.0	0.0	0.0
	%	100.0	2.4	100.0	0.0	0.0	0.0
Total Municipal Acres	Acres	2,241.6	199.5	90.3	3.6	696.2	72.9
	%	100.0	8.9	100.0	4.0	100.0	10.5

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 Jackson County LMS (adopted in 2005) 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).

Hazard Analysis and Vulnerability Assessment (Page 46-75)

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

Strengths:

- Provides information about demographic, income, and special needs populations.
- Provides a hazards analysis and a qualitative vulnerability assessment.
- Provides a clear description of geographic areas exposed to each of the hazards.
- Includes maps for each of the hazards.
- Includes a qualitative and quantitative risk assessment (i.e., loss estimates) for each hazard for all jurisdictions.
- Includes data for population and property exposure by land use for each hazard for all jurisdictions.
- Includes loss estimates by land use.
- Addresses repetitive loss properties.

Weaknesses:

- 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, nor does it include hazard data layers to illustrate which future land use categories are susceptible to each hazard.
- Does not include a quantitative risk assessment for 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 Jackson County LMS does not include a Guiding Principles section for the county nor each municipality. 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. It is recommended that Jackson County's next LMS update include a Guiding Principles section.

LMS Goals and Objectives

The Jackson County LMS has goals that support mitigation principles that are found in the comprehensive plan. A list of the LMS goals and objectives pertaining to comprehensive planning can be found in **Attachment D**. The following is a summary of the LMS goals that support comprehensive plan GOPs.

One goal pledges that the health, safety and welfare of the community's residents and visitors will not be threatened by disasters. Another goal states that the availability and functioning of the community's infrastructure will not be significantly disrupted by a disaster. A goal aims to ensure that the continuity of local government operations will not be significantly disrupted by disasters. Maintaining emergency response readiness is another goal.

Jackson County also strives to minimize property damages in the community and to support effective hazard mitigation programming throughout the community with local government policies and regulations. Goals support local government capability to develop, implement and maintain effective mitigation programs, and coordination with other government agencies to enhance regional mitigation efforts. Goals seek preventative measures to reduce loss and the need for response and recovery measures, and to promote community awareness of local hazards and the techniques to minimize vulnerability to those hazards.

Jackson County also seeks to minimize government expenditures for public goods and services as well as to promote the economic and environmental vitality of the community. One goal pledges to maintain the condition of coastal and riverine environment systems, especially those that provide natural protection from storms and have economic value. And, the County aims to protect scenic, historical and recreational community resources.

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 Jackson County adopting and implementing corresponding policies that are legally enforceable.

Comprehensive Emergency Operations Plan (CEMP)

The Jackson County CEMP (adopted 2003) references the LMS in the Mitigation Functions Annex. The CEMP notes that all pre- and post-disaster mitigation priorities and projects are generated through the LMS, with the assistance of the County Planning Office and Emergency Management Department. The CEMP discusses hazard mitigation in the context of standard

operating procedures, activities, responsibilities and available programs. This includes the post-disaster implementation of various disaster mitigation, response and recovery assistance programs, as well as pre-disaster mitigation programs such as the National Flood Insurance Program and Community Rating System.

Though the identification of mitigation opportunities lies predominately with the County Emergency Management Department and the LMS Committee, the document lists numerous activities and supporting agencies to assist in supporting mitigation in the County. To perform mitigation assessments, Jackson County uses the resources of the Building, Community Development, Road, and Emergency Management departments. It is presumed that municipalities will assist each other in assessment activities. The County also has a contract with Grubbs Emergency Services to provide post-disaster assistance as needed to supplement staff and needs. Post-disaster damage assessment teams commonly include representatives from: community emergency response team volunteers, city and county engineers, utility company personnel, law enforcement and fire officials, property appraisers, building inspectors, county agricultural extension agents, county health officials, American Red Cross and Salvation Army officials, real estate appraisers, and insurance agency representatives. The LMS Committee considers damage assessments and mitigation opportunities in prioritizing actions in LMS updates.

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)

The Jackson County PDRP was not available for review at the time that this profile was developed.

National Flood Insurance Program/Community Rating System

Jackson County and the municipalities of Alford, Cottondale, Graceville, Grand Ridge, Malone, Marianna, and Sneads participate in the National Flood Insurance Program (NFIP). The municipalities of Bascom, Campbellton, Greenwood, and Jacob City do not currently participate in the NFIP. Jackson County also participates in the NFIP Community Rating System (CRS) with a CRS rating of 9. No municipality in Jackson County currently participates in the CRS program.

