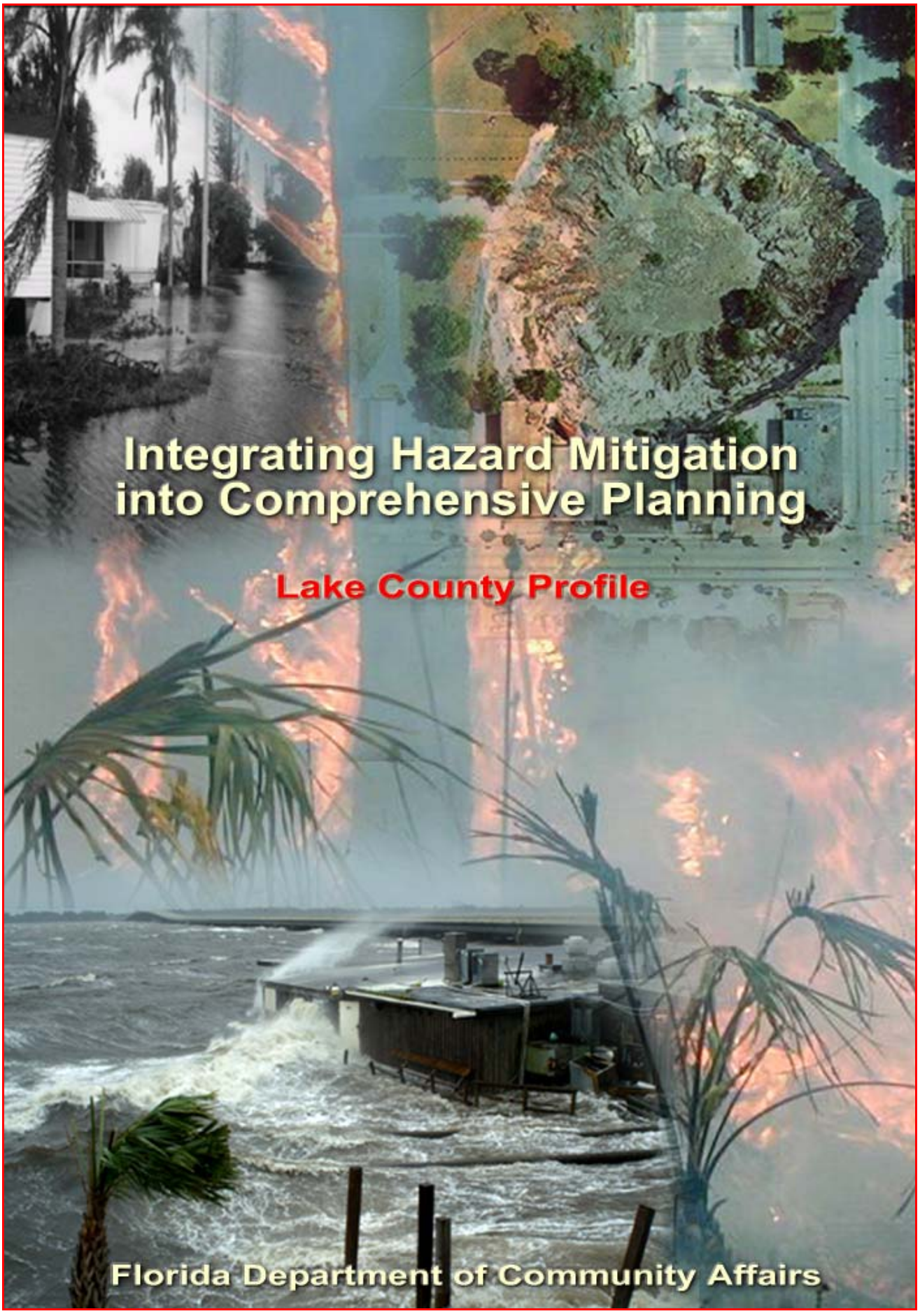
Integrating Hazard Mitigation into Comprehensive Planning
Lake County Profile
Florida Department of Community Affairs

Executive Summary

The experiences of the 2004 hurricane season epitomize the importance of better integrating hazard mitigation activities into local comprehensive planning. Last fall, residents all over the state experienced significant damages from Hurricanes Charley, Frances, Jeanne, and Ivan as a result of either winds, tornadoes, surge, or flooding. But this was not the only time we've experienced natural disasters, 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 firefighters' best efforts, 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 Lake County has been prepared as part of a statewide effort by the Florida Department of Community Affairs to guide local governments in integrating hazard mitigation principles into local Comprehensive Plans. Information provided in this profile will enable planners to (1) convey Lake 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 be better integrated into the Comprehensive Plan; and (4) determine if any enhancements could be made to the Local Mitigation Strategy (LMS) to better support comprehensive planning. Best available statewide level data are provided to convey exposure and risk as well as illustrate the vulnerability assessment component of the integration process.

In this profile, we present an argument for why hazard mitigation needs to be a part of comprehensive planning through an examination of population growth, the hazards that put the County at risk, the special needs population and structures that could be affected by these hazards, and the distribution of existing and future land uses in different hazard areas. We hope that this analysis will serve as an example of the issues each jurisdiction should consider as they update their plans to include hazard mitigation. The profile also contains a review of the LMS and the Comprehensive Plan. Based on the analysis and review, we were able to develop specific options for the County on how to incorporate more hazard mitigation into the Comprehensive Plan and how to enhance the LMS so that it is also a better tool for local planners.

During our review, we found that Lake County had many strengths regarding hazard mitigation in both its LMS and Comprehensive Plan, and these are outlined in the profile. There are always ways to further strengthen such plans, however, and the following is a summary of some of the options that would enable the County to do so.

GENERAL RECOMMENDATIONS

- The Comprehensive Plan can prioritize hazard mitigation initiatives found in the LMS through the 5-year Capital Improvements Schedule. Criteria used to prioritize projects in the Capital Improvement Schedule can include dimensions that involve hazard mitigation. By prioritizing hazard mitigation initiatives in the Capital Improvements Schedule, the LMS goals may be reached sooner by securing funds and providing a timeframe for action.

- The Comp Plan could also include policies that support educational programs that address hazard preparedness, the location of evacuation routes and shelters, identification of flood prone areas and properties, programs to promote the retrofit of reoccurring loss structures, and wildfire hazard mitigation strategies. Currently, objectives in the LMS support public and private education of hazard mitigation issues. Adding policies into the Comprehensive Plan can strengthen the County's mitigation strategy.

- The County can educate local site plan reviewers on the importance of flood, wildfire, and sinkhole mitigation as well as the strategies used to reduce the vulnerability. Plan reviewers could then promote these ideas to local developers and explain their importance during the site plan review process.

- The County can adopt a policy that creates a Hurricane Evacuation Clearance Time Level of Service standard. A Hurricane Evacuation Clearance Time Level of Service standard can act as a quantitative measurement of evacuation route capacity and be used as a goal for providing a safe evacuation. The County can also adopt a Comprehensive Plan policy that continues to support and coordinate strategies with the Regional Evacuation Plan. Evacuations often occur on regional levels and on routes shared by numerous jurisdictions. This is an important strategy to employ, especially within Central Florida. Coordination with the regional evacuation plan may ensure a safe and timely evacuation as well as address regional needs. The Comprehensive Plan and the LMS can adopt policies that support maintaining evacuation routes and addresses deficiencies due to road conditions. Evacuation route improvement initiatives can be listed in the LMS and prioritized in the Capital Improvements Schedule.

- The County can create an Emergency Shelter Capacity Level of Service. Emergency Shelter Capacity Level of Service standards can act as a quantitative goal and used to meet shelter demand. Due to the projected amount of future growth in the area, the County could also research alternatives to evacuation shelters such as the promotion of safe rooms or to retrofit existing community facilities. Finally, the County should continue cooperation with neighboring jurisdictions and the Regional Planning Council to address emergency shelter needs.

- The County has many existing measures that serve to mitigate the impacts of hazards, however those measures have not been identified as beneficial in this area. Current growth management techniques such as the land conservation program, land acquisition programs, transfer of development rights, and the regulation and prohibition of development in environmentally sensitive lands are employed by the County to protect natural resources. These measures also mitigate the effects of natural disasters. The County should update these policies in the Comprehensive Plan emphasizing the benefits of these measures as a hazard mitigation strategy.

- The County could determine whether or not the conserved areas in the County have lifetime designations. Future land development and regulation can address hazard mitigation issues on land with expiring conservation designations.

- The Comprehensive Plan should support LMS objectives involving retrofitting and relocation emergency services facilities, shelters that house equipment used in emergency operations, utility infrastructure, government facilities, county employee homes, residential structures, and medical facilities. This hazard mitigation strategy can be strengthened by the adoption of Comprehensive Plan policies that address such actions.

- The County can evaluate historic structures and sites and analyze their vulnerability to disaster events. Historic and cultural resources may be reinforced and protected from

natural disaster events, especially floods and hurricanes. The County can further support historic preservation by prioritizing initiatives to mitigate these risks.

- The County can limit populations within high hazard zones. The Comp Plan has many policies that regulate development in flood-prone areas and karst sensitive areas. The LDRs contain criteria that analyze site plans based on a number of environmental factors. These factors address natural resources associated with natural disasters and limit density and intensity of development near or on them. Policies can be amended and added to the Comprehensive Plan that employ these methods to regulate or prohibit development in high hazard areas including wildfire areas.

- The County can adopt policies that address redevelopment after a disaster. Policies could require consistency with the post-disaster redevelopment plan. The County may reduce risks associated with natural disasters and create a safer place for residents to live and work by employing redevelopment standards that create a disaster resistant community. The County can adopt policies that prohibit or restrict repair or replacement of non-conforming special needs facilities or manufactured / mobile homes if damaged beyond a defined threshold. Non-conformities can be removed in order to reduce the potential of future losses and be replaced with conforming structures. Policies can require redevelopment to occur at intensity / density of the land use designation currently in place. Also, the County could explore the development of a post-disaster recovery strategy for business. Economic vitality of a community may recover from a natural disaster quicker and more affectively with a plan that addresses the needs of the business community.

Wildfire Hazards

- The County could explore hazard mitigation resources provided by the Florida Division of Forestry and develop a relationship to use their services carry out prescribed burning.

- The County can create an educational program that provides information about wildfire mitigation strategies and Firewise Communities to the public.

- The County should explore the adoption of a firewise building code that may reduce wildfire risk to structures and persons.

- The County could include provisions in the LDRs for vegetation maintenance and require removal of exotic vegetation or land cover that could be conducive to wildfire prior to development.

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1. County Overview

Geography and Jurisdictions

Lake County is located in central Florida. It covers a total of 953 square miles, with an average population density of 220.9 people per square mile (U.S. Census, 2000).

There are 14 incorporated municipalities within the County, as listed in **Table 1.1** below.

Population and Demographics

Official 2004 population estimates for all jurisdictions within Lake County as well as the percent change in population from the 2000 U.S. Census are presented in **Table 1.1**. The most current estimated countywide population of Lake County is 251,878 people (University of Florida, Bureau of Economic and Business Research, 2004). About half of the residents live in the unincorporated County. Between 1990 and 2000, Lake County as a whole had a growth rate of 38.4%, which was greater than the statewide growth rate of 23.5% in those 10 years.

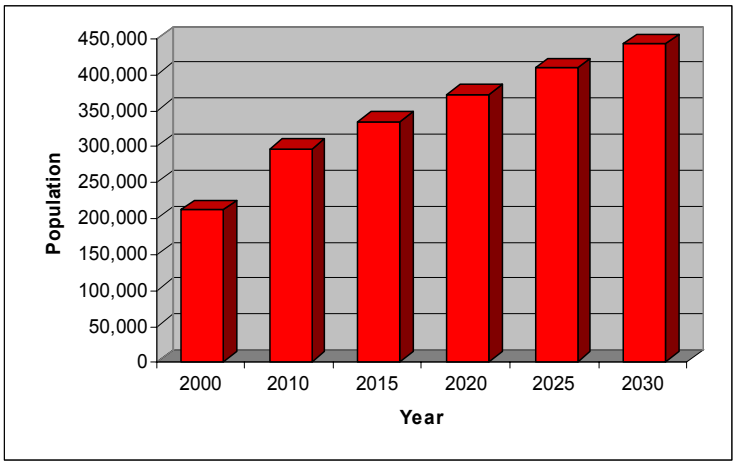
Table 1.1 Population Estimates by Jurisdiction

Jurisdiction	Population, Census 2000	Population Estimate, 2004	% Change, 2000-2004	% of Total Population (2004)
Unincorporated	120,129	141,203	17.5%	56.1%
Astatula	1,298	1,393	7.3%	0.6%
Clermont	9,338	17,654	89.1%	7.0%
Eustis	15,106	16,884	11.8%	6.7%
Fruitland Park	3,186	3,335	4.7%	1.3%
Groveland	2,394	4,249	77.5%	1.7%
Howey-in-the-Hills	956	1,057	10.6%	0.4%
Lady Lake	11,828	12,666	7.1%	5.0%
Leesburg	15,956	16,679	4.5%	6.6%
Mascotte	2,687	3,739	39.2%	1.5%
Minneola	5,435	7,838	44.2%	3.1%
Montverde	882	1,080	22.4%	0.4%
Mount Dora	9,418	10,758	14.2%	4.3%
Tavares	9,700	10,938	12.8%	4.3%
Umatilla	2,214	2,405	8.6%	1.0%
Countywide Total	**210,527**	**251,878**	**19.6%**	**100.0%**

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

According to the University of Florida, Bureau of Economic and Business Research (2004), Lake County's population is projected to continue to grow rapidly, reaching 440,700 people by the year 2030. **Figure 1.1** illustrates medium population projections for Lake County based on 2004 calculations.

Figure 1.1 Medium Population Projections for Lake County, 2010-2030



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

Of particular concern within Lake County's population are those persons with special needs and/or limited resources such as the elderly, disabled, low-income, or language-isolated residents. According to the 2000 U.S. Census, 26.4% of Lake County residents are listed as 65 years old or over, 23.0% are listed as having a disability, 9.6% are listed as below poverty, and 8.4% live in a home with a primary language other than English.

2. Hazard Vulnerability

Hazards Identification

The highest risk hazards for Lake County as identified in the County's Local Mitigation Strategy (LMS) are high winds, lightning, flooding, major fire-urban, major fire-wildland, hail, drought, severe winter storms, and subsidence/expansive soils.

Lake County has received wind damages from many tropical storms and hurricanes in the past. Over the last several years, Lake County has experienced flooding problems caused by both annual increases in the water table and the El Niño phenomenon. The County also was affected by the 1998 wildfires that were widespread throughout central Florida.

Hazards Analysis

The following analysis looks at three major hazard types: flooding, sinkholes, and wildfire. All of the information in this section, except the evacuation and shelter estimates, 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 DMA2K revision project. It was created by Kinetic Analysis Corporation (KAC) under contract with the Florida Department of Community Affairs (FDCA). Estimated exposure values were determined using the Federal Emergency Management Agency's (FEMA's) designated 100-year flood zones (A, AE, V, VE, AO, 100 IC, IN, AH), levels of concern 5 through 9 for wildfire, and high through adjacent risk zones for sinkholes. 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) or your countywide LMS.

Existing Population at Risk

Table 2.1 presents the countywide population at risk from hazards, as well as a breakdown of the sensitive needs populations at risk. The first column in the table summarizes the residents of Lake County that live within FEMA Flood Insurance Rate Map zones, which signify special flood hazard areas. According to these maps, 25.5% of the population, or 53,706 people, are within the 100-year flood zone. In Lake County, sinkholes are also a major risk, with 22.4% of the population living within a high to adjacent risk sinkhole zone. This is widespread problem for the County with no easy solution; however, steps can be taken to further define potential sinkhole locations and to build in a way that lessens the risk. The last column of the table shows the number of people that fall in medium- to high-risk wildfire zones, which is based on many factors, including vegetation and ease of access to the homes. A total of 102,840 people countywide, or 52.9% of the total population, are at medium- to high-risk from wildfire. Of those at risk, 41% are disabled, making a quick evacuation difficult.

