

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 Alachua 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 Alachua 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

Alachua 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 and wildfire 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 Alachua County can continue to reduce or eliminate risks to 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 flood, wildfire, and sinkholes. 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, 7,405 acres are susceptible to 100-year flood, 1,639 acres are susceptible to wildfire, and 1,211 acres are susceptible to sinkholes.

Flood

About 18% of the 7,405 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 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 County should continue to give a priority ranking to projects in the Capital Improvements Element that are needed to protect public health and safety.
- The County should continue to give priority to those projects listed on the LMS project list
- The Comprehensive Plan should continue to require that the County maintain an inventory of environmentally sensitive areas which shall include 100-year floodplains.
- The Comprehensive Plan should continue to require that the Comprehensive Stormwater Management Plan identify projected future drainage needs based on the Future Land Use Map. Projects identified as required for maintaining the adopted LOS shall be funded through a stormwater utility to be implemented within two years of adoption of the Comprehensive Stormwater Management Plan.
- The County should continue to identify floodplains for acquisition under existing programs.
- 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. Many post-disaster building performance/damage assessments have shown that it is advisable to include freeboard to reduce future flood damages. Okaloosa and Brevard Counties, the City of Jacksonville and the Santa Rosa Island Authority are example communities that have adopted freeboard requirements.
- 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 preparing 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 10% of the 1,639 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 continue to coordinate 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.
- 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.

Sinkholes

About 41% of the 1,211 vacant acres that are susceptible to sinkholes are to be developed for residential, commercial, industrial uses or public facilities, indicating that these risk reduction strategies should be considered prior to development of this vacant land.

- The County should continue to designate appropriate setbacks from sinkholes.
- 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

- 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.
- 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.
- Continue educating the public, especially those at high risk from floods, wildfires and sinkholes, and make them aware of proactive steps they can take to mitigate damage.
- Current growth management techniques such as firewise policies, 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 natural hazards. Therefore, the County should update these policies in the Comprehensive Plan, emphasizing the benefits of hazard mitigation.

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 by occupancy class and land use) or specific critical facilities.

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1. County Overview

Geography and Jurisdictions

Alachua County is located in the north-central portion of the Florida peninsula. It covers a total of 969 square miles, of which approximately 874 square miles are land and 95 square miles are water. There are nine incorporated municipalities within Alachua County, as shown in **Table 1.1**. Gainesville 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 Alachua County and the percent change from the 2000 U.S. Census are presented in **Table 1.1**. While some of these residents live in unincorporated areas, the majority live in the county's incorporated jurisdictions including 50% which reside in Gainesville. Alachua County has experienced significant population growth in recent years, a trend that is expected to continue. Between 1990 and 2000, Alachua County had a growth rate of 20%, which is slightly less than the statewide average of 23.5% for the same time period.

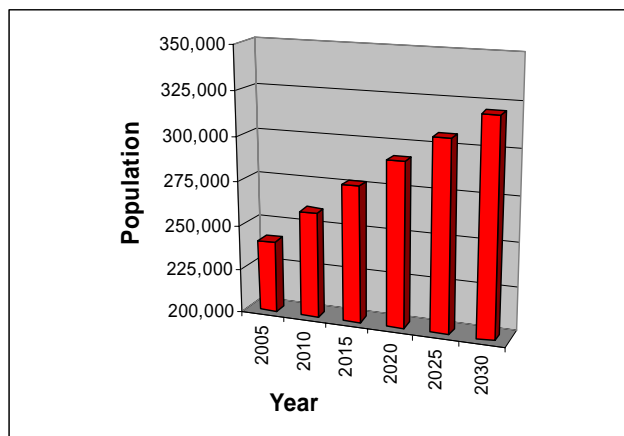
Table 1.1 Population Estimates by Jurisdiction

| Jurisdiction | Population (Census 2000) | Population (Estimate 2004) | Percent Change 2000-2004 | Percent of Total Population (2004) |
|----------------|--------------------------|----------------------------|--------------------------|------------------------------------|
| Unincorporated | 104,910 | 98,755 | -5.87% | 41.81% |
| Alachua | 6,098 | 7,121 | 16.78% | 3.02% |
| Archer | 1,289 | 1,248 | -3.18% | 0.53% |
| Gainesville | 95,447 | 117,754 | 23.37% | 49.86% |
| Hawthorne | 1,415 | 1,367 | -3.39% | 0.58% |
| High Springs | 3,863 | 4,330 | 12.09% | 1.83% |
| LaCrosse | 143 | 168 | 17.48% | 0.07% |
| Micanopy | 653 | 631 | -3.37% | 0.27% |
| Newberry | 3,316 | 3,960 | 19.42% | 1.68% |
| Waldo | 821 | 840 | 2.31% | 0.36% |
| Total | 217,955 | 236,174 | 8.36% | 100.00% |

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

According to BEBR (2004), Alachua County's population is projected to grow steadily and reach an estimated 320,500 by the year 2030, increasing the average population density of 270 to 367 persons per square mile. **Figure 1.1** illustrates medium growth population projections for Alachua County based on 2004 calculations.

Figure 1.1 Population Projections for Alachua County, 2005–2030



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

Of particular concern within Alachua 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 217,955 persons residing in Alachua County 9.6% are listed as 65 years old or over; 15.5% are listed as having a disability; 22.8% are listed as below poverty; and 11.5% live in a home where the primary language is other than English.

2. Hazard Vulnerability

Hazards Identification

The highest risk hazards for Alachua County as identified in the County's Local Mitigation Strategy (LMS) are tropical cyclone generated high winds, flooding, hazardous materials spills, thunderstorms and tornadoes, extreme temperatures and terrorism. Wildfire and sinkholes were discussed in the LMS, and the risk was considered to be moderate for the entire county for each of these hazards. Storm surge was not discussed in the LMS, and due to the county's proximity to the coast and other tidally influenced water bodies, no risk exists to this hazard.

Hazards Analysis

The following analysis examines three hazard types: flood, wildfire and sinkholes. All of the information in this section was obtained through the online Mapping for Emergency Management, Parallel Hazard Information System (MEMPHIS). MEMPHIS is 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 (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. 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 Alachua County is located inland and MEMPHIS data indicates that no persons or structures are exposed to storm surge, no further analysis was conducted for this hazard.