4. Comprehensive Plan Review

Purpose and Intent

The Jackson County Comprehensive Plan (adopted June 19, 2001) was reviewed for the purpose of developing this profile. This review was undertaken in order to assess what steps Jackson 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 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 Jackson County as identified in the County's Local Mitigation Strategy (LMS) are high winds, floods, landslides and erosion, and wildfire. Jackson County is not a coastal county, though storm surge could cause riverine flooding. Sinkhole risk was also deemed to be low. Policies relating to hazard mitigation within the Plan include those relating to flooding and stormwater control and protection. There are no policies in the Plan focused on wildfire mitigation and protection measures.

The Jackson County Comprehensive Plan also focuses on the protection of natural features such as floodplains and wetlands, through development controls and stormwater management. The Plan supports a surface water management strategy that relies on natural features and natural systems to receive and otherwise manage storm and surface waters.

Flooding

Flooding is addressed from two vantage points; the protection of natural drainage features, and protection of properties through development standards and stormwater abatement. There are several policies directed at minimizing flooding and stormwater runoff, and protecting flood prone areas from potential development impacts. The Plan incorporates development controls in place to minimize the impact of new development within the 100-year floodplain which include: development outside of the 100-year floodplain (Policy 1.9 Conservation Element), requiring compensating storage for any fill placed inside the 100-year floodplain (Policy 1.12 CE), and requiring building permits to be withheld for proposed construction which is not in compliance with the County's Floodplain Ordinance (Policy 5-1 Housing Element). All development will be elevated above the base flood elevation (BFE), and wherever possible public infrastructure will be elevated at a minimum of two (2) feet above the BFE (Policy 1.3 Future Land Use Element).

The mitigation of flood waters through stormwater quantity levels are addressed in the Capital Improvements and Infrastructure Elements. These elements stress the importance of providing adequate stormwater facilities, as well as maintaining stormwater discharge rates to an adopted level of service. Additionally, the Plan requires the adoption of a Stormwater Management Plan to identify stormwater quantity deficiencies and provide future facility needs (Policy 1.4.1 Infrastructure Element).

Sheltering

As with many inland counties in Florida, in the event of a hurricane, Jackson County may receive evacuees from coastal counties. The County is currently has a significant shelter deficit. According to Florida's Statewide Emergency Shelter Plan, Jackson County has an existing shelter capacity of 3,401 people. The 2004 shelter demand for a Category 4 or Category 5 hurricane is 3,989 people, leaving an existing shelter deficit of 588. 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. This deficit is likely to be greater due to the influx of evacuees seeking shelter from nearby counties, as Jackson is a host county. Therefore, it is essential that Jackson 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.

Wildfire

The Jackson County Comprehensive Plan does not address wildfire mitigation and management practices goals, objectives or policies.

Sinkhole

The Jackson County Comprehensive Plan does not address sinkhole protection or mitigation and management practices goals, objectives or policies in relation to hazard mitigation.

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

Source: FEMA FIRM GIS coverages (1996), supplied by University of Florida GeoPlan Center Florida Geographic Data Library Version 3.0.

- Areas with an "A_", "V_", "FPQ", "D", "100IC", or "FWIC" value in the "Zone" field in these coverages were considered to be in the 100-year flood zone, and were used in the mapping/analysis.

Hurricane Evacuation Zone/Coastal High-Hazard Area (Category 1 Hurricane Evacuation Zone)

Source: GIS coverage of hurricane zones compiled by Florida Department of Community Affairs/Division of Emergency Management (2003), from GIS data collected from county emergency management agencies in the State of Florida.

- Areas shown/analyzed are those areas in the above-referenced GIS coverage where the value in the field "Evac_cat" is equal to "Zone TS", "Zone A/1", "Zone B/2", or "Zone C/3", in the maps/tables for the Hurricane Vulnerability Zone.
- Areas shown/analyzed are those areas in the above-referenced GIS coverage where the value in the field "Evac_cat" is equal to "Zone TS" or "Zone A/1", in the maps/tables for the Coastal Hazards Zone.

Hurricane Storm Surge Zone GIS Data

Source: GIS coverage of storm surge zones compiled by Florida Department of Community Affairs/Division of Emergency Management (2004), from various storm surge studies performed by regional planning councils and the U.S. Army Corps of Engineers.