Table 2.1 Estimated Number of Persons at Risk from Selected Hazards

Population	Flood	Sinkhole (high-adjacent risk)	Wildfire (medium-high risk)
Minority	5,070	8,367	13,624
Over 65	14,137	14,422	24,943
Disabled	20,973	19,790	42,231
Poverty	4,838	5,774	9,026
Language Isolated	169	344	778
Single Parent	2,265	2,515	5,030
Countywide Total	**53,706**	**47,082**	**102,840**

Source: Florida Department of Community Affairs, 2005a.

Evacuation and Shelters

As discussed in the previous sections, population growth in Lake County has been rapid, and this trend is projected to continue. As the population increases in the future, the demand for shelter space and the length of time it takes to evacuate the County is only going to increase. Evacuation clearance times for Lake County have not yet been estimated. The data in **Table 2.2** were derived from 11 regional Hurricane Evacuation Studies that have been produced by FEMA, the U.S. Army Corps of Engineers, and Florida Regional Planning Councils. The study dates range from 1995 to 2004 and are updated on a rotating basis. According to Rule 9J-5, counties must maintain or reduce hurricane evacuation times. Some experts have suggested that counties should try to achieve 12 hours or less clearance time for a Category 3 hurricane. This is due to the limited amount of time between the National Hurricane Center issuing a hurricane warning and when the tropical storm-force winds make landfall. Storm events requiring evacuation typically impact larger areas, often forcing multiple counties to issue evacuation orders and placing a greater number of evacuees on the major roadways, further hindering evacuation progress. Thus, it is important to not only consider evacuation times for Lake County, but also for other counties in the region as shown in **Table 2.2**. Evacuation times for Lake County's neighboring counties are at or over 12 hours for a Category 3 hurricane. With continued growth and the limited road network of the region, it will be difficult for them to maintain this evacuation time and may be difficult for Lake County as well.

Table 2.2 County Evacuation Clearance Times in Hours
(High Tourist Occupancy, Medium Response)

County	Category 1 Hurricane	Category 2 Hurricane	Category 3 Hurricane	Category 4 Hurricane	Category 5 Hurricane
Citrus	9.75	12	12	19	19
Lake	NA	NA	NA	NA	NA
Levy	7.75	7.75	14.5	14.5	14.5
Marion	NA	NA	NA	NA	NA
Sumter	8	10	12	16	20

Note: Best available data as of 7/05 *Source: State of Florida, 2005*
(some counties may be in the process of determining new clearance times)

NA= Not available

Coupled with evacuation is the need to provide shelters. If adequate space can be provided in safe shelters for Lake County's residents, then this could be a solution to the ever-increasing clearance times for evacuation. Also, evacuees of neighboring counties could need sheltering in Lake County during a hurricane as well. Currently, the State Shelter Plan reports that there is space for 10,682 people in the County's shelters, and there are 5,649 more people than this that will need sheltering in the case of a Category 5 hurricane. It is projected that by 2009 the deficit will increase to 8,280 people in need of space (FDCA, 2004). The County will need to address this deficiency, but might also try to decrease the demand for public shelters by encouraging new homes to be built with safe rooms if they are outside of flood zones. Residents who are not in a flood zone could shelter in place if they had a safe room that could withstand hurricane-force winds. Safe rooms could at least be a last option for residents who cannot evacuate in time, especially in the case of a tornado.

Existing Built Environment

While the concern for human life is always of utmost importance in preparing for a natural disaster, there also are large 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 buildings in Lake County by structure type that are at risk from each of the three hazards being analyzed. Regardless of hazard, the structure type most at risk is single-family homes.

Flooding is the largest risk to property in the County, with 58,399 structures within a flood zone. There are also 62 buildings that are affected by storm surge that moves up the St. Johns River. According to the latest National Flood Insurance Program Repetitive Loss Properties list, there is only one home in unincorporated Lake County that has had flood damage multiple times and received insurance payments (FDCA, 2005b).

There are also a substantial amount of structures, 20,920, that are in a high to adjacent sinkhole risk zone. Of those structures, 62% are single-family homes.

Table 2.3 also shows 55,030 structures within medium- to high-risk wildfire areas, with over half of those being single-family homes as well. Single-family home developments usually support the spread of a wildfire better than denser developments because of the amount vegetation found between the homes.

Table 2.3 Estimated Number of Structures at Risk from Selected Hazards

Structure Type	Flood	Sinkhole (high-adjacent risk)	Wildfire (medium- high risk)	Surge
Single-Family Homes	29,846	13,010	31,814	27
Mobile Homes	10,921	3,389	10,649	19
Multi-Family Homes	6,250	1,509	3,801	2
Commercial	3,565	1,576	2,838	4
Agriculture	5,730	709	2,303	1
Gov./Institutional	2,087	727	3,625	9
Total	**58,399**	**20,920**	**55,030**	**62**

Source: Florida Department of Community Affairs, 2005a.

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 not only the people and property in a hazard area, but also the probability of occurrence that is necessary to understand the impacts to people and property. 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 in considering where to implement risk reducing comprehensive planning measures.

Analysis of Current and Future Vulnerability

The previous hazards analysis section discussed population and existing structures at risk from flooding, sinkholes, and wildfire according to MEMPHIS estimates. This section demonstrates the County's vulnerabilities to these hazards spatially and in relation to existing and future land uses. The following maps of existing land use within hazard areas are based on the 2000 geographic information system (GIS) shapefiles from the Florida Department of Environmental Protection and the St. Johns River Water Management District. Maps of future land uses in hazard areas were developed using the Lake County future land use map obtained October 2002.

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 surrounding its many water bodies; however, there is also a large concentration in the southwest corner of the County where there are no major water bodies. The total amount of land in these special flood hazard areas is 352,393 acres. As shown in **Table 2.4**, 40.4% of these acres are being used for agricultural purposes, 28.6% are parks and conservation lands, and 27.6% are submerged lands. A majority of the flood-prone acres are being used in ways compatible with flooding, which is very positive. There are still, however, 8,191 acres in residential use and continue to be a vulnerability for the County. **Table 2.5** also shows that 51.5% of the 2,071 undeveloped acres are designated for future rural uses with 1 dwelling unit (du) per 5 acres allowed or for urban expansion with 4 du's per 1 acre. These future developments will be at risk from flooding unless proper mitigation is employed, such as only building on upland portions of the property or elevating the structures.

In **Attachment B**, maps present the land uses associated with high-risk wildfire zones. These wildfire risk areas are scattered across the County with a large cluster in the north. Most of the at-risk land, or 78.1%, is currently used for agriculture or parks and conservation, according to the data in **Table 2.4**. A total of 8,390 acres, or 12.6% of the land within these wildfire zones is used for low-density residential. Large-lot residential development is the most at risk since these homes typically are surrounded by wooded lots and often do not have enough defensible space to stop a wildfire from spreading throughout the neighborhood. Of the 1,121 undeveloped acres,

20.4% are shown to be designated for rural (1 du/5 acres) uses in the future and 52.8% are designated for suburban or urban development between 3 and 7 du's/acre (**Table 2.5**). The rural uses will not decrease the risk of wildfire since the lots will most likely remain wooded, and depending on the design and landscaping of the urban uses, these may remain at risk as well once developed.

Maps showing sinkhole hazard zones and associated existing and future land uses can be found in **Attachment C**. Areas at risk from sinkholes are scattered throughout the County except for in the northern tip. **Table 2.4** shows that a majority of the at-risk acres are used for agriculture or are still vacant. To decrease the risk of sinkhole collapse for future development on these acres, the County can do many things such as require geological testing to be done before structures are built. **Table 2.5** shows that 20.4% of the vacant land at risk is designated for rural (1 du/5 acres) uses in the future, which will limit vulnerability, however, 19.8% is designated for urban expansion (4du/1 acre) and 15.7% is designated for urban use (7 du/1 acre), which greatly increase vulnerability to sinkhole hazards.

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

Existing Land Use Category		Flood Zones	Wildfire Susceptible Areas	Potential Sinkhole Areas
Agriculture	Acres	131,459.6	27,704.2	7,429.4
	%	40.4	41.6	20.4
Commercial	Acres	282.7	173.4	467.9
	%	0.1	0.3	1.3
Government, Institutional, Hospitals, Education	Acres	101.7	101.7	99.4
	%	0.0	0.2	0.3
Industrial	Acres	113.9	109.0	202.9
	%	0.0	0.2	0.6
Parks, Conservation Areas, Golf Courses	Acres	93,066.6	24,343.1	737.2
	%	28.6	36.5	2.0
Residential High-Density	Acres	1,249.5	222.5	1,040.6
	%	0.4	0.3	2.9
Residential Low-Density	Acres	4,297.7	8,390.0	3,286.4
	%	1.3	12.6	9.0
Residential Medium-Density	Acres	2,181.2	2,670.7	2,207.5
	%	0.7	4.0	6.1
Residential Rural	Acres	462.4	847.4	369.6
	%	0.1	1.3	1.0
Submerged Lands	Acres	89,841.0	683.1	4,559.1
	%	27.6	1.0	12.5
Transportation, Communication, Rights-Of-Way	Acres	207.1	122.8	389.2
	%	0.1	0.2	1.1
Utility Plants and Lines, Solid Waste Disposal	Acres	58.6	134.7	45.3
	%	0.0	0.2	0.1
Vacant	Acres	2,070.8	1,121.3	15,526.9
	%	0.6	1.7	42.7
Total Acres	**Acres**	**325,392.7**	**66,623.7**	**36,361.4**
	%	**100.0**	**100.0**	**100.0**

Table 2.5 Total and Undeveloped Acres in Hazard Areas by Future Land Use Category for the Unincorporated County

Future Land Use Category		Flood Zones		Wildfire Susceptible Areas		Potential Sinkhole Areas	
		Total	Undev.	Total	Undev.	Total	Undev.
Employment Center	Acres	2.7	0.0	8.2	0.0	0.0	0.0
	%	0.0	0.0	0.0	0.0	0.0	0.0
Employment Center/Municipalities	Acres	42.4	18.5	27.0	3.3	0.0	0.0
	%	0.0	0.9	0.0	0.3	0.0	0.0
Employment Center/Rural	Acres	47.3	11.8	38.6	8.9	2.7	0.0
	%	0.0	0.6	0.1	0.8	0.0	0.0
Employment Center/Rural Village	Acres	46.1	0.0	0.0	0.0	0.0	0.0
	%	0.0	0.0	0.0	0.0	0.0	0.0
Employment Center/Suburban	Acres	302.5	10.3	55.3	7.8	50.6	25.4
	%	0.1	0.5	0.1	0.7	0.1	0.2
Employment Center/Urban	Acres	118.8	3.3	98.8	30.8	138.9	79.1
	%	0.0	0.2	0.1	2.7	0.4	0.5
Employment Center/Urban Compact Node	Acres	0.7	0.0	6.7	0.0	38.6	6.5
	%	0.0	0.0	0.0	0.0	0.1	0.0
Employment Center/Urban Expansion	Acres	441.0	14.5	226.1	8.5	475.5	353.1
	%	0.1	0.7	0.3	0.8	1.3	2.3
Green Swamp - Core Conservation 1:20	Acres	31,745.9	361.4	4,442.3	56.4	756.8	561.8
	%	9.8	17.5	6.7	5.0	2.1	3.6
Green Swamp - Ridge 4:1	Acres	556.7	0.0	204.9	0.0	375.9	193.1
	%	0.2	0.0	0.3	0.0	1.0	1.2
Green Swamp - Rural Conservation 1:10	Acres	25,087.4	12.9	3,509.8	8.7	1,239.0	790.7
	%	7.7	0.6	5.3	0.8	3.4	5.1
Green Swamp - Transitional 1:1	Acres	3,623.9	8.2	921.1	3.6	1,129.1	431.4
	%	1.1	0.4	1.4	0.3	3.1	2.8
Institutional/Sending Area	Acres	0.0	0.0	47.0	0.0	0.0	0.0
	%	0.0	0.0	0.1	0.0	0.0	0.0
Institutional/Urban Expansion	Acres	14.9	0.7	4.2	0.0	0.0	0.0
	%	0.0	0.0	0.0	0.0	0.0	0.0
Lakes (water bodies >300 acres)	Acres	68,726.0	15.4	133.1	2.0	2,096.7	82.9
	%	21.1	0.7	0.2	0.2	5.8	0.5
Public Resource Lands	Acres	54,334.3	11.4	18,860.3	7.4	143.1	54.6
	%	16.7	0.6	28.3	0.7	0.4	0.4
Receiving Area 120	Acres	451.0	39.0	758.9	0.9	870.3	123.7
	%	0.1	1.9	1.1	0.1	2.4	0.8
Rural 1:5	Acres	69,159.4	584.1	15,288.5	229.2	6,282.6	3,167.2
	%	21.3	28.2	22.9	20.4	17.3	20.4
Rural Village 2:1	Acres	1,056.2	3.6	731.4	11.6	93.9	14.5
	%	0.3	0.2	1.1	1.0	0.3	0.1

Table 2.5 Total and Undeveloped Acres in Hazard Areas by Future Land Use Category for the Unincorporated County

Future Land Use Category		Flood Zones		Wildfire Susceptible Areas		Potential Sinkhole Areas	
		Total	Undev.	Total	Undev.	Total	Undev.
Sending 120	Acres	15,225.5	167.4	4,085.9	120.4	1,113.8	366.7
	%	4.7	8.1	6.1	10.7	3.1	2.4
Sending Area 140	Acres	10,646.2	47.0	972.4	28.5	1,049.1	741.5
	%	3.3	2.3	1.5	2.5	2.9	4.8
Suburban 3:1	Acres	18,502.1	199.1	5,922.1	225.6	5,129.8	2,201.7
	%	5.7	9.6	8.9	20.1	14.1	14.2
Urban 22:1	Acres	123.1	0.0	139.8	0.0	0.0	0.0
	%	0.0	0.0	0.2	0.0	0.0	0.0
Urban 7:1	Acres	6,791.1	77.6	2,453.1	164.7	5,804.9	2,440.6
	%	2.1	3.7	3.7	14.7	16.0	15.7
Urban Compact Node	Acres	1,051.1	1.1	1,421.2	1.6	3,294.9	824.4
	%	0.3	0.1	2.1	0.1	9.1	5.3
Urban Expansion 4:1	Acres	17,296.5	483.5	6,267.0	201.5	6,275.3	3,068.0
	%	5.3	23.3	9.4	18.0	17.3	19.8
Total	**Acres**	**325,392.6**	**2,070.8**	**66,623.7**	**1,121.3**	**36,361.4**	**15,526.9**
	%	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Table 2.6 presents the total numbers of acres in a hazard zone in Lake County's incorporated areas and how many of those acres are currently undeveloped. Of all the municipalities located in hazard areas, the City of Leesburg has the greatest number of acres. This is in part due to Leesburg being one of the larger municipalities in the County. Clermont and Eustis also have substantial acreage in flood, wildfire, and sinkhole susceptible areas due to their larger land areas. Leesburg has the largest number of vacant acres in sinkhole susceptible areas, at 1,111 acres, out of all of the cities. It therefore has a better opportunity for limiting development in these areas or building to minimize risk to sinkholes. Tavares stands out by also having a large number of acres at risk from flooding and sinkholes despite its smaller size, 1,321 and 1,135 acres, respectively. This suggests that Tavares may need to focus on mitigating these hazards through structural projects or redevelopment policies, since most of the at-risk acres have already been developed.