Existing Population at Risk

Table 2.1 presents the population currently exposed to each hazard throughout Alachua County. Of the 217,955 (U.S. Census 2000) people that reside in Alachua County, 17.6% are exposed to

flood, 12.2% are exposed to wildfire, and 14.6% is exposed to sinkholes. Of the 38,305 people exposed to flood, 29% are minority and nearly 27% are disabled.

Table 2.1 Estimated Numbers of Persons Exposed to Selected Hazards

| Segment of Population | Flood | Wildfire | Sinkhole |
|-----------------------|--------|----------|----------|
| Total (all persons)* | 38,305 | 26,555 | 31,899 |
| Minority | 11,254 | 6,201 | 6,606 |
| Over 65 | 2,804 | 2,265 | 2,601 |
| Disabled | 10,189 | 7,119 | 7,908 |
| Poverty | 10,109 | 7,929 | 10,365 |
| Language-Isolated | 18 | 0 | 18 |
| Single Parent | 2,462 | 1,240 | 1,837 |

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 Alachua 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 Alachua County. Thus, it is important to not only consider evacuation times for Alachua 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 |
|-----------|----------------------|----------------------|----------------------|----------------------|----------------------|
| 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> | | | | |

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 10.25 and 17.75 hours to safely evacuate Alachua 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 with Northeast Florida region scheduled for completion in the fall of 2005.

Similar to most of Florida’s coastal counties, Alachua County currently has a significant shelter deficit. According to Florida’s Statewide Emergency Shelter Plan, Alachua County has an existing shelter capacity of 3,075 people. The 2004 shelter demand for a Category 4 or Category 5 hurricane is 8,851 people, leaving an existing shelter deficit of 5,776. In 2009, the projected shelter demand is 9,602, leaving an anticipated shelter deficit of 6,527. This deficit is likely to be greater due to the influx of evacuees seeking shelter from nearby counties, as Columbia is a host county. Therefore, it is essential that Alachua 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. Alachua County could encourage new homes to be built with saferooms, community centers in mobile home parks or developments to be built to shelter standards (outside of the hurricane vulnerability zones), or require that new schools be built or existing schools be retrofitted to shelter standards; which would be based on FEMA saferoom and American Red Cross shelter standards. Additionally, the county could establish level of service (LOS) standards that are tied to development.

Existing Built Environment

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

Table 2.3 Estimated Numbers of Structures Exposed to Selected Hazards

| Occupancy Type | Flood | Wildfire | Sinkhole |
|-----------------------|---------------|-----------------|-----------------|
| Single Family | 9,484 | 9,424 | 6,058 |
| Mobile Home | 9,461 | 5,405 | 727 |
| Multi-Family | 6,112 | 3,727 | 1,709 |
| Commercial | 2,445 | 1,714 | 1,105 |
| Agriculture | 6,789 | 3,775 | 288 |
| Gov. / Institutional | 1,151 | 1,355 | 507 |
| Total | 35,442 | 25,400 | 10,394 |

Source: Mapping for Emergency Management, Parallel Hazard Information System

There are 71,236 structures exposed to at least one of the three hazards, of which most are single-family homes in subdivisions. Of these structures, nearly 50% are exposed to flood. There are over 35,000 structures are located within the 100-year floodplain. According to the latest National Flood Insurance Program Repetitive Loss Properties list, as of March 2005, there are four repetitive loss properties in unincorporated areas of Alachua County. Under the National

Flood Insurance Program (NFIP), repetitive loss properties are defined as “any NFIP-insured property that, since 1978 and regardless of any change(s) of ownership during that period, has experienced: a) four or more paid flood losses; or b) two paid flood losses within a 10-year period that equal or exceed the current value of the insured property; or c) three or more paid losses that equal or exceed the current value of the insured property.”

Over 35%, or 25,400 structures, are exposed to wildfire, of which approximately 37% are single-family dwellings. Most susceptible areas are generally located at the urban/rural interface areas (Alachua County LMS, 2004). Only 14.6% or 10,394 structures are located within sinkhole susceptible areas, of which 58% 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, wildfire duration) of the hazard as it impacts people and property. Risk can be described qualitatively, using terms like high, medium or low; or quantitatively by estimating the losses to be expected from a specific hazard event expressed in dollars of future expected losses. Although people and property are exposed to hazards, losses can be greatly reduced through building practices, land use, and structural hazard mitigation measures. The next section of this report examines the existing and future land use acreage in hazard areas. This information can be useful to consider where to implement risk reducing comprehensive planning measures.

Analysis of Current and Future Vulnerability Based on Land Use

The previous hazards analysis section discussed population and existing structures exposed to flooding, wildfire, and sinkholes according to MEMPHIS estimates. This section is used to demonstrate the County’s vulnerabilities to these hazards in both tabular format and spatially, in relation to existing and future land uses. Existing land use data was acquired from County Property Appraisers and the Florida Department of Revenue in 2004 for tabulation of the total amount of acres and percentage of land in identified hazard areas, sorted by existing land use category for the unincorporated areas. The total amount of acres and percentage of land in the identified hazards areas was tabulated and sorted by future land use category according to the local Future Land Use Map (FLUM), as well as the amount of these lands listed as vacant according to existing land use. Alachua County future land use data was acquired in March 2005 from Alachua County and might not reflect changes per recent future land use amendments. Maps of existing land use within hazard areas are based on the 2004 County Property Appraiser geographic information system (GIS) shapefiles. Maps of future land uses in hazard areas were developed using the Alachua County future land use map dated March 2005. 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 lakes. The total amount of land in the special flood hazard area is 143,510.2 acres. As shown in **Table 2.4**, 54.3% are in agricultural use; 31.1% are parks, conservation areas or golf courses; 5.2% are currently undeveloped; and 2.9% are used for government, institutional, hospitals or education purposes. **Table 2.5** shows that of the 7,405.1 undeveloped acres, 78.7% are designated for rural/agriculture use. Since a large portion of the acreage is designated agricultural, the County has the opportunity to maintain this land use and low density development to prevent increased vulnerability to flooding. Although stormwater management systems are designed to eliminate flooding, these systems can fail during a storm if debris blocks drainage channels or culverts washout.

In **Attachment B**, two maps present the existing and future land uses within wildfire susceptible areas. These areas are scattered across the county. The total amount of land in the wildfire susceptible areas is 34,002.3 acres. As shown in **Table 2.4**, 55.8% are used for agriculture; 12.8% are used for single family residential homes; and 12.7% are used for residential mobile homes or commercial parking lots. **Table 2.5** shows that of the 1,639.2 undeveloped acres, 88.2% are designated for rural/agricultural use. The County should continue to take measures to reduce wildfire risk within the urban/rural interface.