- Areas shown/analyzed are those areas in the above-referenced GIS coverage where the value in the field "Category" is equal to "Tropical Storm" or "Category 1".

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 available 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.
 - 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.

Parks, Conservation Areas, Golf Courses

"Parks, Conservation Areas, Golf Courses" existing land uses include all public and private conservation areas depicted on the statewide GIS coverage of conservation lands "flma_200501.shp", produced by FDEP (2005).

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

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

- Goal: The health, safety and welfare of the community's residents and visitors will not be threatened by disasters.
- Goal: The availability and functioning of the community's infrastructure will not be significantly disrupted by a disaster here.
- Goal: The continuity of local government operations will not be significantly disrupted by disasters.
- Goal: Maintain emergency response readiness
- Goal: Minimize property damage to homes, institutions, places of employment in the community.
- Goal: Support effective hazard mitigation programming throughout the community with local government policies and regulations.
- Goal: Local government will have the capability to develop, implement and maintain effective mitigation programs.
- Goal: Coordinate with other government agencies to enhance regional mitigation efforts.
- Goal: Seek preventative measures which would reduce loss and the need for response and recovery measures.
- Goal: Promote community awareness of local hazards and the techniques to minimize vulnerability to those hazards.
- Goal: Minimize government expenditures for public goods and services. Promote the economic vitality of the community.
- Goal: Maintain the condition of coastal and riverine environment systems, especially those that provide natural protection from storms and have economic value.
- Goal: Protect scenic, historical and recreational community resources.

ATTACHMENT E
Jackson County Comprehensive Plan Excerpts Pertaining to Hazard Mitigation

From the June 19, 2001 Jackson County Comprehensive Plan

FUTURE LAND USE ELEMENT

Policy 1.1: (in part) Maintain, revise and enforce Land Development Regulations that implement the objectives and policies of the Comprehensive Plan, through standards which promote quality development and ensure compatible land uses. The most restrictive provisions contained in the objectives, policies and Future Land Use Map shall apply to land use and development and the Land Development Regulations which are adopted shall be consistent with the most restrictive provisions of this plan. In order to accomplish this, the regulations will:

- (a) Guide the development and subdivision of land, considering adjacent land uses, natural and historic resources and environmental constraints, such as floodplains, soil suitability, drainage, surface and groundwater quality and stormwater management.
- (b) Conserve open space, public potable water wells and private water wells serving private water treatment systems, and protect air and water quality through appropriate density guidelines including standards for clustering, landscaping, buffering, open space requirements, wetlands development restrictions, floodplains, silviculture, stormwater management and mining restrictions. Residential density in conservation areas shall be limited to a maximum of one (1) dwelling unit per forty (40) acres. Approved development shall include protection of the forty acre parcel from unapproved subdivision.

Policy 1.3: The Land Development Regulations will prohibit non-residential development, excepting certain recreation or conservation projects, and limit residential development in areas of the 100-year flood plain; all development will be elevated above the base flood elevation (BFE) and wherever possible public infrastructure will be elevated a minimum of two (2) feet above the BFE. Land use and development within 100-year floodplains shall be consistent with Policies 1.1 through 1.16 of the Conservation Element.

Policy 2.6: (in part) Conservation land uses shall be classified as follows:
Areas with extremely limited development potential due to environmental sensitivity including the following:

- (c) Lands within the 100 year floodplain as identified by FEMA and including isolated wetlands.

Policy 3.4: Through the land development code establish that new development shall include site design which provides stormwater detention/retention areas or other approved stormwater management systems, pursuant to Rules 62-25 and 62-302 F.A.C. and other applicable federal, state and local regulations, to filter out pollutants before entering river, or groundwater systems.

Objective 7: Analysis shows that the County has areas that could be adversely affected if proper stormwater management techniques are not employed. For this reason, the County shall incorporate appropriate management requirements into Land Development Regulations.

Policy 7.1: The Land Development Regulations will require new development to manage stormwater runoff on-site, so that post-development runoff rates, volumes, and pollutant loads do not exceed pre-development conditions.

Policy 7.2: The Land Development Regulations will require that stormwater runoff is not concentrated and directed in a manner to create flooding or erosion of adjacent properties as a result of design.

Policy 9.5: School sites shall be of sufficient size so as to allow for future buildings and ancillary facilities. New facilities and future expansions must be located outside flood plains, flood prone areas, or floodways. New school sites should, whenever possible, avoid wetlands, and other environmentally sensitive areas, and will not interfere with historic or archaeological resources.