Table 2.6 Total and Vacant Incorporated Acres in Hazard Areas

Jurisdiction		Flood Zones		Wildfire Susceptible Areas		Sinkhole Susceptible Areas	
		Total	Vacant	Total	Vacant	Total	Vacant
Astatula	Acres	307.4	0.2	117.0	0.0	0.0	0.0
	%	2.0	0.1	2.9	0.0	0.0	0.0
Clermont	Acres	1,090.1	27.4	261.1	10.7	669.0	378.3
	%	7.1	2.5	6.5	4.1	5.1	10.1
De Bary	Acres	0.2	0.0	0.0	0.0	0.0	0.0
	%	0.0	0.0	0.0	0.0	0.0	0.0
Eustis	Acres	1,563.0	17.8	428.7	54.2	1,041.8	245.2
	%	10.2	1.1	10.7	12.6	7.9	6.6
Fruitland Park	Acres	658.8	23.6	285.6	19.4	111.0	62.6
	%	4.3	3.6	7.1	6.8	0.8	1.7
Groveland	Acres	797.2	0.2	228.3	0.0	1,042.0	289.1
	%	5.2	0.0	5.7	0.0	7.9	7.7
Howey-in-the-Hills	Acres	168.1	0.0	229.8	0.0	344.6	151.6
	%	1.1	0.0	5.7	0.0	2.6	4.1
Lady Lake	Acres	396.6	15.8	548.6	25.6	2,078.8	379.4
	%	2.6	4.0	13.7	4.7	15.8	10.2
Leesburg	Acres	6,880.7	97.6	920.3	107.2	3,570.0	1,110.9
	%	44.8	1.4	23.0	11.7	27.1	29.7
Mascotte	Acres	411.8	3.1	145.8	13.4	890.4	191.1
	%	2.7	0.8	3.6	9.2	6.8	5.1
Minneola	Acres	250.4	0.5	83.6	0.9	901.1	333.1
	%	1.6	0.2	2.1	1.1	6.8	8.9
Montverde	Acres	375.4	3.6	73.1	0.2	0.0	0.0
	%	2.4	1.0	1.8	0.3	0.0	0.0
Mount Dora	Acres	714.7	4.0	188.6	4.2	1,230.6	236.5
	%	4.7	0.6	4.7	2.3	9.3	6.3
Tavares	Acres	1,321.3	23.2	237.6	18.7	1,134.5	307.4
	%	8.6	1.8	5.9	7.9	8.6	8.2
Umatilla	Acres	435.6	1.1	262.2	15.2	170.5	49.7
	%	2.8	0.3	6.5	5.8	1.3	1.3
Total Acres	**Acres**	**15,371.3**	**218.3**	**4,010.3**	**269.8**	**13,184.3**	**3,735.0**
	%	**100.0**	**1.4**	**100.0**	**6.7**	**100.0**	**100.0**

3. Existing Mitigation Measures

Local Mitigation Strategy

The LMS is an ideal repository for all hazard mitigation analyses, policies, programs, and projects for the County and its municipalities due to its multi-jurisdictional and intergovernmental nature. The LMS identifies hazard mitigation needs in a community and structural or non-structural initiatives that can be employed to reduce community vulnerability. Communities can further reduce their vulnerability to natural hazards by integrating the LMS analyses and mitigation objectives into their Comprehensive Plans.

An LMS prepared pursuant to the State's 1998 guidelines has three substantive components (FDCA, 2005b):

> 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 the community is susceptible to. According to FEMA, LMSs 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, 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 monetary 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. The Guiding Principles typically contain 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 Post-Disaster Redevelopment Plan (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 LMS Goals and Objectives will guide the priority of the mitigation initiatives.

The Lake County LMS (updated in 2005) was used as a source of information in developing this profile and was also reviewed for any enhancements that could be made to allow better integration with other plans, particularly the local Comprehensive Plans.

Hazard identification and Vulnerability Assessment

This section of the LMS was briefly reviewed for its ability to provide hazard data that can support comprehensive planning. The HIVA includes the processes used to identify hazards by the County and each participating jurisdiction. Information used to analyze each natural disaster including a map series produced by the Lake County GIS Department is located in an attachment titled Supplemental Materials. This was not available at the time of this review. There is, however, a list of ranked hazards for each jurisdiction and for the unincorporated county. Existing hazard mitigation policies are also included in the LMS and associated with each hazard. The HIVA also refers to an attachment that lists repetitive loss properties by jurisdiction.

Guiding Principles

There is not a section of the Lake County LMS that directly fits the above described Guiding Principles section. The Lake LMS does list policies from other plans that relate to hazard mitigation. It is useful to include a list of the hazard-related policies from each jurisdiction's Comprehensive Plan were included in the LMS for reference. This allows all jurisdictions and County departments access to this information that can be used to judge whether more integration is needed.

LMS Goals and Objectives

The LMS Goals and Objectives can be found in **Attachment D**. The goals and objectives are also summarized in **Table 5.1** as part of the recommendations analysis. The following is a summary of how well the LMS has addressed mitigation issues that coincide with planning concerns.

The Lake **C**ounty LMS includes ten goals and numerous objectives that address a variety of mitigation issues. The County shows a commitment to hazard mitigation through objectives that ensure the availability and quality of data needed for defining hazards, risk areas, and the County's vulnerability. Goals and objectives also promote cooperation within the community to develop a pre-disaster mitigation strategy. The goals and objectives address the County's capability to operate after a disaster and ensure to maintain and protect emergency facilities, equipment, infrastructure, and evacuation shelters. There are many goals and objectives that promote the relocation or retrofitting of structures including residential homes, public facilities, emergency service facilities, structures that house emergency equipment and vehicles, utility and communication systems, evacuation shelters, and evacuation routes. The County shows great initiative by taking action to secure structures and facilities before a disaster. This is a strong proactive approach to hazard mitigation. The LMS goals and objectives create a strategy to support technical training for employees and hazard mitigation strategies and issues to the public. This strategy can be strengthened by adopting Comprehensive Plan policies that reinforce LMS goals and objectives.

Comprehensive Emergency Management Plan

The Mitigation Chapter of the 2003 Lake County Comprehensive Emergency Management Plan (CEMP) was reviewed for consistency with the other plans and evaluated in its effectiveness as a tool for planners. The Annex does a good job of summarizing the responsibilities of hazard mitigation among the different agencies and organizations within the County. Lake County Emergency Management Department is the coordinator of mitigation activities including the LMS. The County Property Appraiser's office has the role of providing technical information. The Growth Management Department and Public Works are tasked with identifying mitigation activities and projects along with Emergency Management. It could also be mentioned in this chapter that the Growth Management department should also have a role in implementing land use changes that will reduce vulnerability.

Post-Disaster Redevelopment Plan

A PDRP for Lake County was not available for review at the time this profile was drafted. If Lake County has a current PDRP, this will be obtained and reviewed for the final version of this document.

National Flood Insurance Program/Community Rating System

Lake County and all of its municipalities are participating communities in the National Flood Insurance Program. In addition, Lake County participates in the Community Rating System and has a current class of 8.

4. Comprehensive Plan Review

Lake County's Comprehensive Plan (adopted in 2004) was reviewed in order to see what the County has already done to integrate their LMS policies, and hazard mitigation in general, into their planning process. A list of the goals, objectives, and policies currently in the plan that contribute to hazard mitigation is found in **Attachment E**. The following is a summary of how well the plan addressed the three hazards of this analysis.

The Lake County Comprehensive Plan has many polices that address the three hazards analyzed in this report. The plan contains policies that regulate development based on the presence of wetlands, soils, vegetation, protected species, and other natural resources. There are policies that are specific to the Green Swamp Area of Critical State Concern and the Wekiva River Protection Area. The County shows a strong commitment to maintaining and improving data that is used to identify and analyze natural resources, ongoing and existing development, and the location of hazardous areas. There are a number of polices that cross reference other plans that involve hazard mitigation.

Sinkhole Hazards

Sinkholes are directly addressed in several polices. The County regulates development on and near sinkholes by requiring buffers and setbacks as well as backfill regulations. Other policies that support soil mapping, soil erosion measures, soil quality, and safe construction practices, indirectly address sinkhole mitigation.

Flooding Hazards

Policies that address flooding employ a number of approaches to protect wetlands and regulate development. The County Floodplain Ordinance regulates development at risk from flooding, as does the policies that support the NFIP. The use of stormwater management and concurrency measures, Transfer of Development Rights, the Land Development Regulations, overlay zones, clustering, setbacks, and density restrictions all support hazard mitigation involving flooding.

Wildfire Hazards

Wildfires are directly addressed in one policy. Prescribed burning on conservation land acquired by the County helps reduce wildfire fuels before a naturally occurring event happens. There are also policies that aim to conserve groundwater which may reserve water for fire subsidence in drought conditions.

5. Recommendations

For the LMS to be effective in the decision-making process of growth management, its objectives and policies must be integrated into the Comprehensive Plan. The Plan is the legal basis for all local land use decisions made. If hazard mitigation is to be accomplished beyond the occasional drainage project, these hazards must be addressed in comprehensive planning where development can be limited or regulated in high-risk hazard areas, just as sensitive environments are routinely protected through growth management policies. Mitigation of hazards is considerably easier and less expensive if done when raw land is being converted into development. Retrofitting structure and public facilities after they have been built is significantly more expensive. However, if older neighborhoods or communities are scheduled to be revitalized or redeveloped, hazard mitigation needs to be an aspect considered and integrated into the project prior to the time of development approval.

Lake County has begun this process of integrating hazard mitigation throughout its Plan's elements. The prior section summarized how the major hazards for the County have been for the most part well-addressed. There is, however, still some disconnect between the LMS objectives and initiatives and the policies in the Comprehensive Plan. By tightening the connection between these documents, the County will find it easier to implement hazard mitigation, and there will be higher awareness of these issues within more departments of the County government. **Table 5.1** presents options for further integration as well as the basis for these recommendations.

NOTE: The recommendations set out in this section are only suggestions. Through the workshop process and contact with the local governments, the goal of this project is to result in specific recommendations tailored and acceptable to each County. While the Profile addresses hurricanes, flooding, wildfire, and sinkholes, during the update of the local Comprehensive Plan, the County should consider other hazards if appropriate such as, tornadoes and soil subsidence.

Table 5.1 Options for Integrating LMS Hazard Mitigation Principles into Lake County's Comprehensive Plan

Strategies & Integration Topics	LMS	Comp Plan	Current LMS Information, Goals, or Objectives	Current Comprehensive Plan Policies	Options for Further Integration into the Comp Plan	Options for Enhancement of the LMS	Basis For Suggested Options
Strategy 1- Collaboration, coordination, and education							
a) Is there information sharing and/or involvement in plan development between planners and emergency managers?	Yes	Yes	**O 2.2** Local agencies and organizations will establish specific interagency agreements for the development and implementation of mitigation-related projects and programs. **O 2.3** Local elected governing bodies will promulgate the local mitigation plan and support community mitigation programming. **O 1.3** The capability to effectively utilize available data and information related to mitigation planning and program development will be available.	**CE P 7-1.5:** The Planning Division shall develop a (GIS) in cooperation with LCWA, DES, the Lake County Tax Assessor's Office, DER, FNAI, ECFRPC, DNR, DACS, Division of Forestry, SJRWMD, and SWFWMD. **ICE P 9-1.2:** Coordinate growth mgt issues which overlap jurisdictional boundaries including disaster preparedness. **ICE P 9-3.7:** Coordinate with the proposed emergency preparedness plans and programs. **ICE P 9-10.2:** Lake County shall coordinate growth management issues which overlap jurisdictional boundaries through cooperative communications ...(including) disaster preparedness and provision of shelter space during emergencies.			
b) Do the Comp Plan, LMS, CEMP, and other local and regional plans cross-reference each other and include consistent data on hazardous locations?	Yes	Yes	**G 6**. The policies and regulations of local government will support effective hazard mitigation programming throughout the community. **O 8.2** Local government emergency response and disaster recovery plans will appropriately consider the needs of key employers in the community. **O 6.2** Land use policies, plans and regulations will discourage or prohibit inappropriate location of structures or infrastructure	**IE P 6C-1.2:** Completion of Stormwater Management Master Plan. **IE P 6C-1.8:** Coordination of Stormwater Management Master Plan with adjacent jurisdictions. **CE P 7-11.1:** Energy Emergency Preparedness Plan. The County shall prepare an energy consumption audit and energy preparedness plan in the event that Florida experiences severe disruptions in its energy supply or price structure.	The Comprehensive Plan can support the LMS and utilize it when making land use decisions and Comprehensive Plan amendments.	The LMS can reference the CEMP as a hazard mitigation tool.	The Comprehensive Plan references and supports many plans that are used in hazard mitigation. It also has numerous policies that promote coordination of mitigation plans and initiatives with neighboring jurisdictions, the State, and Federal Government agencies. Utilizing the LMS as a hazard mitigation tool can strengthen the County's hazard mitigation strategy.

Table 5.1 Options for Integrating LMS Hazard Mitigation Principles into Lake County's Comprehensive Plan

Strategies & Integration Topics	LMS	Comp Plan	Current LMS Information, Goals, or Objectives	Current Comprehensive Plan Policies	Options for Further Integration into the Comp Plan	Options for Enhancement of the LMS	Basis For Suggested Options
			components in areas of higher risk.	**ICE P 9-3.4:** The County shall coordinate plans and improvements issues concerning coordination with State and Federal agencies involve drainage, solid waste and hazardous waste, potable water, sanitary sewer, and natural groundwater aquifer recharge. **ICE P 9-3.7:** The County shall coordinate growth and development proposed within the Comprehensive Plan with the proposed emergency preparedness plans and programs of the Florida Department of Community Affairs and the Lake County Civil Defense Authority. **CE P 7-4.5**: Lake County shall cooperate with the SJRWMD, the SWFWMD, and the Army Corps of Engineers in the implementation of the Burrell Dam Emergency Action Plan.			
c) Are hazard mitigation projects addressed in the 5-year schedule of Capital Improvement Projects?	Yes	Yes	**O 6.3** Local government will ensure that hazard mitigation needs and programs are given appropriate emphasis in resource allocation and decision-making.	**IE P 6C-1.7:** Prioritize and correct the deficiencies identified in the Stormwater Management Master Plan through the Capital Improvements Program.	Prioritize hazard mitigation initiatives found in the LMS in the 5-year Capital Improvements Schedule..		Criteria to prioritize projects in the Capital Improvement Schedule can include dimensions that involve hazard mitigation. By prioritizing mitigation initiatives in the Comp Plan, the LMS goals may be realized.

Table 5.1 Options for Integrating LMS Hazard Mitigation Principles into Lake County's Comprehensive Plan

Strategies & Integration Topics	LMS	Comp Plan	Current LMS Information, Goals, or Objectives	Current Comprehensive Plan Policies	Options for Further Integration into the Comp Plan	Options for Enhancement of the LMS	Basis For Suggested Options
d) Are there measures to educate residents, homeowner/property associations, and the business community of ways they can mitigate against hazards?	Yes	Yes	**O 2.6** The community's public and private sector organizations will partner to promote hazard mitigation programming throughout the community **O 5.1** Adequate systems for notifying the public at risk and providing emergency instruction during a disaster will be available in all identified hazard areas **O 2.4** Outreach programs to gain participation in mitigation programs by business, industry, institutions and community groups will be developed and implemented. **O. 2.5** The community will be periodically updated regarding local efforts in mitigation planning and programming. **O 10.2** Education programs in risk communication and hazard mitigation will be established and implemented. **O 10.4** Technical training in mitigation planning and programming will be given to appropriate local government employees.	**IE P 6E-1.15:** Develop an educational brochure for businesses and residents addressing the County's current water conservation policies, the protection of the aquifer, methods to reuse and conserve water, well abandonment problems and rules, and the use of drought resistant plants.	The Comp Plan could also include policies that support educational programs that address hazard preparedness, the location of evacuation routes and shelters, identification of flood prone areas and properties, programs to retrofit reoccurring loss structures, and wildfire hazard mitigation.		Objectives in the LMS support public and private education of hazard mitigation issues. Adding policies into the Comprehensive Plan can better integrate the two documents and the County's hazard mitigation strategy.The County can educate local site plan reviewers on the importance of flood, wildfire, and sinkhole mitigation as well as the strategies used to reduce the vulnerability. Plan reviewers could then promote these ideas to local developers and explain their importance during the site plan review process.