In **Attachment C**, two maps present the existing and future land uses within sinkhole susceptible areas. These areas are mostly located in the western half of the county. The total amount of land in the sinkhole susceptible areas is 9,618.1 acres. As shown in **Table 2.4**, 42% are used for agriculture; 17.9% are single family residential homes; and 12.8% are residential mobile homes or commercial parking lots. **Table 2.5** shows that of the 1,211.4 undeveloped acres, 58.3% are designated for rural/agriculture use. The County has taken proactive measures in designating lands in sinkhole susceptible areas for predominately rural/agricultural use.

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 | 77,931.9 | 18,958.2 | 4,036.8 |
| | % | 54.3 | 55.8 | 42.0 |
| Attractions, Stadiums, Lodging | Acres | 162.1 | 40.1 | 14.0 |
| | % | 0.1 | 0.1 | 0.1 |
| Places of Worship | Acres | 23.9 | 64.7 | 43.5 |
| | % | 0.0 | 0.2 | 0.5 |
| Commercial | Acres | 69.8 | 21.0 | 170.1 |
| | % | 0.0 | 0.1 | 1.8 |
| Government, Institutional, Hospitals, Education | Acres | 4,215.4 | 691.8 | 191.1 |
| | % | 2.9 | 2.0 | 2.0 |
| Industrial | Acres | 133.5 | 37.0 | 87.6 |
| | % | 0.1 | 0.1 | 0.9 |
| Parks, Conservation Areas, Golf Courses | Acres | 44,657.6 | 3,184.6 | 253.9 |
| | % | 31.1 | 9.4 | 2.6 |
| Residential Group Quarters, Nursing Homes | Acres | 0.0 | 0.0 | 7.6 |
| | % | 0.0 | 0.0 | 0.1 |
| Residential Multi-Family | Acres | 685.3 | 583.2 | 444.5 |
| | % | 0.5 | 1.7 | 4.6 |
| Residential Mobile Home, or Commercial Parking Lot | Acres | 2,153.9 | 4,311.7 | 1,234.1 |
| | % | 1.5 | 12.7 | 12.8 |
| Residential Other | Acres | 186.1 | 67.3 | 61.8 |
| | % | 0.1 | 0.2 | 0.6 |
| Residential Single-Family | Acres | 3,326.6 | 4,348.0 | 1,718.3 |
| | % | 2.3 | 12.8 | 17.9 |
| Submerged Land (Water Bodies) | Acres | 2,022.2 | 10.9 | 73.1 |
| | % | 1.4 | 0.0 | 0.8 |
| Transportation, Communication, Rights of Way | Acres | 25.4 | 31.0 | 25.0 |
| | % | 0.0 | 0.1 | 0.3 |
| Utility Plants and Lines, Solid Waste Disposal | Acres | 511.4 | 13.6 | 45.3 |
| | % | 0.4 | 0.0 | 0.5 |
| Vacant | Acres | 7,405.1 | 1,639.2 | 1,211.4 |
| | % | 5.2 | 4.8 | 12.6 |
| Total Acres | Acres | 143,510.2 | 34,002.3 | 9,618.1 |
| | % | 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 |
| Commercial | Acres | 71.3 | 6.5 | 26.1 | 4.0 | 211.1 | 21.4 |
| | % | 0.0 | 0.1 | 0.1 | 0.2 | 2.2 | 1.8 |
| Commercial Enclaves | Acres | 16.9 | 8.7 | 0.4 | 0.2 | 5.8 | 3.1 |
| | % | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.3 |
| Conservation | Acres | 18.1 | 9.4 | 0.4 | 0.0 | 0.0 | 0.0 |
| | % | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| County Solid Waste Management Facility | Acres | 259.7 | 0.0 | 4.9 | 0.0 | 0.0 | 0.0 |
| | % | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Cross Creek Active Use Zone | Acres | 291.6 | 6.9 | 126.2 | 8.5 | 0.0 | 0.0 |
| | % | 0.2 | 0.1 | 0.4 | 0.5 | 0.0 | 0.0 |
| Cross Creek Hammock | Acres | 97.9 | 9.1 | 44.4 | 0.4 | 0.0 | 0.0 |
| | % | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| Cross Creek Uplands | Acres | 340.6 | 51.7 | 7.1 | 0.9 | 0.0 | 0.0 |
| | % | 0.2 | 0.7 | 0.0 | 0.1 | 0.0 | 0.0 |
| Cross Creek Wetlands | Acres | 412.2 | 30.1 | 18.7 | 2.2 | 0.0 | 0.0 |
| | % | 0.3 | 0.4 | 0.1 | 0.1 | 0.0 | 0.0 |
| Estate Residential | Acres | 1,082.1 | 321.5 | 207.1 | 32.8 | 193.7 | 72.7 |
| | % | 0.8 | 4.3 | 0.6 | 2.0 | 2.0 | 6.0 |
| Heavy Industrial | Acres | 283.3 | 58.2 | 134.9 | 3.6 | 231.2 | 88.7 |
| | % | 0.2 | 0.8 | 0.4 | 0.2 | 2.4 | 7.3 |
| High Density Residential | Acres | 22.3 | 4.5 | 14.9 | 3.6 | 231.2 | 49.0 |
| | % | 0.0 | 0.1 | 0.0 | 0.2 | 2.4 | 4.0 |
| Industrial/Manufacturing | Acres | 66.7 | 0.0 | 2.5 | 0.0 | 0.0 | 0.0 |
| | % | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Institutional | Acres | 1,624.5 | 356.7 | 187.3 | 22.3 | 60.2 | 8.5 |
| | % | 1.1 | 4.8 | 0.6 | 1.4 | 0.6 | 0.7 |
| Light Industrial | Acres | 151.4 | 3.1 | 0.9 | 0.0 | 64.0 | 0.9 |
| | % | 0.1 | 0.0 | 0.0 | 0.0 | 0.7 | 0.1 |
| Low Density Residential | Acres | 1,143.4 | 348.2 | 1,060.0 | 64.0 | 1,189.3 | 136.0 |
| | % | 0.8 | 4.7 | 3.1 | 3.9 | 12.4 | 11.2 |
| Medium Density Residential | Acres | 201.1 | 44.8 | 76.2 | 15.4 | 472.8 | 22.1 |
| | % | 0.1 | 0.6 | 0.2 | 0.9 | 4.9 | 1.8 |
| Medium High Density Residential | Acres | 19.8 | 8.2 | 25.2 | 1.6 | 296.9 | 77.1 |
| | % | 0.0 | 0.1 | 0.1 | 0.1 | 3.1 | 6.4 |
| Mixed Use | Acres | 5.3 | 0.0 | 4.2 | 1.6 | 0.0 | 0.0 |
| | % | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 |
| Mixed Use/ Commercial | Acres | 0.0 | 0.0 | 5.3 | 0.0 | 0.0 | 0.0 |
| | % | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