HOUSING ELEMENT

Policy 5.1: Building permits shall not be issued for proposed construction which is not in conformance with the requirements and guidelines of the County Floodplain Ordinance.

CONSERVATION ELEMENT

Policy 1.3: Runoff from streets and parking areas will be carefully controlled to prevent flooding in adjacent areas and pollution of water bodies. New development shall comply with the stormwater level of service standards established in Policy 1.2. 2 of the Infrastructure Element.

Policy 1.4: The County shall protect flood storage and conveyance functions of the 100-year floodplain and property within flood prone areas.

Policy 1.8: "Floodplain" shall be defined as the 100-year floodplains shown on the Flood Insurance Rate Maps (FIRM) published by the Federal Emergency Management Agency (FEMA), effective December 15, 1990.

Policy 1.9: Development on sites which include areas within the 100-year floodplain shall be required to be located outside of the floodplain.

Policy 1.10: Subdivisions shall be required to include a buildable area outside of the floodplain on each lot.

Policy 1.11: Fill within floodplains shall be limited to the minimum, which is necessary for development and access.

Policy 1.12: Compensating storage shall be required for any fill placed within floodplains, in order to maintain the flood storage and conveyance capacity of floodplains, where the density or intensity of land use is greater than one (1) dwelling unit per five (5) acres.

Policy 1.13: Fill shall be placed and designed so as to minimize interference with natural water flows.

Policy 1.14: Non-residential development, other than recreation, water-dependent uses, and water-related uses, shall be prohibited in floodplains. For those land use categories which allowed non-residential land uses at the time of plan adoption, and which are located in floodplains, the storage, use, transfer, and disposal of hazardous materials and hazardous waste shall be prohibited, with the exception of small-quantity generators. Any such uses, which are in existence on November 29, 1995, shall be a non-conforming use, and shall not be re-established if discontinued, and shall not be expanded. This policy shall not apply to land uses, which are not defined as "development" in Section 380.04, Florida Statutes.

Policy 1.15:

- (a) Development in 100-year floodplains for Outstanding Florida Waters, as well as Class I Waters of the State, shall be limited to one (1) dwelling unit per forty (40) acres. and the removal of natural vegetation within these floodplains shall be limited to the minimum, which is necessary for development.
- (d) For all 100-year floodplains, which are not specifically addressed by paragraphs (a) through (c) above, development shall be limited to one (1) dwelling unit per forty (40) acres.
- (e) Within the Residential land use category existing at the time of plan adoption, the maximum density shall be two (2) dwelling units per acre within undeveloped portions of these floodplains, unless more restrictive densities or intensities were established on the Future Land Use Map at the time of plan adoption.

Policy 1.16: The floodplains map in the Future Land Use Map series shall be construed to include all floodplains shown on the FEMA Flood Insurance Rate Maps, dated December 15, 1990.

Objective 2: Groundwater quality shall be maintained so as to meet state groundwater quality standards. Recharge to aquifers shall be maintained so that post-development recharge volumes are at least equal to pre-development recharge volumes. Development within natural drainage features shall not decrease the flood storage capacity of these drainage features or increase flood levels or velocities for all floods that are equal to or less than the 100-year flood.

Policy 2.8: Post-development runoff volumes from development sites will not exceed pre-development runoff volumes. Stormwater runoff from development sites and sanitary sewer effluent shall be treated so that state groundwater quality standards are not violated.

Policy 3.2: Establish a program to identify and recommend acquisition of environmentally endangered lands (caves, wetlands, floodplains) by appropriate state or other agencies.

RECREATION AND OPEN SPACE ELEMENT

Policy 5.3: Public lands shall be efficiently used by combining public service activities, such as recreation; stormwater management and aquifer recharge areas and linking them into the greenway system, wherever possible.

INTERGOVERNMENTAL COORDINATION ELEMENT

Policy 1.2.5: The County shall request, in writing, assistance from the Florida Department of Environmental Protection to develop a checklist that could be used by the County to ensure that all development complies with stormwater treatment permitting requirements.

Policy 1.2.8: The County shall participate in the Northwest Florida Water Management District and the Apalachicola Resource Management and Planning Programs that provide a regular formal forum to address the impacts of land use and stormwater runoff along Holmes Creek and the Apalachicola, Chipola, Chattahoochee, and Econfina Rivers.