Table 5.1 Options for Integrating LMS Hazard Mitigation Principles into Lake County's Comprehensive Plan

Strategies & Integration Topics	LMS	Comp Plan	Current LMS Information, Goals, or Objectives	Current Comprehensive Plan Policies	Options for Further Integration into the Comp Plan	Options for Enhancement of the LMS	Basis For Suggested Options
			O 10.5 Owners and operators of businesses and industries in the community will be knowledgable in appropriate hazard mitigation techniques.**O 10.6** The public living or working in defined hazard areas will be aware of that fact, understand their vulnerability and know appropriate mitigation techniques.**O 10.7** The public wil lhave facilitated access to information needed to understand their vulnerability to disasters and effective mitigation techniques.				
Strategy 2 - Get out of the way: provide evacuation and sheltering services							
a) Are there measures to provide adequate evacuation clearance time to support current population and population growth?	Yes	No	**O 3.1** Designated evacuation routes will be relocated, retrofitted or modified to remain open before, during and after disaster events. **O 3.7** Vehicle access routes to key health care facilities will be protected from blockage as a result of a disaster. **O 9.5** Transportation facilities and systems serving the community will be constructed and/or retrofitted to minimize the potential for disruption during a disaster.		Support the Regional Evacuation Plan. Create a Hurricane Evacuation Clearance Time Level of Service. Identify evacuation route deficiencies and support mitigation initiatives in the LMS.		Evacuations often occur on regional levels and on routes shared by numerous jurisdictions. Coordination with the regional evacuation plan may ensure a safe and timely evacuation as well as address regional needs. A Hurricane Evacuation Clearance Time Level of Service standard can act as a quantitative measurement of evacuation route capacity and be used as a goal to improve evacuation clearance times and routes.

Table 5.1 Options for Integrating LMS Hazard Mitigation Principles into Lake County's Comprehensive Plan

Strategies & Integration Topics	LMS	Comp Plan	Current LMS Information, Goals, or Objectives	Current Comprehensive Plan Policies	Options for Further Integration into the Comp Plan	Options for Enhancement of the LMS	Basis For Suggested Options
b) Are there measures to provide adequate shelter space to meet population growth and special needs?	Yes	No	**O 3.2** Designated evacuation shelters will be retrofitted or relocated to ensure their operability during and after disaster events.		Create an Emergency Shelter Capacity Level of Service.Research alternatives to evacuation shelters such as safe rooms and retrofitting existing community facilities to meet shelter demand.Promote cooperation with neighboring jurisdictions and the RPC to address emergency shelter needs.		Emergency Shelter Capacity Level of Service standards can act as a quantitative goal to maintain or improve emergency shelter capacity. The County may help meet shelter demand by researching alternatives to public shelters and working with regional entities.
Strategy 3 - Make the environment less hazardous: Protect and enhance natural protective features							
a) Are there measures to protect and/or restore natural resources that might in turn decrease the risk from natural disasters?	Yes	Yes	**O 6.5** Local governments will protect high hazard natural areas from new or continuing development.	**Natural Resources** **FLUE O 1-2:** Manage and control existing and FLUs located near ESLs, other natural resources and historically significant sites. **FLUE P 1-2.7:** Protect vegetative communities and wildlife habitats by designating them conservation open space, prohibiting dev, and through LDRs. **FLUE P 1-2.13:** Land Acquisition and Adequate Buffering. **FLUE P 1-12.4:** Density Allocations. Consider the following when making density allocations:1. Protect ESAs, particularly wetlands and floodplains; 2. Minimize impacts of flood hazards to development	Update policies that use growth management techniques and conservation and emphasize the benefits of hazard mitigation. Determine whether or not the conserved areas in the County have lifetime designations.	The LMS can promote the conservation and restoration of natural resources that may decrease the risk from natural disasters such as flooding, wildfires, and sinkholes and support the continuance of data collection to identify hazard areas and County vulnerability.	The County has many existing measures that serve to mitigate the impacts of hazards, however the have not been identified as beneficial in this area. Current growth management techniques such as the land conservation program, land acquisition programs, transfer of development rights, and the regulation and prohibition of development in environmentally sensitive lands are employed by the County to protect natural resources but also mitigate the effects of natural disasters. The County should determine whether or not

Table 5.1 Options for Integrating LMS Hazard Mitigation Principles into Lake County's Comprehensive Plan

Strategies & Integration Topics	LMS	Comp Plan	Current LMS Information, Goals, or Objectives	Current Comprehensive Plan Policies	Options for Further Integration into the Comp Plan	Options for Enhancement of the LMS	Basis For Suggested Options
				FLUE P 1-13.4: LDRs shall 1. Protect the ESLs 2. Regulate development within areas which experience seasonal and periodic flooding; 3. Specify drainage and stormwater management requirements; 4. Protect potable water well fields and aquifer recharge areas; **FLUE P 1-17.6:** Principles for Guiding Development within the Green Swamp Area of Critical State Concern. **FLUE G 2**: Protect wetlands, vegetation and wildlife within the Wekiva River Protection Area. **FLUE P 1-20.13:** Maintenance of Open Space System. An open space system shall be maintained. **FLUE P 1-20.14:** Consideration of Environmental Factors. Full consideration shall be given to environmental factors within Lake County as they pertain to land use. **FLUE P 1-22.1:** Encourage Acquisition of Environmentally Sensitive Areas. **CE G** 7: Conserve, protect, restore, and appropriately manage the natural resources and environmental amenities of Lake County.			the conserved areas in the County have lifetime designations. Future land development and regulation can address hazard mitigation issues on land with expiring conservation designations.

Table 5.1 Options for Integrating LMS Hazard Mitigation Principles into Lake County's Comprehensive Plan

Strategies & Integration Topics	LMS	Comp Plan	Current LMS Information, Goals, or Objectives	Current Comprehensive Plan Policies	Options for Further Integration into the Comp Plan	Options for Enhancement of the LMS	Basis For Suggested Options
				CE P 7-3.6: A vegetated and functional littoral zone shall be established as part of any new surface water management system which consists of lakes and wet detention areas greater than or equal to 0.5 acres in size, based upon the 10 year storm event. **ROS P 8-1.8:** Prioritize Land for Acquisition in order to preserve and protect environmentally sensitive land or promote conservation. **ROS O 8-8**:Assure the provision of open space through land acquisition and through designation of land for open space use on the FLUM. **ROS P 8-8.2**: Protect and Preserve Environmentally Sensitive Lands as Open Space. **ROS P 8-8.5A:** Environmentally Sensitive Lands as Open Space.			
b) Are there measures to protect and/or restore natural resources that might in turn decrease the risk from natural disasters? (Continued)	No	Yes		**<u>Sinkholes and Soils</u>** **FLUE O 1.6**: Land Uses Shall Be Located in Areas Compatible with Soil Conditions and Topography Best Suited to Promote the Health, Safety and Welfare of Citizens, Protect Investments in Property and Development, and Assure Preservation and Conservation of ESLs and Other Natural Resources.			

Table 5.1 Options for Integrating LMS Hazard Mitigation Principles into Lake County's Comprehensive Plan

Strategies & Integration Topics	LMS	Comp Plan	Current LMS Information, Goals, or Objectives	Current Comprehensive Plan Policies	Options for Further Integration into the Comp Plan	Options for Enhancement of the LMS	Basis For Suggested Options
				FLUE P 1-2.5: Sinkholes. Protect integrity and function of sinkholes, regulate filling of sinkholes and development in sinkhole areas. **CE P 7-2.14**: Sinkholes, Stream to Sink Basins and Lakes with Internal Drainage. Lake County shall identify all surface waters with strong hydrological connection to the Floridian Aquifer with the assistance of the WMD's. Acquisition of these areas should be considered. **CE P 7-3.11:** Best management practices for the control of soil erosion and sedimentation shall be employed. **CE O 7-12**: Lake County Shall Conserve, Appropriately Use and Protect its Soils through Wise Land Management Practices Consistent with the Physical Properties and Ecological Capabilities of Each Soil Type. **CE P 7-12.1**: Soils Mapping Project. The Planning Division shall incorporate the new SCS county-wide soil survey into its Geographic Information System to be utilized in all development plan review for identifying site limitations.			

Table 5.1 Options for Integrating LMS Hazard Mitigation Principles into Lake County's Comprehensive Plan

Strategies & Integration Topics	LMS	Comp Plan	Current LMS Information, Goals, or Objectives	Current Comprehensive Plan Policies	Options for Further Integration into the Comp Plan	Options for Enhancement of the LMS	Basis For Suggested Options
				CE P 7-12.2: Protection of Soil Qualities. The County, in cooperation with the IFAS, the FDACS, and other relevant agencies, shall require adherence to best management practices (BMP's) for agricultural and silvicultural operations which will protect the biological diversity and general health of soils. **CE P 7-12.3**: Construction Practices to Protect Soils. The County shall require Best Management Practice provisions be utilized in construction for the prevention of soil erosion. **CE P 7-12.5:** Slope and Land Use. The County shall prescribe land use development limitations for severe slopes.			
c) Are there measures to protect and/or restore natural resources that might in turn decrease the risk from natural disasters? (Continued)	No	Yes		**<u>Floodplain and Wetlands</u>** **FLUE P 1-2.1C:** In the Green Swamp ACSC, density may be transferred from the wetlands. **FLUE P 1-2.2:** Floodplains shall be protected from impacts of development. **FLUE P 1-2.6:** Lake Front and Wetland Littoral Zone. To protect lake front and wetland areas from the encroachment of development, the County shall implement the following shoreline protection standards including setbacks and buffers.			

Table 5.1 Options for Integrating LMS Hazard Mitigation Principles into Lake County's Comprehensive Plan

Strategies & Integration Topics	LMS	Comp Plan	Current LMS Information, Goals, or Objectives	Current Comprehensive Plan Policies	Options for Further Integration into the Comp Plan	Options for Enhancement of the LMS	Basis For Suggested Options
				FLUE P 1-18.7: Lake County shall minimize the adverse impacts of development on wetlands. **FLUE P 1-18.8**: Lake County shall protect the water-retention, and biological filtering capabilities of wetlands. **FLUE P 1-19.2**: Lake County shall, in the Green Swamp Area of Critical State Concern, conserve and protect the environmental resources. **FLUE P 1-19.4:** Minimize the adverse impacts of development on flood detention areas, protect t natural drainage basins, protect capacity of flood detention areas. **FLUE P 1A-2.9:** Treatment of Wetlands for Development Approval. Wetlands within a project shall be placed in a conservation easement. **FLUE P 1-20.7:** Setbacks requirements from wetlands and water bodies shall apply to all development activity proposed within the Wekiva River Protection Area. **FLUE O 1-21**: Land use issues related to conservation of water resources, wetlands, floodplains, natural habitats, natural vegetation, environmentally sensitive areas, and mining activities. Within the Wekiva River Protection Area, Lake County shall protect the features of the natural environment through the following policies.			

Table 5.1 Options for Integrating LMS Hazard Mitigation Principles into Lake County's Comprehensive Plan

Strategies & Integration Topics	LMS	Comp Plan	Current LMS Information, Goals, or Objectives	Current Comprehensive Plan Policies	Options for Further Integration into the Comp Plan	Options for Enhancement of the LMS	Basis For Suggested Options
				FLUE P 1-21.2: Lake County shall implement policies aimed at controlling the density of waterfront development. **FLUE P 1-21.5:** Protection and Conservation of Wetland Areas. Lake County shall implement policies which are aimed at protecting and conserving wetland areas. **FLUE P 1-21.6:** Protection of Wetlands and Wetlands Systems. **IE P 6C-2.9:** Non-structural solutions may include the use of conservation areas and maintaining floodplain protection (capacity) through the provision of compensating storage. **IE O 6C-4**: Protect the functions of natural features. Lake County shall: 1) minimize the occurrence of flooding that is a threat to human health or property; 2) identify and prohibit drainage wells; and 3) improve its ability to manage stormwater so as to minimize the degradation of surface water in order to protect the functions of natural features. **IE P 6C-4.1:** Protection of natural features through the land development regulations and the stormwater management ordinance.			

Table 5.1 Options for Integrating LMS Hazard Mitigation Principles into Lake County's Comprehensive Plan

Strategies & Integration Topics	LMS	Comp Plan	Current LMS Information, Goals, or Objectives	Current Comprehensive Plan Policies	Options for Further Integration into the Comp Plan	Options for Enhancement of the LMS	Basis For Suggested Options
				IE P 6C-4.4: Require that retention/detention areas be designed and located so as to not adversely reduce the existing flood storage of the flood plain. **CE P 7-3.5:** Protect lakefront and wetland areas from the encroachment of development **CE O 7-4**: Protect the 100-year floodplain. **CE P 7-4.1:** Floodplain Management Program. Lake County shall develop a strict floodplain management program designed to preserve hydrologically significant wetlands and other natural floodplain features. **CE P 7-4.2:** Preserve Flood Storage Capacity. **CE O 7-5**: Protect and preserve wetland values and functions **CE P 7-5.2:** Wetland Protection and Mitigation Procedures . **CE P 7-5.3:** Best Land Management Practices Within Wetlands. **CE P 7-5.4A:** To protect the quality and quantity of surface waters. **CE P 7-5.6:** Protection of aquatic vegetation in order to control shoreline erosion.			

Table 5.1 Options for Integrating LMS Hazard Mitigation Principles into Lake County's Comprehensive Plan

Strategies & Integration Topics	LMS	Comp Plan	Current LMS Information, Goals, or Objectives	Current Comprehensive Plan Policies	Options for Further Integration into the Comp Plan	Options for Enhancement of the LMS	Basis For Suggested Options
d) Are there measures to protect and/or restore natural resources that might in turn decrease the risk from natural disasters? (Continued)	Yes	Yes	**O 6.9** Regulations will be established and enforced to ensure that public and private property maintenance is consistent with minimizing vulnerabilities to disaster.	**Wildfire Hazard Areas** **FLUE P 1-2.13:** Land Acquisition and Adequate Buffering. The County shall permit normal best management practices associated with native habitats such as controlled burning within Public Resource Lands. **FLUE P 1-18.4**: Protection of the Water Supply. Lake County shall protect the normal supply of ground and surface waters. **CE O 7-2**: Protect and conserve groundwater quantity and quality. **CE P 7-2.5:** Enforcement of the Emergency Water Shortage Plan 9J-5.013(2)(c)(4). Lake County shall cooperate with the SJRWMD and the SWFWMD in the enforcement of the provisions of these Water Management District's emergency water shortage plans. **CE O 7-3**: Protect and conserve surface water quality and surface water quantity through cooperation with Federal, state, regional, and local governments to conserve, protect and restore the county's surface waters.	Explore hazard mitigation resources provided by the Florida Division of Forestry and develop a relationship to use their services carry out prescribed burning. Include provisions in the LDRs for vegetation maintenance and require removal of exotic vegetation or land cover that could be conducive to wildfire prior to development.	The LMS could include objectives that promote wildfire mitigation strategies including prescribed burning.	Resources may be available to mitigate wildfire hazards. Since fire risk is greater in urban areas, measures could be taken to reduce the likely hood of fire spreading to forested areas by creating a buffer zone around development.

Table 5.1 Options for Integrating LMS Hazard Mitigation Principles into Lake County's Comprehensive Plan

Strategies & Integration Topics	LMS	Comp Plan	Current LMS Information, Goals, or Objectives	Current Comprehensive Plan Policies	Options for Further Integration into the Comp Plan	Options for Enhancement of the LMS	Basis For Suggested Options
Strategy 4 - Make structures more resistant to natural hazard forces							
a) Are there measures that support retrofitting or relocating private and/or public structures in hazard areas?	Yes	No	**O 3.3** Local emergency services facilities will be retrofitted or relocated to withstand the structural impacts of disasters. **O 3.5** Shelters or structures for vehicles and equipment needed for emergency services operation will be retrofitted or relocated to withstand disaster impacts. **O 3.6** Utility and communications systems supporting emergency services operations will be retrofitted or relocated to withstand the impacts of disasters. **O 4.1** Buildings and facilities used for the routine operations of government will be retrofitted or relocated to withstand the impacts of disasters. **O 4.4** Plans and programs will be available to assist local government employees in retrofitting or relocating their homes to ensure their availability during a disaster. **O 5.4** Public and private medical and health care facilities in the community will be retrofitted or relocated to withstand the impacts of disasters. **O 5.6** Residential structures will be retrofitted to withstand the physical impacts of disasters.		Adopt policies that support retrofitting or relocating private and public structures in hazard areas. Encourage programs that facilitate retrofitting structures to comply or exceed building codes through grant or loan programs. Encourage and or assist in retrofit, relocation, or demolition of repetitive loss structures.	Create objective that commits to the reduction of repetitive loss structures	There are many LMS objectives at address the relocation or retrofitting of structures. This hazard mitigation strategy could be better implemented by creating Comp Plan policies addressing this strategy. Also, addressing repetitive loss structures before flooding events can reduce risk to persons and property.