INTEGRATION OF THE LOCAL MITIGATION STRATEGY INTO THE LOCAL COMPREHENSIVE PLAN
ALACHUA COUNTY PROFILE

| Future Land Use Category | | Flood Zones | | Wildfire Susceptible Areas | | Sinkhole Susceptible Areas | |
|---------------------------------------|--------------|------------------|----------------|----------------------------|----------------|----------------------------|----------------|
| | | Total | Vacant | Total | Vacant | Total | Vacant |
| Mixed Use/ Medium Density Residential | Acres | 1.1 | 0.0 | 7.8 | 0.0 | 0.0 | 0.0 |
| | % | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Office | Acres | 7.8 | 0.0 | 30.3 | 1.6 | 38.3 | 10.0 |
| | % | 0.0 | 0.0 | 0.1 | 0.1 | 0.4 | 0.8 |
| Office/Medical | Acres | 6.5 | 3.8 | 0.0 | 0.0 | 0.0 | 0.0 |
| | % | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| Office/Residential | Acres | 0.0 | 0.0 | 2.0 | 0.9 | 13.4 | 7.1 |
| | % | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.6 |
| Open Space | Acres | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 |
| | % | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Preservation | Acres | 40,752.1 | 103.0 | 2,676.5 | 0.0 | 0.0 | 0.0 |
| | % | 28.4 | 1.4 | 7.9 | 0.0 | 0.0 | 0.0 |
| Recreation | Acres | 567.4 | 0.0 | 182.4 | 0.2 | 262.6 | 3.6 |
| | % | 0.4 | 0.0 | 0.5 | 0.0 | 2.7 | 0.3 |
| Residential 0-2 DU/acre | Acres | 244.1 | 33.9 | 7.6 | 0.0 | 0.0 | 0.0 |
| | % | 0.2 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 |
| Residential 2-4 DU/acre | Acres | 1.3 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 |
| | % | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rural Cluster Boundary | Acres | 262.2 | 37.7 | 148.9 | 20.3 | 0.0 | 0.0 |
| | % | 0.2 | 0.5 | 0.4 | 1.2 | 0.0 | 0.0 |
| Rural Commercial Agriculture | Acres | 55.3 | 24.1 | 7.4 | 0.2 | 9.4 | 0.0 |
| | % | 0.0 | 0.3 | 0.0 | 0.0 | 0.1 | 0.0 |
| Rural Employment Center | Acres | 53.5 | 13.6 | 8.0 | 0.0 | 0.0 | 0.0 |
| | % | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rural/Agriculture | Acres | 95,206.9 | 5,826.1 | 28,939.7 | 1,446.4 | 6,312.7 | 706.2 |
| | % | 66.3 | 78.7 | 85.1 | 88.2 | 65.6 | 58.3 |
| Tourist/Entertainment | Acres | 243.7 | 95.2 | 44.4 | 8.7 | 25.4 | 4.9 |
| | % | 0.2 | 1.3 | 0.1 | 0.5 | 0.3 | 0.4 |
| Total Acres | Acres | 143,510.1 | 7,405.1 | 34,002.2 | 1,639.2 | 9,618.1 | 1,211.4 |
| | % | 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 Alachua County's nine 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 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 Gainesville has the most acres in a flood zone, but Micanopy has the largest proportion of flood-prone acres out of its vacant land area. Newberry has the most acres in wildfire susceptible areas, but La Crosse has the largest proportion of wildfire susceptible acres out of its vacant land area. Newberry has the most acres in sinkhole susceptible areas, but High Springs has the largest proportion of sinkhole susceptible acres out of its vacant land area.

Vacant land is often destined to be developed. It is prudent to conduct further analyses of what the vacant lands will be used for, to determine whether they will be populated, and at what level of intensity/density, to ensure that hazard risks are minimized or eliminated. Each of the municipalities in Alachua 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 |
| Alachua | Acres | 1,750.7 | 132.2 | 1,161.5 | 131.3 | 1,048.7 | 123.7 |
| | % | 14.9 | 7.6 | 18.6 | 11.3 | 11.6 | 11.8 |
| Archer | Acres | 13.2 | 0.9 | 486.2 | 52.4 | 469.7 | 7.6 |
| | % | 0.1 | 6.8 | 7.8 | 10.8 | 5.2 | 1.6 |
| Gainesville | Acres | 7,198.4 | 1,047.5 | 198.4 | 21.2 | 2,239.6 | 76.9 |
| | % | 61.2 | 14.6 | 3.2 | 10.7 | 24.8 | 3.4 |
| Hawthorne | Acres | 942.5 | 163.9 | 105.0 | 18.7 | 0.0 | 0.0 |
| | % | 8.0 | 17.4 | 1.7 | 17.8 | 0.0 | 0.0 |
| High Springs | Acres | 373.6 | 22.3 | 396.8 | 55.7 | 2,107.6 | 613.9 |
| | % | 3.2 | 6.0 | 6.4 | 14.0 | 23.3 | 29.1 |
| La Crosse | Acres | 65.1 | 0.2 | 80.7 | 17.4 | 0.0 | 0.0 |
| | % | 0.6 | 0.3 | 1.3 | 21.6 | 0.0 | 0.0 |
| Micanopy | Acres | 64.7 | 43.5 | 1.6 | 0.0 | 0.0 | 0.0 |
| | % | 0.6 | 67.2 | 0.0 | 0.0 | 0.0 | 0.0 |
| Newberry | Acres | 1,149.9 | 0.0 | 3,739.2 | 166.3 | 3,175.6 | 358.9 |
| | % | 9.8 | 0.0 | 59.9 | 4.4 | 35.1 | 11.3 |
| Waldo | Acres | 195.7 | 12.5 | 70.9 | 4.9 | 0.0 | 0.0 |
| | % | 1.7 | 6.4 | 1.1 | 6.9 | 0.0 | 0.0 |
| Total Municipal Acres | Acres | 11,753.8 | 1,423.0 | 6,240.3 | 467.9 | 9,041.1 | 1,181.1 |
| | % | 100.0 | 12.1 | 100.0 | 7.5 | 100.0 | 13.1 |