Policy 1.2.10: Jackson County will coordinate with the incorporated municipalities, adjacent local governments and appropriate state agencies in the implementation of emergency response plans, including, but not limited to, Hazardous Materials Emergency Response Plan, Peacetime Emergency Plan and Hurricane Evacuation Plan.

Policy 2.2.5: School sites shall be of sufficient size to ensure that buildings and ancillary facilities, and future expansions can be located away from flood plains, flood prone areas,

wetlands, and other environmentally sensitive areas, and will not interfere with historic or archaeological resources.

CAPITAL IMPROVEMENTS ELEMENT

Policy 2.1: The following level of service standards are hereby adopted and will be maintained as growth occurs in Jackson County.

F. DRAINAGE:

Conveyance Systems - All drainage swales and ditches shall be designed to convey the runoff generated from a 25-year, 24-hour storm event.

On collector roads, culverts and cross-drains shall convey the runoff from a 10-year, 24-hour storm.

On local roads and internal subdivision roads, culverts and cross-drains shall be designed to convey the runoff from a 10-year, 24-hour storm.

Stormwater Management Systems for development in commercial, industrial land use categories and other land uses within the Urban Service Areas (USA's).

Stormwater management systems shall be designed to either retain on-site the runoff generated by a 25-year, 24-hour storm or detain and discharge the runoff from a 25-year, 24-hour storm at peak discharge rates, which do not exceed pre-development rates.

Stormwater Management Systems for development in all other land use districts.

Stormwater Management Systems shall be designed to either retain on-site the runoff generated by a 5-year, 24-hour storm or detain and discharge the runoff from a 5-year, 24-hour storm at peak discharge rates, which do not exceed pre-development rates.

INFRASTRUCTURE ELEMENT

Objective 1.1: Develop and maintain Land Development Regulations that discourage urban sprawl and maximize the use of existing transportation, solid waste, water and wastewater, and drainage facilities.

Groundwater quality shall be maintained so as to meet state groundwater quality standards. Recharge to aquifers shall be maintained so that post-development recharge volumes are at least equal to pre-development recharge volumes. Development within natural drainage features shall not decrease the flood storage capacity of these drainage features or increase flood levels or velocities for all floods that are equal to or less than the 100-year flood.

Policy 1.2.2: The following level of service standards are hereby adopted for the unincorporated area of Jackson County.

Drainage Facilities:

Conveyance Systems: All drainage swales and ditches shall be designed to convey the runoff generated from a 25-year, 24-hour storm event.

On collector roads, culverts and cross-drains shall convey the runoff from a 10-year, 24-hour storm.

On local roads and internal subdivision roads, culverts and cross-drains shall be designed to convey the runoff from a 10-year, 24-hour storm.

Stormwater Management Systems for development in commercial, Industrial land use categories and other land uses within the Urban Service Areas (USAs) shall be designed to

either retain on-site the runoff generated by a 25- year, 24-hour storm or detain and discharge the runoff from a 25-year, 24-hour storm at peak discharge rates, which do not exceed pre-development rates.

Stormwater Management Systems for development in all other land use districts shall be designed to either retain on-site the runoff generated by a 5-year, 24-hour storm or detain and discharge the runoff from a 5-year, 24-hour storm at peak discharge rates, which do not exceed pre-development rates.

Policy 1.4.1: The development and adoption of a Stormwater Management Plan shall be completed subject to the availability for funds, which identifies the stormwater quality and quantity deficiencies within USA's and the portion of the Chipola River Drainage Basin designated for urban development (i.e. all and use categories other than Agriculture 1, Agriculture 2, Recreation, or Conservation). These studies shall recommend needed drainage improvements and shall analyze whether the adopted level of service standards are appropriate. These studies shall recommend alternative standards, if necessary. The Infrastructure Element, including the data and analysis, level of service standards, and priorities for replacement of facilities, an analysis of the financial feasibility of correcting existing facility deficiencies, and providing for future facility needs shall be amended, and the Capital Improvements Element, including the Five-Year Schedule of Capital Improvements, shall be amended, within twelve (12) months of the completion of each of these Stormwater Management Plans, based on the findings and recommendations contained in these plans.

Policy 1.4.4: The County shall maintain and revise Land Development Regulations to ensure that new development shall comply with the level of service standards for stormwater quality and quantity established in Infrastructure Policy 2.1.