Table 5.1 Options for Integrating LMS Hazard Mitigation Principles into Lake County's Comprehensive Plan

Strategies & Integration Topics	LMS	Comp Plan	Current LMS Information, Goals, or Objectives	Current Comprehensive Plan Policies	Options for Further Integration into the Comp Plan	Options for Enhancement of the LMS	Basis For Suggested Options
			O 6.1 All reconstruction or rehabilitation of local government facilities will incorporate techniques to minimize the physical or operational vulnerability to disasters. **O 7.3** Programs for removal, relocation or retrofitting of vulnerable structures and utilities in hazard areas will be established and implemented. **O 7.4** The vulnerability to disasters of schools, libraries, museums, and other institutions important to the daily lives of the community will be minimized.**O 6.6** Local jurisdictions will participate fully in the National Flood Insurance Program and the associated Community Rating System.				
b) Are there measures to protect cultural resources from natural hazards?	No	No		**FLUE P 1-2.8**: Historically Significant Sites. Regulates density and intensity near historical sites. **FLUE P 1-2.9:** Preventing Detrimental Impacts of Development on Historic Sites. **FLUE P 1-2.10:** Preventing Destruction of Discovered Archaeological Sites. **HE O 5-6**: Promote the Identification of Historically Significant Housing. **HE P 5-6.2:** Promote the Conservation of Historically Significant Housing.	Assess the vulnerability and risk of historical structures to various hazards. Support historic preservation by analyzing risks to historic and cultural resources and prioritizing initiatives to mitigate these risks.	Create a policy that commits to the preservation of cultural and historic resources and supports their protection from natural hazards.	Currently the Comp Plan addresses the identification of historic and archeological sites and protects these resources through development regulations and conservation. Natural Hazards are not addressed. Adding policies that support preventive measures to historic structures and sites can be taken and may reduce damage from natural disasters.

Table 5.1 Options for Integrating LMS Hazard Mitigation Principles into Lake County's Comprehensive Plan

Strategies & Integration Topics	LMS	Comp Plan	Current LMS Information, Goals, or Objectives	Current Comprehensive Plan Policies	Options for Further Integration into the Comp Plan	Options for Enhancement of the LMS	Basis For Suggested Options
c) Are there measures to require compliance with or exceed building codes and/or design standards for certain hazard areas?	Yes	Yes	**O 5.3** Facilities in the community posing an extra health or safety risk when damaged or disrupted will be made less vulnerable to the impacts of a disaster. **O 6.4** Local governments will establish and enforce building and land development codes that are effective in addressing the hazards threatening the community. **O 6.6** Local jurisdictions will participate fully in the National Flood Insurance Program and the associated Community Rating System.	**FLUE P 1-2.1A:** For developments consisting of 100 acres or more, the developer will conduct a study which evaluates the quality and integrity of existing wetland systems and establish areas for preservation and/or restoration. **FLUE P 1A-2.10**: Flood Insurance Study Requirements. A detailed flood insurance study shall be performed for all subdivision proposals and other proposed development **FLUE P 1-2.1B:** Wetland Requirements for Site Plans. Site plans require wetlands and measures to avoid them including clustering, buffering, TDR, protective vegetation, and mitigation measures. **FLUE P 1-2.1E:** Control of Wetlands During Platting. To the extent practicable, wetlands within a project shall be placed in a conservation easement. **FLUE P 1-2.5:** Sinkholes. Development shall not be permitted within nor allowed to fill sinkholes. **FLUE P 1-2.6:** To protect lake front and wetland areas from the encroachment of development, the County shall implement the following shoreline protection standards and incorporate them into the LDRs.	Support enforcement of the Florida Building Code and establish higher standards for structures in high risk hazard areas. Adopt firewise building code requirements for defined high fire risk areas.	Support the enhancement of codes that mitigate against flooding and wildfires.	Enforcing a strong building code may create stronger structures that can better withstand natural disasters. A firewise building code can reduce wildfire risk to structures and persons.

Table 5.1 Options for Integrating LMS Hazard Mitigation Principles into Lake County's Comprehensive Plan

Strategies & Integration Topics	LMS	Comp Plan	Current LMS Information, Goals, or Objectives	Current Comprehensive Plan Policies	Options for Further Integration into the Comp Plan	Options for Enhancement of the LMS	Basis For Suggested Options
				FLUE P 1-2.12: Development proposals, as listed in FLUE P 1-2.2, within the 100-year floodplain of the four river basins in Lake County (Wekiva, Oklawaha, Palatlakaha, and St. Johns Rivers) shall demonstrate, prior to the approval of such development, that the development will not degrade the water quality and floodplain functions and values. No development, other than that listed in FLUE P 1-2.2, shall be permitted in the 100 year floodplain. **FLUE P 1-19.3:** Lake County shall enforce the County's Floodplain Ordinance. **FLUE P 1-20.13:** Maintenance of Open Space System. Require all structures to have floor elevations at least eighteen (18) inches above the 100-year flood plain. **IE P 6C-1.6:** Contour Interval Mapping. By 1993, a complete detailed County-wide mapping at one (1) foot contour intervals shall be obtained from the SJRWMD and the SWFWMD. The Federal Insurance Rate Map (FIRM) shall continue to be used as the basis for development review.			

Table 5.1 Options for Integrating LMS Hazard Mitigation Principles into Lake County's Comprehensive Plan

Strategies & Integration Topics	LMS	Comp Plan	Current LMS Information, Goals, or Objectives	Current Comprehensive Plan Policies	Options for Further Integration into the Comp Plan	Options for Enhancement of the LMS	Basis For Suggested Options
				IE P 6C-3.6: Adequate Flood Protection. Lake County Land Development Regulations shall include provisions that require stormwater management systems within all development to be designed and installed to provide adequate flood protection for all primary structures and to protect the structural integrity of all roadways. **FLUE P 1-1B.3:** Requirements for Site Plan Submittals. The location and significance of topography, wetlands, vegetation, wildlife habitat, flood hazard, the 100 year flood area, and soils for a particular site will be identified and set forth on the site plan as part of the development review process.			

Table 5.1 Options for Integrating LMS Hazard Mitigation Principles into Lake County's Comprehensive Plan

Strategies & Integration Topics	LMS	Comp Plan	Current LMS Information, Goals, or Objectives	Current Comprehensive Plan Policies	Options for Further Integration into the Comp Plan	Options for Enhancement of the LMS	Basis For Suggested Options
Strategy 5 - Manage the development and redevelopment in hazardous areas							
a) Are there measures to limit population densities in high-hazard areas?	Yes	Yes	**O 5.5** Residential structures will be removed or relocated from defined hazard areas. **O 6.2** Land use policies, plans and regulations will discourage or prohibit inappropriate location of structures or infrastructure components in areas of higher risk. **O 6.7** New local government facilities will be located outside of hazard areas and/or will be designed to not be vulnerable to the impacts of such hazards.	**FLUE P 1-21.4:** Restriction of Development within the Floodplain.	Limit populations within high hazard zones.	Support development and the location of future populations away from hazard areas.	The County can limit populations within high hazard zones. The Comp Plan has many policies that regulate development in flood-prone areas and karst sensitive areas. The LDRs contain criteria that analyze site plans based on a number of environmental factors. These factors address natural resources associated with natural disasters and limit density and intensity of development near or on them. Policies can be amended and added to the Comprehensive Plan that employ these methods to regulate or prohibit development in high hazard areas
b) Are there measures to limit public expenditures that subsidize development in high-hazard areas?	Yes	Yes	**O 6.7** New local government facilities will be located outside of hazard areas and/or will be designed to not be vulnerable to the impacts of such hazards.	**CIE P 3.2:** Public facilities shall be limited in the 25-Year Floodplain.**CIE O 10-3**: Public expenditures located in county designated conservation lands or lands qualifying as environmentally sensitive shall be limited.			

Table 5.1 Options for Integrating LMS Hazard Mitigation Principles into Lake County's Comprehensive Plan

Strategies & Integration Topics	LMS	Comp Plan	Current LMS Information, Goals, or Objectives	Current Comprehensive Plan Policies	Options for Further Integration into the Comp Plan	Options for Enhancement of the LMS	Basis For Suggested Options
c) Are there creative neighborhood design solutions or development regulations that mitigate hazards, such as clustering or transfer of development rights?	No	Yes		**FLUE O 1-11:** Promote innovative land development applications through PUDs, TDRs, Overlay Districts, and PDRs. **FLUE P 1-11.3:** Countywide Transfer of Development Rights (TDR) Program. By February 1992, Lake County shall complete a feasibility study which shall weigh the merits of implementing a Countywide TDR Program. **FLUE P 1-11.18**: Environmentally sensitive resources as defined in the Conservation Element, shall be protected or preserved through the use of clustering, density bonuses, additional mandatory open space provision, or other planning and development tools. **FLUE P 1-20.4:** Density and Intensity of Land Use Within the Wekiva River Protection Area. Lake County shall limit density within the Wekiva River Protection Area using overlay districts, and TDR. **FLUE P 1-20.10:** Lakeshore and Waterfront Development. Lakeshore and waterfront development shall o avoid damage to indigenous environmental factors.		The LMS could add an objective that supports the use of innovative development techniques that may reduce risk to natural disasters.	

Table 5.1 Options for Integrating LMS Hazard Mitigation Principles into Lake County's Comprehensive Plan

Strategies & Integration Topics	LMS	Comp Plan	Current LMS Information, Goals, or Objectives	Current Comprehensive Plan Policies	Options for Further Integration into the Comp Plan	Options for Enhancement of the LMS	Basis For Suggested Options
d) Are there measures to limit redevelopment in hazard areas and procedures for post-disaster recovery that will lead to a more disaster-resistant community?	Yes	No	**O 4.2** Community redevelopment plans will be prepared to guide decision-making and resource allocation by local government in the aftermath of a disaster.**O 6.8** Reconstruction and rehabilitation of structures and utilities in the community will incorporate appropriate hazard mitigation techniques.**O 4.5** Plans will be developed , and resources identified, to facilitate reestablishing local government operations after a disaster.		Develop a post-disaster recovery strategy for business.Prohibit or restrict repair or replacement of non-conforming special needs facilities or manufactured / mobile homes if damaged beyond a defined threshold.Redevelopment must occur at intensity / density of the land use designation currently in place.Approval for repairs and rebuilding should be based on the post-disaster redevelopment plan.		Economic vitality of a community may recover from a natural disaster quicker and more affectively with a post-disaster recovery strategy for business. Non-conformities can be removed in order to reduce the potential of future losses and be replaced with conforming structures. Redevelopment in hazard areas may be regulated to conform to existing mitigation strategies. Following the post-disaster redevelopment plan can reduce risks associated with natural disasters and create a safer place residents to live and work.

Abbreviations: G= Goal; O= Objective; P=Policy; PDRP= Post-Disaster Redevelopment Plan; HVZ= Hurricane vulnerability zone; CHHA= Coastal High Hazard Area
CE= Conservation Element; HE= Housing Element; FLUE= Future Land Use Element; UE= Utilities Element; CIE= Capital Improvements Element; IE= Infrastructure Element; CME= Coastal Management Element

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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 Potential Sinkhole Hazard Areas

Attachment D

Lake County Local Mitigation Strategy Goals and Objectives

1. Local government will have the capability to develop, implement and maintain effective mitigation programs

- Data and information needed for defining hazards, risk areas and vulnerabilities will be readily available
- Emergency services organizations will have the capability to detect emergency situations and promptly initiate emergency response operations
- The capability to effectively utilize available data and information related to mitigation planning and program development will be available
- The effectiveness of mitigation initiatives implemented in the community will be measured and documented
- There will be a program to derive mitigation "lessons learned" from each significant disaster event occurring in or near the community
- Up-to-date technical skills in mitigation planning and programming will be available for the community

2. All sectors of the community will work together to create a disaster resistant community by the year 2020

- A business continuity and recovery program will be established and implemented in the community
- Local agencies and organizations will establish specific interagency agreements for the development and implementation of mitigation-related projects and programs
- Local elected governing bodies will promulgate the local mitigation plan and support community mitigation programming
- Outreach programs to gain participation in mitigation programs by business, industry, institutions and community groups will be developed and implemented
- The community will be periodically updated regarding local efforts in mitigation planning and programming
- The community's public and private sector organizations will partner to promote hazard mitigation programming throughout the community

3. The community will have the capability to initiate and sustain emergency response operations during and after a disaster

- Designated evacuation routes will be relocated, retrofitted or modified to remain open before, during and after disaster events
- Designated evacuation shelters will be retrofitted or relocated to ensure their operability during and after disaster events
- Local emergency services facilities will be retrofitted or relocated to withstand the structural impacts of disasters
- Response capabilities will be available to protect visitors, special needs individuals, and the homeless from a disaster's health and safety impacts
- Shelters or structures for vehicles and equipment needed for emergency services operation will be retrofitted or relocated to withstand disaster impacts
- Utility and communications systems supporting emergency services operations

will be retrofitted or relocated to withstand the impacts of disasters
- Vehicle access routes to key health care facilities will be protected from blockage as a result of a disaster

4. The continuity of local government operations will not be significantly disrupted by disasters

- Buildings and facilities used for the routine operations of government will be retrofitted or relocated to withstand the impacts of disasters
- Community redevelopment plans will be prepared to guide decision-making and resource allocation by local government in the aftermath of a disaster
- Important local government records and documents will be protected from the impacts of disasters
- Plans and programs will be available to assist local government employees in retrofitting or relocating their homes to ensure their availability during a disaster
- Plans will be developed, and resources identified, to facilitate reestablishing local government operations after a disaster
- Redundant equipment, facilities, and/or supplies will be obtained to facilitate reestablishing local government operations after a disaster

5. Mitigation efforts will be a continuing priority activity to protect the health, safety and welfare of the community's residents.