Source: Department of Community Affairs

3. Existing Mitigation Measures

Local Mitigation Strategy (LMS) Assessment

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

As noted in DCA's *Protecting Florida's Communities* Guide, one significant strategy for reducing community vulnerability is to manage the development and redevelopment of land exposed to natural hazards. Where vacant land is exposed to hazard forces, local government decisions about allowable land uses, and the provision of public facilities and infrastructure to support those uses, can have major impacts on the extent to which the community makes itself vulnerable to natural hazards. Where communities are already established and land is predominately "built out," local governments can take initiatives to reduce existing levels of vulnerability by altering current land uses both in the aftermath of disasters, when opportunities for redevelopment may arise, and under "blue sky" conditions as part of planned redevelopment initiatives.

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

Hazard Identification and Vulnerability Assessment (HIVA). This section identifies a community's vulnerability to natural hazards. Under Florida rules, the HIVA is required to include, at a minimum, an evaluation of the vulnerability of structures, infrastructure, special risk populations, environmental resources, and the economy to any hazard to which the community is susceptible. According to FEMA, LMSes revised pursuant to the Disaster Mitigation Act of 2000 (DMA 2000) criteria must include maps and descriptions of the areas that would be affected by each hazard to which the jurisdiction is exposed, information on previous events, and estimates of future probabilities. Vulnerability should be assessed for the types and numbers of exposed buildings, infrastructure, and critical facilities with estimates of potential dollar losses. Plan updates will be required to assess the vulnerability of future growth and development.

Guiding Principles. This section lists and assesses the community's existing hazard mitigation policies and programs and their impacts on community vulnerability. This section typically contains a list of existing policies from the community's Comprehensive Plan and local ordinances that govern or are related to hazard mitigation. Coastal counties frequently include policies from their PDRPs.

Mitigation Initiatives. This component identifies and prioritizes structural and non-structural initiatives that can reduce hazards vulnerability. Proposals for amendments to Comprehensive Plans, land development regulations, and building codes are often included. Structural projects typically address public facilities and infrastructure, and buy-outs of private structures that are repetitively damaged by flood. Many of these qualify as capital improvement projects based on the magnitude of their costs and may also be included in the capital improvements elements of the counties' and cities' Comprehensive Plans.

The Alachua County LMS (adopted in 2004) was assessed to determine if the hazard analysis and vulnerability assessment (i.e., flood, and wildfire; sinkhole was deemed by the LMS committee to pose a low risk) data can support comprehensive planning, whether the guiding principles include a comprehensive list of policies for the county and municipalities, and whether the LMS goals and objectives support comprehensive planning goals, objectives, and policies (GOP). Future updates to the assessment will include working with Alachua County to determine if the county's capital improvement projects are included in the LMS hazard mitigation project list.

Hazard Analysis and Vulnerability Assessment (LMS pp. 90-282)

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

Strengths:

- Provides information about demographic, income, and special needs population.
- Provides information about population and property exposure to certain hazards.
- Provides a hazards analysis and a qualitative vulnerability assessment.

- Includes maps for each of the hazards, as well as top 10 structural losses for certain hazards.
- Includes a list of types and map of critical facilities.
- Provides a list and map of repetitive losses.
- Includes a qualitative risk assessment for each hazard, along with tabular data showing risks to specific neighborhoods.

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 maps that include hazard data layers to illustrate which future land use categories are susceptible to each hazard.
- Does not include loss estimates by land use.
- Does not include a quantitative risk assessment for existing and future development (i.e., loss estimates) or specific critical facilities.

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

Guiding Principles

The Alachua County LMS Mitigation Strategy section contains a list of policies and programs for the county and each municipality. This Policies and Programs table includes the document title (e.g. code of ordinances, comprehensive plan), citation (e.g. policy number, section, article), policy or requirement, and what each policy applies to (e.g. all facilities, government facilities only, all permit). This section of policies and programs which serve as guiding principles is found in most counties' LMSes and is useful in providing the different jurisdictions ideas for enhancing their own plans or providing the LMS committee an analysis of where there may be weaknesses in implementing mitigation strategies.

LMS Goals and Objectives

The Alachua 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**. 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, Alachua County, and PBS&J. The following is a summary of the LMS goals that support comprehensive plan GOPs.

Goal 1 establishes an ongoing LMS Program designed to protect public health, safety and property. The supporting objective aims to update the local Critical Facilities Inventory annually to capture the most accurate information.

Goal 4 seeks to develop a community-based comprehensive emergency management program. The supporting objective encourages continued participation in the Community Rating System and National Flood Insurance Program, and encourages participation in other jurisdictions.

Goal 5 strives to engage in hazard mitigation project planning designed to help protect historic structures, critical facilities and government buildings. The supporting objective refers to the completion of hazard mitigation proposals for construction projects to protect the built environment from various hazards.

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

Comprehensive Emergency Operations Plan (CEMP)

The Alachua County CEMP references the LMS in Annex B: Mitigation. The CEMP notes that all pre-and post-disaster mitigation priorities and projects are generated through the LMS, which is the responsibility of the Alachua County Emergency Manager. The CEMP briefly discusses hazard mitigation in the context of standard operating procedures, activities, responsibilities and available programs. This includes the post-disaster implementation of 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 Services Director and the LMS working group, the document lists numerous activities and supporting agencies to assist in supporting mitigation in the County. The CEMP indicates that the county has several departments supporting mitigation, including the Property Appraiser's office, Codes Enforcement, Public Works, Office of Management and Budget, Clerk's office (Finance and Accounting Division). Municipalities also have a role in supporting pre- and post-disaster mitigation and the LMS by providing staff and resources as necessary to identify potential mitigation projects in their respective jurisdictions.