- Adequate systems for notifying the public at risk and providing emergency instruction during a disaster will be available in all identified hazard areas
- Effective structural measures will be developed to protect residential areas from the physical impacts of disasters
- Facilities in the community posing an extra health or safety risk when damaged or disrupted will be made less vulnerable to the impacts of a disaster
- Public and private medical and health care facilities in the community will be retrofitted or relocated to withstand the impacts of disasters
- Residential structures will be removed or relocated from defined hazard areas
- Residential structures will be retrofitted to withstand the physical impacts of disasters
- Safety devices on transportation networks will not fail because of a disaster
- Structures, facilities and systems serving visitors to the community will be prepared to meet their immediate health and safety needs
- There will be adequate resources, equipment and supplies to meet victims' health and safety needs after a disaster

6. The policies and regulations of local government will support effective hazard mitigation programming throughout the community

- All reconstruction or rehabilitation of local government facilities will incorporate techniques to minimize the physical or operational vulnerability to disasters
- Land use policies, plans and regulations will discourage or prohibit inappropriate location of structures or infrastructure components in areas of higher risk
- Local government will ensure that hazard mitigation needs and programs are given appropriate emphasis in resource allocation and decision-making
- Local governments will establish and enforce building and land development codes that are effective in addressing the hazards threatening the community
- Local governments will protect high hazard natural areas from new or continuing development

- Local jurisdictions will participate fully in the National Flood Insurance Program and the associated Community Rating System
- New local government facilities will be located outside of hazard areas and/or will be designed to not be vulnerable to the impacts of such hazards
- Reconstruction and rehabilitation of structures and utilities in the community will incorporate appropriate hazard mitigation techniques
- Regulations will be established and enforced to ensure that public and private property maintenance is consistent with minimizing vulnerabilities to disaster

7. Community residents will have homes, institutions and places of employment that are less vulnerable to disasters

- Economic incentive programs for the general public, businesses and industry to implement structural and non-structural mitigation measures will be established
- Local government will support key employers in the community in the implementation of mitigation measures for their facilities and systems
- Programs for removal, relocation or retrofitting of vulnerable structures and utilities in hazard areas will be established and implemented
- The vulnerability to disasters of schools, libraries, museums, and other institutions important to the daily lives of the community will be minimized

8. The community's economic vitality will be less threatened by a disaster

- Components of the infrastructure needed by the community's businesses and industries will be protected from the impacts of disaster
- Local government emergency response and disaster recovery plans will appropriately consider the needs of key employers in the community
- Local government will encourage community businesses and industries to make their facilities and operations disaster resistant
- Local government will establish programs, facilities and resources to support business resumption activities by impacted local businesses and industry
- Local government will implement programs to address public perceptions of community condition and functioning in the aftermath of a disaster
- Local government will strive to diversify the employment base of the community

9. The community's infrastructure will be better protected and less vulnerable to a disaster

- Local governments will encourage hazard mitigation programming by private sector organizations owning or operating key community utilities
- Routine maintenance of the community's infrastructure will be done to minimize the potential for system failure because of or during a disaster
- Sources of energy normally used by the community will not be unwarrantedly vulnerable to the impacts of a disaster
- The telecommunications systems and facilities serving the community will not be unwarrantedly vulnerable to the impacts of a disaster
- Transportation facilities and systems serving the community will be constructed and/or retrofitted to minimize the potential for disruption during a disaster
- Water and sewer services in the community will not fail because of a disaster

10. Members of the community will have the opportunity to learn of the hazards threatening local areas and the techniques to minimize vulnerability to those hazards

- All interested individuals will be encouraged to participate in hazard mitigation planning and training activities.
- Education programs in risk communication and hazard mitigation will be established and implemented
- Managers of public facilities will be knowledgeable in hazard mitigation techniques and the components of the community's mitigation plan
- Technical training in mitigation planning and programming will be given to appropriate local government employees
- The owners and operators of businesses and industries in the community will be knowledgeable in appropriate hazard mitigation techniques
- The public living or working in defined hazard areas will be aware of that fact, understand their vulnerability and know appropriate mitigation techniques
- The public will have facilitated access to information needed to understand their vulnerability to disasters and effective mitigation techniques

Attachment E

Lake County Comprehensive Plan Excerpts Related to Hazard Mitigation

Future Land Use Element

Policy 1-1B.3: Requirements for Site Plan Submittals. The location and significance of topography, wetlands, vegetation, wildlife habitat, flood hazard, the 100 year flood area, and soils for a particular site will be identified and set forth on the site plan as part of the development review process.

Objective1-2: PLANNING FOR CONSERVATION OF ENVIRONMENTALLY SENSITIVE LANDS, OTHER NATURAL RESOURCES, AND HISTORICALLY SIGNIFICANT SITES. Manage and Control Existing and Future Land Uses Located Within or Adjacent to Environmentally Sensitive Lands, Other Significant Natural Resources, and Historically Significant Sites.

Policy 1-2.1A: Wetlands Study Requirements. For developments consisting of 100 acres or more, the developer will conduct a study which evaluates the quality and integrity of existing wetland systems and establish areas for preservation and/or restoration.

Policy 1-2.1B: Wetland Requirements for Site Plans. The County shall require site plans for all proposed development. The site plan shall require:

1. an identification of the location and extent of wetlands on the property to be developed (wetland delineations shall be determined in the field by agencies exercising jurisdiction). This cost shall be the responsibility of the developer;
2. assurances that the normal flow regime and quality (of the historic hydroperiod) will be maintained after development;
3. the proposed development to be clustered away from the wetland areas;
4. an appropriate upland buffer (see policies on buffers);
5. allowing the transfer of development from wetlands to the upland portion of the site;
6. maximizing the use of the uplands and minimizing the use of the wetlands. Except for water dependent activities and access, there shall be no dredge or fill activities in wetlands. In those instances where dredge or fill activities are authorized, the developer must demonstrate that (a) there is no other reasonable, practical or economical alternative, (b) without the dredge or fill activity the property owner will be deprived of all reasonable uses of the property, and that he can adequately mitigate for the dredge or fill activity; and
7. assurances that the development shall be directed away from the wetlands and conducted in a manner to protect the vegetation, habitat and the water storage, water quantity, water quality, and recharge functions of the wetlands.

Policy 1-2.1C: Wetland Density Transfers in the Green Swamp ACSC. In the Green Swamp ACSC, density may be transferred from the wetlands to the upland portions of a site at a ratio of 1 unit to 20 acres of wetlands. In the other areas of the County, density may be transferred from the wetlands to the upland portions of a site at a ratio of 1 unit to 5 acres of wetlands.

Policy 1-2.1E: Control of Wetlands During Platting. To the extent practicable, wetlands within a project shall be placed in a conservation easement which shall run in favor of, and be enforceable by, a homeowners' association or the County, at its option. In determining whether it is practical to convey a conservation easement to a homeowners' association or the County, the County shall take into account the following factors: (1) the number of lots in the subdivision; (2) the size of the subdivision; (3) the size of the wetlands; and (4) the location of the wetlands. The conservation easement shall require that the wetlands be maintained in their natural and unaltered state. To the extent practicable, wetlands shall not be included as part of any platted lot, other than a lot platted as a common area, which shall be dedicated to the homeowners' association or the County for ownership and maintenance.

Policy 1-2.2: Floodplains (Areas Subject to Periodic Flooding or Seasonal Flooding) and Stormwater Management. The 100 year floodplain (as designated by FEMA) may be utilized for storage of floodwater, passive recreation, conservation facilities, water dependent activities and public infrastructure. Development, unless otherwise provided for in this policy, shall not encroach the 100 year floodplain with exception of:

1. Passive recreation or conservation activities are limited to the following:
   a. boardwalks;
   b. hiking/horseback trails;
   c. primitive camp sites in designated recreation areas;
   d. picnic areas;
   e. recreation facilities that do not require cleared open areas greater than 10,000 square feet and thatdo not contain a permanent structure exceeding 1,000 square feet that impede the movement of air or light.

2. Conservation facilities are limited to the following:
   a. stormwater management facilities designed to protect the natural surface water flow regime and hydroperiod and groundwater quality or quantity
   b. fire lanes and fire towers
   c. facilities designed to protect nesting, feeding, or habitat areas for designated species, or to support the propagation of other game and non-game species
   d. facilities designed to protect an archaeological or historical site
   e. facilities designed to retard or eliminate soil erosion problems
   f. facilities designed to eradicate exotic vegetation

g. wildlife monitoring stations. In the event that development is proposed within the 100 year floodplain the following shall apply:
   1. compensating storage shall be required;
   2. the natural hydrological character of the surface waters (flow regime) shall be maintained;
   3. natural surface water flows, particularly, sheet flows, shall be maintained;
   4. surface water quality and quantity shall be maintained;
   5. floor elevations shall be raised eighteen inches (18) above the 100 year flood elevation;
   6. septic systems and drain fields may be authorized only where the septic tank and drain fields are necessary to allow single family development;
   7. the maximum density shall be one unit per acre; and

For purposes of this policy, public infrastructure includes roads, bridges, water and sewer distribution lines (does not include water and wastewater treatment facilities), and other similar public facilities necessary to protect and maintain public health, safety, and welfare.

Policy 1-2.5: Sinkholes. Sinkholes present within the County are too small to appear on the "Future Land Use Map". Due to unstable soils and high relief of slopes associated with sink holes, development shall not be permitted within nor allowed to fill sinkholes unless specific conditions are met. The type, density and intensity of land uses established adjacent to sinkholes shall be limited to activities which will not cause further expansion of the hole. Where a proposed development activity site contains a sinkhole, setbacks and buffering shall be required. Specific setbacks and permanent buffering shall be determined by the County and shall be based on the recommendations of a State registered geologist. Based on the recommendation of a State registered geologist, small diameter sinkholes shall be back-filled with a mixture of soil material (preferably clay) which will divert water from directly entering an aquifer. Where one hundred percent clay fill is cost prohibitive, the soil material shall be of a mixture which provides percolation and filtration. All sinkholes shall contain a permanent grassed swale to divert runoff and shall not be used as part of the stormwater conveyance system. Diversion of stormwater directly or indirectly to sinkholes is prohibited.

Policy 1-2.6: Lake Front and Wetland Littoral Zone. To protect lake front and wetland areas from the encroachment of development, the County shall implement the following shoreline protection standards and incorporate these standards into the land development regulations.

1. The County shall establish a minimum setback of 50 feet from the ordinary high water line or as farlandward as possible based on the depth of the lot for all development, except for water-dependent development such as docks.

2. The County shall require a 100 foot setback, or a setback as far landward as possible based on the depth of the lot, from the ordinary high water line of lakes and wetlands for the installation of septic tanks and drainfields in addition to the requirements of Chapter 10D-6, F.A.C.
3. The County shall require compliance with Florida Department of Natural Resources regulations in Chapters 16C-20 and 18-20, F.A.C., regarding removal of shoreline vegetation. In addition, the County shall extend the provisions of Chapter 16C-20, F.A.C., so as to make the provisions applicable to all waters of the State. Provided, however, the extension of this policy shall be implemented in manner so as to not unreasonably infringe upon the common law or statutory riparian rights of the upland riparian property owners.
4. The County shall prohibit the disposal of yard waste along the shoreline and in wetlands. In order to protect the quality and quantity of surface water and provide habitat for semi-aquatic or water-dependent terrestrial species of wildlife, upland buffer zones shall be established in conformance with **Policies 1-2.1** for vegetation occurring within the 100 year floodplain in limnic systems.

Policy 1-2.7: Vegetative Communities and Wildlife Habitats. In conformance with Objectives 7-6, 7-7, 7-8, and 7-9 of the Conservation Element and accompanying policies, vegetative communities and wildlife habitats shall be protected from adverse effects associated with development. Significant areas for which the County seeks to prevent the encroachment of or intrusion by development shall either be:

1. designated as conservation open space, precluding the encroachment or intrusion of development altogether; or
2. developed consistent with the provisions within this Plan and incorporated into the Land Development Regulations which shall require developments to preserve portions of developable upland containing designated species areas for environmental preservation. The development review process shall determine the extent to which preservation for vegetative communities and wildlife habitats shall be protected from development and shall include the requirement to provide open space.

Policy 1-2.8: Historically Significant Sites. Any structure, building, or site which is deemed historically significant and is placed on the Florida Master File or the National Register of Historic Places shall be identified on the "Future Land Use Map" Series. If type, density and intensity of adjacent land use shown on the "Future Land Use Map" is not compatible to the preservation of a historic site, then appropriate buffering and screening techniques shall be requirements imposed on adjacent new development. Such requirements shall be stipulated within the Land Development Regulations.

Policy 1-2.9: Preventing Detrimental Impacts of Development on Historic Sites. The County shall prevent detrimental impacts of development to historic sites including provisions within the

Land Development Regulations which preclude: 1) destruction or alteration of all or part of such site: 2) transfer or sale of a site of historical significance without adequate conditions or restrictions regarding continued preservation, maintenance, or use of such property; 3) encroachment or introduction of visible, audible, or atmospheric elements which are inconsistent with the character of the property; and 4) alteration or destruction of the site's surrounding environment.

Policy 1-2.10: Preventing Destruction of Discovered Archaeological Sites. Development shall cease construction activities on a development site when unidentifiable artifacts are uncovered during either land preparation or construction. The developer shall notify the County of such potential discovery, and the County and/or the developer shall contact the Florida Department of State of such discovery. Construction shall not begin until the State has determined the archaeological significance of the discovery and the restrictions which shall be imposed on development. Development may continue in areas which will not impact the site of the discovery.

Policy 1-2.12: 100-Year Floodplain - Water Quality. Development proposals, as listed in Policy 1-2.2, within the 100-year floodplain of the four river basins in Lake County (Wekiva, Oklawaha, Palatlakaha, and St. Johns Rivers) shall demonstrate, prior to the approval of such development, that the development will not degrade the water quality and floodplain functions and values. No development, other than that listed in Policy 1-2.2, shall be permitted in the 100 year floodplain.

Objective 1.6: COORDINATE FUTURE LAND USES WITH TOPOGRAPHY AND SOIL CONDITIONS. Land Uses Shall Be Located in Areas Compatible with Soil Conditions and Topography Best Suited to Promote the Health, Safety and Welfare of Citizens, Protect Investments in Property and Development, and Assure Preservation and Conservation of Environmentally Sensitive Lands and Other Natural Resources.

Policy 1-2.13: Land Acquisition and Adequate Buffering. Lake County shall attempt to coordinate efforts to acquire public lands for conservation, preservation, and open space and shall provide for the adequate buffering of Public Resource Lands from potentially incompatible adjacent land uses. The County shall permit normal best management practices associated with native habitats such as controlled burning within Public Resource Lands.

Objective 1-11: Promote innovative land development applications. Lake County Shall Promote the use of Innovative Land Development Regulations and Applications Through the Use of Planned Unit Development (PUD) Designations, Mixed Use Quality Developments (MUQD), Use of Transfer of Development Rights, Rural Village Concept, Traditional Neighborhood Designations, Mandatory Open Space Provisions, Overlay Districts, Clustering Requirements, Purchase of or Diversion of Development Rights on Sensitive Lands.

Policy 1-11.3: Countywide Transfer of Development Rights (TDR) Program. By February 1992, Lake County shall complete a feasibility study which shall weigh the merits of implementing a Countywide TDR Program. The focus of this program will be to promote the efficient use of land by creating sufficient receiving areas adjacent to municipalities as well as specific growth areas or Rural Villages and which sets sending areas as those areas which may possess development potential in addition to such functions as aquifer recharge, environmental values, and agricultural uses.

Policy 1-11.18: Protection of Environmentally Sensitive Resources. Environmentally sensitive resources as defined in the Conservation Element, shall be protected or preserved through the use of clustering, density bonuses, additional mandatory open space provision, or other planning and development tools that balance development rights with community objectives. The Land Development Regulations shall contain provisions which specify that the application of a development technique shall be applied to developments based on the specific development proposal and the presence of environmentally sensitive resources. The Land Development Regulations shall contain the requirement that a proposed development project be designed around pre-development environmental constraints.

Policy 1-12.4: Density Allocations. Where Land use densities are presented as a range, the maximum density shall not represent a guaranteed right. Subdivision, zoning and site plan review criteria and procedures within the Land Development Regulations shall assure that specific density assigned to new development is compatible and consistent with established residential development patterns and provides equitable use of the land. Criteria to be considered in allocating density shall include, but not be limited to, the following:

1. Protect environmentally sensitive areas, particularly wetlands and floodplains;
2. Minimize impacts of flood hazards to development;
3. Protect neighborhood cohesiveness and stability of residential characters;
4. Assure compatible transitions between abutting low, medium, and high residential districts; and
5. Require compliance with the County's tree protection and landscaping ordinance.

Policy 1-13.4: Land Development Regulations. Existing regulations governing zoning; subdivision; signage; tree protection and landscaping; floodplain management; surface water management; water conservation; septic tanks and sewage disposal; roadways and sidewalks; recreation space and facilities; health and sanitation; fire prevention and protection; building and electrical codes; excavation and erosion control; and other land and water management regulations shall be revised and/or updated as necessary to effectively regulate future land use activities and natural resources identified on

the "Future Land Use Map". The Land Development Regulations for the County shall be consistent with, and serve to implement the goals, objectives and policies established within the Comprehensive Plan. To implement the goals, objectives and policies of the Comprehensive Plan, the Land Development Regulations shall be prepared pursuant to Chapter 163.3202, F.S., and shall contain specific and detailed provisions which as a minimum:

1. Protect the environmentally sensitive lands designated in the Comprehensive Plan, particularly those identified in the Future Land Use Map Series;
2. Regulate development within areas which experience seasonal and periodic flooding;
3. Specify drainage and stormwater management requirements;
4. Protect potable water wellfields and aquifer recharge areas;

Policy 1-13.6: Consistency with Performance Standards. Performance standards established within the Land Development Regulations shall be consistent with the goals, objectives, and policies established within the Comprehensive Plan. The Land Development Regulations shall define performance standards which address, but not limited to, the following:

1. Provide criteria for conserving:
   a. wetlands;
   b. floodplains;
   c. drainage and stormwater management;
   d. undevelopable sinkholes;
   e. groundwater aquifer high recharge areas.
2. Provide criteria for a littoral protection zone for lake front areas and wetlands;
3. Define open space requirements;
4. Incorporate criteria for the provisions of off-street parking and controlling on-site traffic circulation, including such needs required by non-motorized transportation;
5. Provide criteria for access management through the control of access to and egress from the roadway system;
6. Mandate criteria for the performance and design of service facilities and infrastructure;
7. Define criteria for the application of screening and buffer techniques along the perimeter of land uses which may otherwise adversely impact adjacent development;
8. Establish standards for erosion and sedimentation control;
9. Stipulate requirements for the protection of historically significant structures and sites which merit protection; and
10. Stipulate criteria for the removal of trees and native vegetation.