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)

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

National Flood Insurance Program/Community Rating System

Alachua County (unincorporated areas) and seven municipalities participate in the National Flood Insurance Program (NFIP). The municipalities of Hawthorne and LaCrosse do not participate in the NFIP. Alachua County and the municipality of Gainesville participate in the NFIP Community Rating System (CRS), each with a rating of eight. No other municipalities participate in the CRS.

4. Comprehensive Plan Review

Purpose and Intent

The Alachua County Comprehensive Plan (Adopted May 2005) was reviewed for the purpose of developing this profile. This review was undertaken in order to assess what steps Alachua 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 hazard for Alachua County as identified in the County's Local Mitigation Strategy (LMS) is flooding. Wildfire and sinkholes were discussed in the LMS, and the risk was considered to be moderate for the entire county for each of these hazards. However, the Comprehensive Plan included a number of objectives and policies related to wildfire and sinkhole hazard mitigation, sufficient to warrant a discussion of those policies in this assessment.

Alachua County is not a coastal county, so policies are not geared toward coastal management and coastal resource protection. Policies relating to hazard mitigation within the Plan include those relating to flooding and stormwater control, sinkhole identification and protection and wildfire mitigation.

The Alachua County Comprehensive Plan primarily focuses on the protection of natural features such as floodplains and sinkholes, through development controls and stormwater management, in addition to wildfire management and mitigation. The Comprehensive Plan has many policies related to the protection and identification of geological resources, specifically relating to special karst features such as sinkholes. However, references to emergency management are limited in the Plan.

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: conforming development to the County's Flood Prone Area Ordinance, buffering requirements within the 100-year floodplain to control stormwater runoff, and acquisition of lands within the 100-year floodplain.

The mitigation of flood waters through stormwater quantity levels are addressed in the Stormwater Management Element. This element stresses the importance of protecting natural drainage features as well as maintaining stormwater discharge rates to an adopted level of service. The Plan requires volume deficiencies in County maintained stormwater systems to be included in the Capital Improvements Element.

Flood hazard related policies include elevation requirements within the 100-year floodplain on lots of record, and requiring newly created lots to ensure buildable area outside the 100-year floodplain. Construction of structures inside the 100-year floodplain must conform to the National Flood Insurance Rate Program and shall meet or exceed Chapter 65-25 FAC and other local, state and federal regulations.

Sheltering

As with many inland counties in Florida, in the event of a hurricane, Alachua County may receive evacuees from coastal counties. Similar to most of Florida's coastal counties, Alachua County currently has a significant shelter deficit. According to Florida's Statewide Emergency Shelter Plan, Alachua County has an existing shelter capacity of 3,075 people. The 2004 shelter demand for a Category 4 or Category 5 hurricane is 8,851 people, leaving an existing shelter deficit of 5,776. In 2009, the projected shelter demand is 9,602, leaving an anticipated shelter deficit of 6,527. However, because Alachua 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 Alachua County continue to coordinate with nearby counties for evacuation and shelter planning. The opportunity also exists to construct new facilities to standards that will allow them to serve as shelters, and to construct future public facilities outside of floodplain areas.

Sinkholes

Policies were found during this review that directly related to sinkhole hazards or karst features in the Future Land Use Element, Stormwater Management Element and Conservation and Open Space Element. These policies involve requirements to protect sinkholes through identification, conservation, and stormwater discharge controls. The majority of the sinkhole protection policies is located within Section 4.4 – Geological Resources, of the Conservation and Open Space Element and is dedicated to the protection and maintenance of sinkholes. Identified sinkholes are required to become common open space in the development order permitting process.

Wildfire

The Alachua County Comprehensive Plan is proactive in wildfire mitigation and management practices. Section 5.6 – Wildfire Mitigation of the Conservation and Open Space Element is dedicated to wildfire hazard vulnerability. The County actively maps wildfire prone areas based on the Fire Risk Assessment Model developed by the Florida Division of Forestry. According to Policy 5.6.1, the maps are reviewed annually and updated in response to changing conditions. Additionally, the County considers the appropriateness of land use categories when adequate wildfire mitigation cannot be provided. Development within wildfire hazard areas must comply with adopted development standards, including wildfire mitigation plans specific to each development.

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. . Retrieved in 2005 from <http://quickfacts.census.gov/qfd/index.html>.

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

Hazard Vulnerability:

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

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

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

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

GIS Data:

Flood Zone GIS Data

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.

Sinkhole Hazard GIS Data

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

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

Municipal Boundaries

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

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

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

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

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

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

- **Goal 1** – *Establish an ongoing Local Mitigation Strategy Program designed to protect public health, safety and property.*
 - **Objective 1.2** – *Re-visit and update the local Critical Facilities Inventory annually to ensure total and complete information is available.*
- **Goal 4** – *Develop a community-based comprehensive emergency management program.*
 - **Objective 4.2** – *Continue participation in the Community Rating System and National Flood Insurance Program, and encourage other jurisdictions to do so.*
- **Goal 5** – *Engage in hazard mitigation project planning designed to help protect historic structures, critical facilities and government buildings.*
 - **Objective 5.1** – *Complete hazard mitigation proposals for construction projects to protect the built environment from the effects of high winds, storms, flooding, civil disturbance, wildland and urban fire, hazardous materials and terrorist acts.*

ATTACHMENT E
Alachua County Comprehensive Plan Excerpts Related to Hazard Mitigation

FUTURE LAND USE ELEMENT

2.5. ACTIVITY CENTER PLANS

Policy 2.5.4 Activity Center Plan/Special Area Study - Archer Road and 34th Street

2. Land Use

d. The southeast corner of SW 34th Street and Old Archer Road (parcels #6780 and #6781) shall be designed in a manner that meets all conditions contained in FLUE policies 2.1.5 - 2.1.13. Additionally, the following design criteria shall apply:

10. Development in flood prone areas shall conform to the criteria outlined in the County's Flood Hazard Area Ordinance. Stormwater management systems shall be designed to ensure no increase in flood stages of the pond located off-site to the south.

Policy 2.5.7 Archer Road/Tower Road Activity Center Plan

2. Land Use

c. Two sinkholes located on the northern portion of the Activity Center site west of the new Tower Road, and any presently undetected sinkholes, are designated conservation areas. Appropriate setbacks, as determined by the Development Review Committee, shall be shown on all site plans. Such setbacks shall include a minimum 35-foot buffer, retaining the existing vegetation.

Policy 2.5.8 North Main Street/53rd Avenue Low-Industrial Activity Center

5. Environment

d. Establishment of base flood elevations in conformance with the Federal Emergency Management (FEMA) standards shall be required. In addition, the criteria of the County's Flood Prone Area Ordinance shall be met where applicable.

4.0 INDUSTRIAL POLICIES

4.3 DESIGN AND SITE STANDARDS

Policy 4.3.1 Industrial facilities in urban clusters shall group together in planned industrial districts on sites capable of being expanded and developed in stages. Criteria for permitting industrial development shall include but are not limited to:

a. topography and soils--land having stable, well-drained soils, free from flooding;

SECTION 6.0 RURAL AND AGRICULTURE POLICIES

RURAL RESIDENTIAL SUBDIVISIONS

Policy 6.2.12 Open Space Area in Clustered Subdivisions

5. Ownership, maintenance, and management plan.

c. Management plan. An open space management plan shall be required to accompany the development plan, subject to county review and approval. The management plan shall establish management objectives, outline procedures, and define the roles and responsibilities for managing the open space. Management shall include wildfire mitigation.

Policy 6.2.13 Developed Area. The developed area of the clustered rural residential subdivision shall be located outside the open space area. The land development regulations shall prescribe in detail design standards for the configuration of lots and homes, the provision of water and wastewater, roads, stormwater, and buildings and structures. At a minimum, all developed areas

must be designed to comply with the following principles, to the extent feasible considering the location and protection of natural resources:

2. Development impacts within developed area. Development impacts and disturbance caused by buildings or construction to topography and existing site features within the developed area shall be minimized through the following strategies:
 - a. Locating residences and structures adjacent to tree lines and wooded field edges and avoiding placement in open fields, consistent with Firewise principles.

STORMWATER MANAGEMENT ELEMENT

Goal 1 Protect natural drainage features and the quality of waters and protect new and existing developments in accordance with adopted levels of service for floodplain management, water quantity and water quality.

Policy 2.3 (in part) Priorities for correcting volume and pollution abatement deficiencies in existing County maintained stormwater management systems shall be scheduled in the Capital Improvements Program in accordance with the criteria established in the Capital Improvements Element of this plan.

Policy 3.1 To ensure water quality and flood protection, new development shall provide facilities designed to control and treat stormwater runoff at the following levels of service:

LEVELS OF SERVICE

Floodplain Management

All new building lots shall include adequate buildable area above the 100-year floodplain and all new habitable structures must be outside the floodplain. Existing lots of record as of May 2, 2005, without buildable area above the floodplain may only develop subject to limitations such as intensity, impervious surface ratio (ISR), clearing, limits on the use of fill material and requirement for appropriate on-site sewage disposal. No development shall adversely impact the functions of the floodplain. Silviculture and agricultural uses shall be required to follow appropriate Best Management Practices.

Facility Level of Service

Residential floor elevation1 foot above the 100-year/critical duration storm elevation
Non-residential floor elevation1 foot above 100 year/critical-duration storm elevation or flood resistant construction

Policy 5.5 All new development, redevelopment, and, when expansion occurs, existing developed areas with a stormwater discharge to an active sinkhole shall provide a minimum treatment of the runoff from the first two (2) inches of rainfall from the design storm.

Policy 5.9 Conserve and enhance the use of floodplains where appropriate for flood and erosion control.

Objective 7 Stormwater management in floodplain areas shall protect the public health, safety and welfare by incorporating hazard mitigation and multi-functional designs.

Policy 7.1 Alachua County shall continue participation in the State Local Mitigation Strategy program and emphasize public education programs for floodplain protection.

Policy 7.2 Construction activities in the 100-year floodplain areas shall conform to the National Flood Insurance Program, and shall meet or exceed Chapter 65-25 and all other federal, state, regional, WMD and local regulations in effect on the date of adoption this comprehensive plan.

Policy 7.3 All road construction and improvement projects within the 100-year floodplain shall 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 runoff to the maximum extent technically feasible.

Policy 7.4 A natural regulated buffer determined on a site-specific basis shall be required on public lands within the 100 year floodplain for the purposes of visual screening, stormwater runoff, erosion control, resource-based recreation where deemed appropriate, and public safety.

Policy 7.5 Alachua County shall participate in the acquisition planning process of federal, state, regional, WMD and local agencies for land and unique natural areas located within the 100-year floodplain.

CONSERVATION AND OPEN SPACE ELEMENT

SECTION 2.1. INFORMATION SYSTEM

Policy 2.1.1 The County shall update and maintain the Conservation Element Map Series and related information system containing data relevant to protect the environmental quality of Alachua County's natural resources. The information shall include, at a minimum, an inventory and maps of: 8. Hazard areas including fire and flood prone areas, and existing and potential hazardous materials storage, treatment, and disposal sites; and

SECTION 2.2. EDUCATION AND OUTREACH

Policy 2.2.2 The County shall implement proactive, innovative, and creative educational programs concerning natural resource issues including, but not limited to: Flood and fire hazard mitigation

SECTION 4.4. GEOLOGICAL RESOURCES

Objective 4.4 Protect and maintain significant natural geologic features such as special karst features -- springs, caves and sinkholes in their natural condition.

Policy 4.4.1 Significant geologic features, such as springs, caves, sinkholes, and other karst features, shall be identified and evaluated for their importance to the overall natural resource system of the County.

Policy 4.4.2 Outstanding geologic features, such as certain springs, sinkholes, and caves, shall be considered for acquisition, provided appropriate protective management can be assured.

Policy 4.4.4 Significant geological features shall be accurately identified on development proposals. The Development Review Committee shall require strategies for protecting these features during construction and after development. These strategies shall address:

1. Inclusion of significant geologic features as part of common open space;
3. Pretreatment of stormwater runoff, in accordance with County and water management district rules and regulations, prior to discharging to karst geology features;
4. The identification of the appropriate level of treatment of wastewater effluent prior to discharge to any karst geology features; and
5. Perimeter edge buffering around features to maintain natural context, edge vegetation, and structural protection. The land development regulations shall include standards and procedures consistent with this policy.

Policy 4.4.6 The County shall establish management strategies for sinkholes and sinkhole-prone areas that protect water quality, hydrologic integrity, and ecological value. Management strategies may include, among other techniques, filling and development restrictions, buffers, runoff diversion, muck and debris removal, berm and weir construction, and filtration.