Policy 1-17.6: Principles for Guiding Development within the Green Swamp Area of Critical State Concern. The following shall apply to the Green Swamp Area of Critical State Concern, in order to effectively and equitably conserve and protect its environmental and economic resources, provide a land and

water management system to protect resources, provide a land and water management system to protect such resources, and facilitate orderly and well planned growth:

Protection Objectives:

1. Minimize the adverse impacts of development on resources of the Floridan Aquifer, wetlands, and flood detention areas.
9. Protect the natural flow regime of drainage basins.
10. Protect the design capacity of flood detention areas, and the water-management objectives of these areas through the maintenance of hydrologic characteristics of drainage basins.

Regulatory Guidelines:

1. Site Planning - The platting of land shall be permitted only when such platting commits development to a pattern which will not result in the alteration of the natural surface water flow regime, and which will not reduce the natural recharge rate of the platted site.
2. Site Alteration - Site Alteration shall be permitted only when such alteration will not adversely affect the natural surface water flow regime, or natural recharge capabilities of the site; and when it will not cause siltation of wetlands, or reduce the natural retention and filtering capabilities of wetlands. All site alteration activities shall provide for water retention and settling facilities, maintain an overall site runoff equivalent to the natural flow regime prior to alteration, and maintain a runoff rate which does not cause erosion. No site work shall be initiated prior to the issuance of drainage/stormwater permits by concerned agencies.
3. Soils - All exposed soils as a result of site alteration or development activities shall be located and stabilized in a manner to prevent the alteration of the natural flow regime.

Policy 1-18.4: Protection of the Water Supply. Lake County shall protect the normal supply of ground and surface waters.

Policy 1-18.7: Minimization of Adverse Impacts to Wetlands Caused by Development Activities. Lake County shall minimize the adverse impacts of development on wetlands.

Policy 1-18.8: Protection of the Functions of Wetlands. Lake County shall protect the water-retention, and biological filtering capabilities of wetlands.

Policy 1-19.2: Ensure the Convenience and Safety of the Public by Controlling Surface Water Runoff and Flow. Lake County shall, in the Green Swamp Area of Critical State Concern, conserve and protect the environmental resources consistent with the Principles for Guiding Development for the Green Swamp Area of Critical State Concern as it relates to stormwater runoff. Lake County shall prepare and adopt a comprehensive stormwater management ordinance which meets or exceeds

the site alteration criteria as found within Section 28-28.008 (7), Florida Administrative Code. Wetland alteration shall be consistent with Policy 1-2.1 (wetlands) and policies in the Conservation Element. Stormwater shall be treated to the level for quality and quantity (Levels of Service) as established within the Stormwater Sub-element Goals, Objectives, and Policies and in conformance with Policies 1- 2.2 and 1-2.11 as well as policies within the Conservation Element. The Stormwater Ordinance shall contain at minimum, definitions, permit requirements, exemptions, performance criteria, system design criteria, dedication of drainage easements and rights-of-way, application requirements, payment of fees, maintenance of systems, inspections, enforcement, emergency exemptions, variance provisions, provisions for appeals, and provide for penalties and violations.

Policy 1-19.3: Minimization of Threats to Life and Property through the Provisions Contained within Ordinance 1978-8, the Lake County Flood Ordinance. Lake County shall enforce the County's Floodplain Ordinance, which shall be included within the Land Development Regulations, so as to minimize the threat of life and property from flooding. In the Green Swamp Area of Critical State Concern, enforce regulation consistent with the Principles for Guiding Development for the Green Swamp Area of Critical State Concern.

Policy 1-19.4: Stormwater Management Considerations within the Green Swamp Area of Critical State Concern. Lake County shall minimize the adverse impacts of development on flood detention areas, protect the natural flow regime of natural drainage basins, protect the design capacity of flood detention areas, and the water-management objectives of these areas through the maintenance of hydrologic characteristics of drainage basins.

Policy 1A-2.9: Treatment of Wetlands for Development Approval. Wetlands within a project shall be placed in a conservation easement which shall run in favor of, and be enforceable by, the County, other governmental agency or a qualified non-profit conservation organization. The conservation easement shall require that the wetlands be maintained in their natural and unaltered state. The entity accepting said conservation easement shall enforce its provisions. In addition, wetlands shall not be included as part of any platted lot, but the wetland shall be shown on the plat as a common area, which shall be dedicated to the homeowners' association or the County, at its option, for ownership and maintenance. Wetlands may be included in the platted lots for subdivisions which have no homeowners' association and which contain 10 lots or less. Any isolated wetland of less than one acre shall be exempt from these requirements.

Policy 1A-2.10: Flood Insurance Study Requirements. A detailed flood insurance study shall be performed for allsubdivision proposals and other proposed development (including proposals for manufactured home parks) which have 5 acres or more in the

100-year floodplain or which contain 50 lots or more in the 100-year floodplain. The construction of a single family residence on a parcel of land containing 5 or more acres which is not part of a subdivision or which is part of a subdivision in existence on the effective date of this Plan, such as Groveland Farms Subdivision, is exempt from this requirement. Phases of a larger development, if the larger development meets the 5 acre or 50 lot criteria, are not exempt from this requirement. If existing subdivisions are proposed for replatting, there platted portion shall be required to comply with this requirement if the replatted portion meets the 5 acre or 50 lot criteria. Subdivisions which contain 10 lots or less shall be exempt from these requirements. The study shall be performed in accordance with the Flood Insurance Study Guidelines and Specifications for Flood Contractors (FEMA Publication 37). The purpose of this study shall be to map more precisely the extent of the 100-year floodplain. Subdivisions with septic tanks shall be designed so that each lot has at least one acre of upland not contained within the floodplain. The one acre upland area must be of sufficient size and shape to accommodate the proposed structures, including septic tank and drainfield, without any part infringing into the floodplain or any required septic tank setback.

GOAL 2: Wekiva River protection area. The goal in establishing the Wekiva River Protection Area is the protection and enhancement of the water quality, water quantity, hydrology, wetlands, native vegetation and wildlife of the Wekiva River System and the Wekiva River Protection Area in Lake County, through the provision of compatible land uses and appropriate development regulations.

Policy 1-20.4: Density and Intensity of Land Use Within the Wekiva River Protection Area. Lake County shall set the following limitations on density within the Wekiva River Protection Area which are deemed necessary in order to protect and enhance the natural resources contained therein. In order to implement this policy, the overlay districts provided for in this section have been created to restrict permitted density.

2. Transfer of Development Rights Within the Wekiva River Protection Area. In order to permit the owners of property subject to the limitation on density established herein to utilize the development potential of that property, a system of transferability of development rights is desirable. In order to facilitate such a system, Sending Areas and Receiving Areas are hereby established and identified.

Policy 1-20.7: Setbacks. The following minimum setback requirements from wetlands and water bodies shall apply to all development activity proposed within the Wekiva River Protection Area, as appropriate:

1. Land proposed to be developed under Policy 1-20.3, Vested Development within the Wekiva RiverProtection Area, or Policy 1-20.6, Non-Exempt Parcels, on the Wekiva River, Blackwater Creek, Sulphur Run, Seminole Creek, and Lake Norris:

a. Those lands subject to the setback requirements of the St. Johns River Water Management District, established pursuant to Section 373.415, Florida Statutes, shall conform to said setbacks.
b. Where setbacks for such development activity are not regulated by the St. Johns River Water Management District, the following minimum setbacks shall be established: 200 feet from the ordinary high watermark, 50 feet from associated wetlands, or as provided in the Lake County Code or Land Development Regulations, whichever is farther.

2. Land proposed to be developed under Policy 1-20.4, Density and Intensity of Land Use Within the Wekiva River Protection Area, on the Wekiva River, Blackwater Creek, Sulphur Run, Seminole Creek, and Lake Norris:

a. Minimum setbacks shall conform to those required by the St. Johns River Water Management District, established pursuant to Section 373.415, Florida Statutes.
b. Where setbacks for such development activity are not regulated by the St. Johns River Water Management District, the following minimum setbacks shall be established: 200 feet from the ordinary high water mark, 50 feet from associated wetlands, or as provided in the Lake County Code, whichever is farther.

Policy 1-20.10: Lakeshore and Waterfront Development. Lakeshore and waterfront development shall occur in a manner which will enhance its natural character, avoid damage to indigenous environmental factors and assure an adequate amount of public access to waterfront and lakeshore areas within the limits defined by the environmental requirements of Lake County Land Development Regulations, the St. Johns River Water Management District and other state, regional and local agencies having jurisdiction over such areas.

Policy 1-20.13: Maintenance of Open Space System. An open space system shall be maintained to serve the needs of people and shall range from neighborhood to regional scale. Such system also shall include recreation and conservational elements and shall conform with open space requirements of residential (25%) and commercial (20%).

A. Establish flood zones along streams or rivers. Such flood zones shall qualify for open space requirements. Regulate the use of flood prone areas for purposes compatible with the hydrological character of the area. Recreation and water storage are beneficial uses of flood prone areas.
B. Forbid building within swamps and marshes, except in accordance with the Comprehensive Plan Policy 1-2.1 and policies found within the Conservation Element, the Lake County Code, or in accordance with a wetland alteration/mitigation plan approved by Lake County.

C. Require all structures to have floor elevations at least eighteen (18) inches above the 100-year flood plain, and also require all public improvements such as roads, sewer and water lines, etc. to be designed to meet the criteria of the Flood Disaster Act of 1973, Public Law 93-234 and other applicable Federal, State and local requirements.

D. Native vegetation within the 100-year flood plain in the Wekiva River Protection Area shall be preserved to the greatest extent possible. Therefore, clearing of native vegetation shall be limited to only those areas approved in accordance with a vegetation survey and protection plan submitted to and approved by Lake County, with the exception of those areas devoted to agricultural uses as specified under Policy 1-20.15 and 1-20.16 of this Future Land Use Element and those activities necessary for normal yard maintenance.

Policy 1-20.14: Consideration of Environmental Factors. Full consideration shall be given to environmental factors within Lake County as they pertain to land use.
A. The County shall work towards establishing and maintaining the natural state of the Wekiva River System and the Wekiva River Protection Area.

Policy 1-22.1: Encourage Acquisition of Environmentally Sensitive Areas. Lake County shall support and actively encourage acquisition of Environmentally Sensitive Areas by donation or purchase by Federal, State or units of local government and non-profit groups that would preserve them in their natural state.

Objective 1-21: Land use issues related to conservation of water resources, wetlands, floodplains, natural habitats, natural vegetation, environmentally sensitive areas, and mining activities. Within the Wekiva River Protection Area, Lake County shall protect the features of the natural environment through the following policies.

Policy 1-21.2: Reduction of Density of Waterfront Development. Lake County shall implement policies aimed at controlling the density of waterfront development.

Policy 1-21.4: Restriction of Development within the Floodplain. Floodplain maps prepared by FEMA shall be used in the development of the theory of the people water principle: in existing urbanized areas, keep the water from interfering with the people. In all other areas, keep the people from interfering with the water.

Policy 1-21.5: Protection and Conservation of Wetland Areas. Lake County shall implement policies which are aimed at protecting and conserving wetland areas.

Policy 1-21.6: Protection of Wetlands and Wetlands Systems. It is the intent of the Lake County Board of County Commissioners to protect wetlands and wetlands systems to the maximum extent possible, within the limitations contained in the Lake County Code and Land Development Regulations. In furtherance of

this intent, it shall be the policy of Lake County that regulations governing the alteration of wetlands, or the mitigation of such alteration, within the Wekiva River Protection Area shall apply to all development as defined in the Lake County Code and Land Development Regulations, and to agricultural and silvicultural activities, as well.

Housing Element

Objective 5-6: IDENTIFICATION AND CONSERVATION OF HISTORICALLY SIGNIFICANT HOUSING Identify Historically Significant Housing and Promote Conservation and Restoration Of Such Structures. Policy 5-6.1: Promote the Identification of Historically Significant Housing. The County shall promote identification of historically significant housing by coordinating with the Lake County Historical Society or other historical and architectural societies to implement a survey of all historical structures and archaeological sites within Lake County. The County will assist the private sector in applying for State grants to finance the implementation of a survey of historical resources.

Policy 5-6.2: Promote the Conservation of Historically Significant Housing. The County shall provide assistance to property owners of historically significant housing by supporting applications seeking standing on the Florida Department of State Master Site File and the National Register of Historic Places. The County shall promote adaptive re-use and rehabilitation of historically significant structures through assistance with grant functions and coordination with State technical services available for such activities.

Infrastructure Element

GOAL 6C: Stormwater, surface water, and groundwater management. Lake County shall provide sound stormwater, surface water, and groundwater resource management to prevent flood damage and protect water quality to ensure the safety and well being of the citizens of Lake County.

Objective 6C-1: Correct existing deficiencies. Lake County shall identify and correct existing facility deficiencies on a priority basis. The county shall address known problems such as flooding and degradation of surface and groundwater quality.

Policy 6C-1.2: Completion of Stormwater Management Master Plan. Lake County shall initiate a Stormwater Management Program Plan by the end of 1993. The Stormwater Management Program shall assess existing information, establish priorities with Federal, State and Local agencies, and initiate a detailed work plan for the completion of a Stormwater Management Master Plan. The County, in coordination with the appropriate Federal and State and Local agencies, shall seek additional opportunities for funding joint projects to facilitate the Countywide Stormwater Management Master Plan. The County shall amend its Comprehensive Plan upon completion of the Stormwater Management Master Plan to include the findings.

Policy 6C-1.6: Contour Interval Mapping. By 1993, a complete detailed County-wide mapping at one (1) foot contour intervals shall be obtained from the SJRWMD and the SWFWMD. The Federal

Insurance Rate Map (FIRM) shall continue to be used as the basis for development review.

Policy 6C-1.7: Five Year Schedule of Facility Improvements. Within five years after the completion of the Stormwater Management Master Plan, Lake County shall correct or minimize the corresponding set of deficiencies that are identified as priorities in terms of the public's health and safety. Beginning in 1992, Lake County's Environmental Services Department shall, as part of the annual update of the five year Capital Improvements Program, prepare a list of prioritized stormwater improvements. Lake County shall prioritize and correct the deficiencies identified in the Stormwater Management Master Plan through the Capital Improvements Program based on, at a minimum, the following criteria.

Policy 6C-1.8: Coordination with Adjacent Jurisdictions. Lake County shall cooperate and consult with the 14 municipalities and adjoining counties, in the completion of the Stormwater Management Master Plan and the subsequent identified improvements. Lake County shall encourage the municipalities to enact stormwater management programs which are consistent with State, Regional, and County requirements for new development.

Policy 6C-2.1: Impact Assessment During Development Review. By 1992, Lake County shall require, as part of the development review process, an impact assessment that addresses the effects of new development on existing stormwater management systems. This review process shall consider how the stormwater management systems will operate at build-out.

Policy 6C-2.4: Stormwater Conveyance Rights-of-Way. Lake County shall pursue, if necessary, the acquisition of stormwater rights-of-way and/or easements necessary for the operation and maintenance of the County's stormwater system.

Policy 6C-2.6: Provide Stormwater Services. Lake County shall provide adequate stormwater services to maintain the adopted level of service standards based upon, but not limited to, the following considerations:

A. The protection and maintenance of the public's health, safety, and welfare;
B. The protection and maintenance of the property;
C. The protection of existing public investment;
D. The protection of water quality;
E. The reduction of operating and maintenance costs; and,
F. The achievement and satisfaction of Regional, State and Federal regulations.