SECTION 4.9 BIODIVERSITY

Policy 4.9.3 The County shall require the development and implementation of management plans for all significant plant and wildlife habitat that is to be protected. The management plan shall be prepared at the expense of the developer by an appropriately qualified professional and provide for the following: 4. Any additional measures determined to be necessary to protect and maintain the functions and values of the habitat conservation areas while ensuring protection from wildfire.

SECTION 5.2 OPEN SPACE

Objective 5.2 Preserve or establish open space within developments to ensure public health, safety and welfare and to protect recreational and natural resources and functions.

Policy 5.2.1 Natural features such as steep slopes, ridges, sinkhole areas, floodplains, and other unsuitable areas for urban development shall be retained as open space areas. If appropriate, these areas shall be developed for use as trails, and where possible, used to connect other recreation and open space areas and other developments.

SECTION 5.4 VEGETATION MANAGEMENT

Policy 5.4.13 The County shall accommodate the use of prescribed burning as a tool to promote ecosystem health and wildfire prevention.

SECTION 5.6 WILDFIRE MITIGATION

Objective 5.6 Protect life, property, and the economy by eliminating or minimizing the present and future vulnerability to wildfire hazards.

Policy 5.6.1 Areas of wildfire hazard within Alachua County shall be mapped and ranked using features such as plant community type and development stage, canopy cover, hydrography, soils, slope, aspect, and elevation. The initial mapping shall be based on the Fire Risk Assessment Model contracted by the Florida Division of Forestry for completion in 2002. Mapping shall be reviewed annually and, as necessary, updated in response to changing fuel conditions.

Policy 5.6.2 The County shall educate the public, especially those at high risk from wildfires, and make them aware of proactive steps that they can take to mitigate wildfire damage.

Policy 5.6.3 The County shall advance the directives and policies of local emergency management operational plans and the Alachua County Local Mitigation Strategy.

Policy 5.6.4 The County shall implement a Firewise Medal Community Program that involves community fire preparation, evaluation and awards for program involvement. The County shall seek recognition of this program by the state Firewise Communities Recognition Program.

Policy 5.6.5 Alachua County shall carefully consider all land uses in areas at risk from wildfire and restrict or prohibit certain land uses as necessary to assure public health, safety, and welfare and the protection of property. Land uses and specific development plans for which adequate wildfire mitigation cannot be provided, or that would preclude or severely limit the use of wildfire mitigation or natural resource management options such as prescribed fire, shall not be authorized in severe wildfire hazard areas.

Policy 5.6.6 Development in wildfire hazard areas shall comply with the following minimum standards:

1. All new development shall complete and implement a wildfire mitigation plan specific to that development, subject to review and approval by the Alachua County Fire Rescue

Department, which shall be incorporated as part of the development plan approved for that development.

- a. The mitigation plan shall include project and parcel design features, such as defensible project perimeters, interior project fuel breaks, individual site defensible space, landscaping guidelines and plant material suggestions, and the placement of structures.
 - b. The mitigation plan shall include provisions for periodic inspection by the County to verify construction, implementation, and maintenance of the wildfire mitigation features in accordance with the plan. The inspection period may range from once a year to once every three years depending upon the site conditions.
 - c. The wildfire mitigation plan requirements shall be implemented for the entire life cycle of all developments requiring plans.
2. Structures shall be designed to minimize the potential for loss of life and property from wildfires, through requirements for outdoor sprinkler systems, fire-resistant building materials or treatments, landscaping with appropriate vegetation species, and site design practices.
 3. Water storage facilities, accessible by standard fire-fighting equipment, shall be provided, dedicated, or identified for fighting wildfires. Where public supply is available, fire hydrants of sufficient pressure shall be required.
 4. Streets, roads, driveways, bridges, culverts, and cul-de-sacs shall be designed to assure access by fire fighting equipment, providing for weight class, cornering, turnaround and overhead clearance.

Policy 5.6.7 The County shall pursue available funding for community/volunteer service programs for fuel management on lands owned or managed by Alachua County.

Policy 5.6.8 The County shall implement a fuels management program that consists of the following:

1. Practices such as prescribed burning, mechanical fuel reduction, and thinning, as necessary and appropriate to reduce wildfire hazards consistent with natural resources protection.
2. Increased public awareness of the benefits of prescribed burning and the inevitability of resulting smoke.
3. Acknowledgment by occupants in areas where prescribed burning is appropriate that they have been informed that prescribed burning may be used to manage wildfire hazards and that smoke will be present.
4. Special focus on the wild land-urban interface as an area exposed to wildfire hazard.

SECTION 6. WILDFIRE MANAGEMENT

Objective 6.6 Improve the environmental stewardship of all preservation, conservation and recreation areas within Alachua County.

Policy 6.6.5 The County shall restore and enhance degraded natural areas on County-owned preservation, conservation and recreation lands, including removal of invasive non-native plants and animals, reforestation, re-establishment of burn regimes for fire-adapted ecosystems, and restoration of shorelines and natural hydrology, as needed.

CAPITAL IMPROVEMENTS ELEMENT

Objective 1.9 Limit capital improvements that may directly or indirectly, through accompanying development, degrade environmentally sensitive areas or other natural resources important to health, safety, and welfare of the citizens and environment of Alachua County. These resources are identified in the Conservation and Open Space Element and include but are not limited to: preservation areas and conservation areas such as wetlands, surface waters, well field protection areas, listed species habitat, significant geological features, strategic ecosystems, flood plains,

areas containing designated specimen and champion trees, County-designated scenic corridors, mineral resources, and aquifer recharge areas.

Policy 1.2.4 LOS standards for Category “A” and “B” public facilities shall be as follows:

D. Stormwater Management LOS Standards (based on Stormwater Management Element: Policy 3.1)

| Facility | Level of Service |
|--------------------------------------|---|
| Residential floor elevation..... | 1 foot above the 100 year/ critical- duration storm elevation |
| Non-residential floor elevation..... | 1 foot above 100 year/critical-duration storm elev. or flood resistant construction |
| Water Quantity | |
| Retention basins..... | 100 year/ critical-duration storm or applicable WMD standards |
| Detention basins..... | 25 year/ critical-duration Storm with 100 year/ critical-duration storm routing analysis |
| Storm sewer systems..... | 3 year/10 minute |
| Crossdrains..... | 10/25 year/24hr. for closed system 100 year/24 hr. for open system |
| Sidedrains..... | 10 year/20 minute |