Policy 6C-2.9: Non-Structural Solutions to Stormwater Problems. Lake County shall require that non-structural improvements be utilized to solve existing and future stormwater problems where it is economically and/or physically possible to utilize these approaches. Where structural and/or non-structural

approaches must be utilized, the County shall ensure that environmental damage is minimized. Non-structural solutions may include the use of conservation areas and maintaining floodplain protection (capacity) through the provision of compensating storage.

Policy 6C-3.6: Adequate Flood Protection. Lake County Land Development Regulations shall include provisions that require stormwater management systems within all development to be designed and installed to provide adequate flood protection for all primary structures and to protect the structural integrity of all roadways.

Policy 6C-3.7: Provide for Stormwater Run-Off. Lake County Land Development Regulations shall require that all new stormwater management systems provide for the safe handling of all stormwater run-off that flows into, across, and is discharged from the site without creating any additional flooding to adjacent property owners.

Objective 6C-4: Protect the functions of natural features. Lake County shall: 1) minimize the occurrence of flooding that is a threat to human health or property; 2) identify and prohibit drainage wells; and 3) improve its ability to manage stormwater so as to minimize the degradation of surface water in order to protect the functions of natural features.

Policy 6C-4.1: Protection of natural features through the land development regulations and the stormwater management ordinance. By 1992, Lake County shall ensure that the stormwater management regulations, contained in the land development regulations, continue to protect natural features by approving only those developments that are consistent with the Lake County stormwater management ordinance. All developments within the riverine flood hazard areas shall be designed to maintain the flood carrying capacity of the floodway such that the base flood elevations are not increased, either upstream or downstream.

Policy 6C-4.4: Location of Retention/Detention Areas. Lake County shall require that retention/detention areas be designed and located so as to not adversely reduce the existing flood storage of the flood plain.

Policy 6E-1.10: Secure Aquifer Recharge Lands. Where feasible, Lake County shall purchase or secure conservation easements on prime aquifer recharge lands.

Policy 6E-1.15: Educational Publications. Prior to December 1993, the County shall develop an educational brochure for businesses and residents addressing the County's current water conservation policies, the protection of the aquifer, methods to reuse and conserve water, well abandonment problems and rules, and the use of drought resistant plants.

Conservation Element

GOAL 7: Conservation. Conserve natural resources. Conserve, protect, restore, and appropriately manage the natural resources and environmental amenities of Lake County.

Policy 7-1.5: Development of Computerized GIS Data Base. The Planning Division shall develop a Geographic Information System (GIS) in cooperation with the Lake County Water Authority (LCWA), the Department of Environmental Services, the Lake County Tax Assessor's Office, the Department of Environmental Regulation (DER), Florida Natural Areas Inventory (FNAI), East Central Florida Regional Planning Council (ECFRPC), the Department of Natural Resources (DNR), the Department of Agriculture and Consumer Services (DACS) Division of Forestry, and the St Johns River and Southwest Florida Water Management Districts (SJRWMD, SWFWMD) for the purpose of establishing a computer-based environmental resources data system. Data gathering will be coordinated between these organizations to avoid duplication of effort and incompatibility of computer-based systems. Data will be organized and compiled by established watershed and sub-basin units, with capability of translation to Transportation Analysis Zones. The environmental GIS system will be maintained by Lake County and updated on a cooperative basis by qualified public organizations.

Objective 7-2: Protect and conserve groundwater quantity and quality 9j-5.013(2)(b)(2). In coordination with federal, state, regional, and local governments, conserve, protect, and restore the county's groundwaters by significantly reducing the levels of pollutant intrusion, restoring damaged natural functions, and avoiding excessive drawdowns of groundwater levels through wise use of this resource throughout the five year and fifteen year planning time frames.

Policy 7-2.5: Enforcement of the Emergency Water Shortage Plan 9J-5.013(2)(c)(4). Lake County shall cooperate with the SJRWMD and the SWFWMD in the enforcement of the provisions of these Water Management District's emergency water shortage plans. Lake County shall prepare and adopt an emergency water management conservation plan in accordance with the plans of the Water Management Districts. Preparation and adoption of this plan shall be determined as part of the evaluation of all programs under Policy 7-1.2.

Policy 7-2.14: Sinkholes, Stream to Sink Basins and Lakes with Internal Drainage. Lake County shall identify all surface waters with strong hydrological connection to the Floridan Aquifer with the assistance of the WMD's. Stormwater guidelines as stringent as OFW guidelines or greater shall be implemented to protect the Floridan Aquifer from this potential source of groundwater contamination through an amendment to the Comprehensive Plan and Land Development Regulations. Land uses within these basins shall be regulated so as to prohibit any land uses which possess the potential to cause significant adverse effects on the quality of the Floridan Aquifer. Acquisition of these areas should be considered.

Objective 7-3: Protect and conserve surface water quality and surface water quantity 9j-5.013(2)(b)(2). In cooperation with Federal, state, regional, and local governments conserve, protect and restore the county's surface waters by significantly reducing the levels of pollutant intrusion, restoring damaged hydrological processes to their natural functioning, and avoiding excessive drawdowns of groundwater levels through wise use of this resource throughout the five year and fifteen year planning time frames.

Policy 7-3.5: Lakeshore Protection 9J-5.013(2)(c)(6). To protect lakefront and wetland areas from the encroachment of development, the County shall implement the shoreline protection standards found in Policy 1-2.6 of the Future Land Use Element.

Policy 7-3.6: Vegetated and Functional Littoral Zone 9J-5.013(2)(c)(6). A vegetated and functional littoral zone shall be established as part of any new surface water management system which consists of lakes and wet detention areas greater than or equal to 0.5 acres in size, based upon the 10 year storm event.

Policy 7-3.11: Best Management Practices for the Control of Erosion and Sedimentation. Best management practices for the control of soil erosion and sedimentation shall be employed for all road construction, urban development and agricultural activities in order to protect natural water bodies, watercourses, and wetlands from siltation. BMP's shall also be employed, as necessary, to protect the function of stormwater management systems (e.g., exfiltration systems) from excess sediment loads. Erosion and sediment control BMP's include those of the SCS, FDOT, FDER, FDACS, and IFAS or other agencies.

Objective 7-4: Protect floodplains and floodways 9j-5.013(2)(c)(6). Lake County shall protect the 100-year floodplain so that its natural functions are protected and maintained.

Policy 7-4.1: Floodplain Management Program. Lake County shall develop a strict floodplain management program designed to preserve hydrologically significant wetlands and other natural floodplain features. The County shall cooperate with the SJRWMD and the SWFWMD to identify significant floodplains for restoration. The 100-year floodplain shall be mapped and entered in the County's GIS system and, when financially feasible, the 25 and 100-year floodplains shall be mapped and entered into the County's GIS system. Implementation for this program shall be determined as part of the evaluation of all programs under **Policy 7-1.2**.

Policy 7-4.2: Preserve Flood Storage Capacity. The Lake County Floodplain Ordinance shall be amended to prohibit new development from causing any net loss of flood storage capacity, to ensure that flood control structuresdo not cause significant adverse impacts on natural systems, and to encourage non-structural solutions in floodcontrol projects. Lake County shall cooperate with the SJRWMD, the SWFWMD, and the Army Corps of Engineers in evaluating the flood-handling capacities of

natural drainage systems and developing flood prevention management guidelines. Implementation for this evaluation shall be determined as part of the evaluation of all programs under **Policy 7-1.2**.

Policy 7-4.5: Flood Protection Plan. Lake County shall cooperate with the SJRWMD, the SWFWMD, and the Army Corps of Engineers in the implementation of the Burrell Dam Emergency Action Plan.

Objective 7-5: Protect and preserve wetland values and functions 9j-5.013(2)(b)(3), (4). There shall be no net loss of wetlands whether by functional value or extent within Lake County. The wetlands of Lake County shall be conserved and protected to ensure that the natural structure and functional values are maintained.

Policy 7-5.1: Wetland Mapping and Analysis. Lake County shall cooperate with the LCWA, the SJRWMD, the SWFWMD, the FGFWFC, and the FNAI in completing the wetland mapping and analysis project. Wetlands shall be defined according to the SJRWMD's Rule 40 C-4, F.A.C. Wetlands are areas which are identified by being inundated or saturated by surface or groundwater with a frequency or duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. The existence and extent of these shall be determined by the jurisdictional limits defined by Chapter 17-4, F.A.C. and implemented by the Florida Department of Environmental Regulation, or as defined within Chapter 40 D-4 and 40 C-4 and implemented by the Southwest Florida and St Johns River Water Management Districts, respectively.

Policy 7-5.2: Wetland Protection and Mitigation Procedures 9J-5.013(2)(c)(3), (6).

Policy 7-5.3: Best Land Management Practices Within Wetlands. Lake County shall adopt and amend as appropriate to local conditions the Best Management Practices (BMP'S) based on the most current available publications. All agricultural and silvicultural activities proposed in wetlands of the County shall perform to the appropriate BMP's.

Policy 7-5.4A: To protect the quality and quantity of surface waters and provide habitat for semi-aquatic or water-dependent species of wildlife, the County shall require that all developments provide natural buffers be provided adjacent to all wetlands. The buffers shall be of such size to ensure that the quality and quantity of surface waters and the habitat for semi-aquatic and water-dependent species of wildlife are not adversely affected by the proposed development. Buffers shall be determined to start landward from the wetland jurisdictional line as determined in the field by the permitting agency. The following minimum standards shall apply to isolated wetlands, non-isolated wetlands, and rivers and streams:

WETLAND SYSTEM MINIMUM
isolated 15 feet
Non-isolated 25 feet
rivers and streams 50 feet

Policy 7-5.6: Protection of Aquatic Vegetation 9J-5.013(2)(c)(3). In order to control shoreline erosion, maintain water quality, and protect fish and wildlife habitat, the removal and control of native species of emergent, submersed or floating vegetation in natural waters of the State (S. 403.031 (12), F.S.) shall be limited to that necessary to provide for reasonable and beneficial uses of surface waters consistent with FDNR rules for aquatic plant control permits (Chapter 16 C-20, F.A.C.). The Lake County Mosquito and Aquatic Plant Division, the Lake County Water Authority, and the Lake County Technical Review Committee shall cooperate with the FDER, the SWFWMD, and the SJRWMD to ensure that native aquatic vegetation is managed appropriately as a part of their planning, project review, project approval, project inspection, and enforcement operations.

Policy 7-5.8: Wet Detention Pond Design. The County shall require that stormwater detention systems with permanently wet detention ponds shall be designed, operated, and maintained according to the SWFWMD, the SJRWMD, and the County's Stormwater Management Ordinance.

Policy 7-11.1: Energy Emergency Preparedness Plan. The County shall prepare an energy consumption audit andenergy preparedness plan in the event that Florida experiences severe disruptions in its energy supply or pricestructure. This plan shall elaborate the means of employing alternative energy sources, implementing energyrationing programs, and enforcement of energy conservation regulations which shall ensure the continuation of vitalsocietal functions and meet basic human needs.

Objective 7-12: PROTECT SOIL RESOURCES 9J-5.013(2)(b)(3). Lake County Shall Conserve, Appropriately Use and Protect its Soils through Wise Land Management Practices Consistent with the Physical Properties and Ecological Capabilities of Each Soil Type.

Policy 7-12.1: Soils Mapping Project. The Planning Division shall incorporate the new SCS county-wide soil survey into its Geographic Information System to be utilized in all development plan review for identifying site limitations.

Policy 7-12.2: Protection of Soil Qualities. The County, in cooperation with the IFAS, the FDACS, and other relevant agencies, shall require adherence to best management practices (BMP's) for agricultural and silvicultural operations which will protect the biological diversity and general health of soils.

Policy 7-12.3: Construction Practices to Protect Soils. The County shall require Best Management Practice provisions be utilized in construction for the prevention of soil erosion.

Policy 7-12.4: Residential Land Management BMP's. Lake County shall establish best management practices in cooperation with the IFAS, the SCS and other relevant agencies for the proper care of residential lands.

Policy 7-12.5: Slope and Land Use. The County shall prescribe land use development limitations for severe slopes (over 10 percent) to minimize the impacts of development. Septic tanks shall be severely limited on Astatula (AtF) and Lake (LaE) soil types where slopes are greater than 12 percent. Conservation easements or dedication shall be required where steep slopes are located adjacent to surface waters to minimize erosion consistent with streambank and lakeshore stabilization objectives. Severe limitations shall be placed on septic systems upslope of seepage slopes and shall not be permitted where the density is greater than one dwelling unit per acre.

Recreation and Open Space Element

Policy 8-1.8: Prioritize Land for Acquisition. Beginning in 1992, priority of acquisition shall be given to those recreation projects considered by the Office of Parks and Recreation which propose to do one or more of the following:

3. preserve and protect environmentally sensitive land or promote conservation;

Objective 8-8: ASSURE PROVISION OF OPEN SPACE THROUGH PROTECTION OF NATURAL AREAS. Lake County Shall Assure the Provision Of Open Space Through Land Acquisition and Through Designation Of Land For Open Space Use On the Future Land Use Map.

Policy 8-8.2: Protect and Preserve Environmentally Sensitive Lands as Open Space. By 1992, Lake County shall, through the Land Development Regulations and through Policy 8-2.2, provide a mechanism to protect and acquire environmentally sensitive and environmentally endangered lands for use as passive recreation or open space. The protection and acquisition of these lands shall be consistent with the Conservation Element.

Policy 8-8.5A: Environmentally Sensitive Lands as Open Space. Any required open space shall include the environmentally sensitive lands on the project site. Further, to the maximum extent practical, all development shall be clustered away from any environmentally sensitive lands.

Intergovernmental Coordination Element

Policy 9-1.2: Resolution of Overlapping Jurisdictional Growth Management Issues. The County shall coordinate growth management issues which overlap jurisdictional boundaries through cooperative communications with the staff and appropriate officials by presenting County concerns through documented transmittals, scheduled meetings, attendance at public hearings, joint ad hoc technical coordination committees, and, where relevant, less formal communications. The County shall

promote and encourage the municipalities' staff and officials to participate in local growth management affairs. Growth management issues to be pursued, but not limited to, consist of the following:

9. Disaster Preparedness. Plans and policies directing emergency disaster preparedness shall be maintained, revised and coordinated with; and issues concerning disaster preparedness shall be addressed to and coordinated with the Lake County Civil Defense Office and other governmental entities, as appropriate, in order to protect lifeand property in the event of a disaster.

Policy 9-3.4: Public Facility Issues. Issues concerning coordination with State and Federal agencies involve drainage, solid waste and hazardous waste, potable water, sanitary sewer, and natural groundwater aquifer recharge. The County shall coordinate plans and improvements proposed and scheduled within the Comprehensive Plan with those planned by the respective State and Federal agencies having authority to implement such improvements. Coordination shall also include utilizing State and Federal funds to support implementation of proposed infrastructure needs. Issues with more specific concerns shall involve the following:

1. Drainage. The County shall coordinate land use activities and plans within the Comprehensive Plan with the 100 year floodplain designated by the Federal Emergency Management Administration. Comprehensive Planning activities shall also be coordinated with stormwater management plans and scheduled improvements affecting the County under the authority of the Army Corps of Engineers, the Lake County Water Authority, and the St. Johns River and Southwest Florida Water Management Districts.

Policy 9-3.7: Disaster Preparedness. The County shall coordinate growth and development proposed within the Comprehensive Plan with the proposed emergency preparedness plans and programs of the Florida Department of Community Affairs and the Lake County Civil Defense Authority.

Policy 9-10.2: Resolution of Overlapping Jurisdictional Growth Management Issues. Lake County shall coordinate growth management issues which overlap jurisdictional boundaries through cooperative communications with the staff and appropriate officials by presenting Lake County concerns through documented transmittals, scheduled meetings, attendance at public hearings, joint ad hoc technical coordination committees, and, where relevant, less formal communications. The County shall reciprocate by notifying the adjacent counties' staff and officials of functions where their attendance is warranted. Growth management issues to be pursued, but are not limited to, consist of the following:

f. Preparation of any necessary interlocal agreements which could consist of the following topic areas:

7. disaster preparedness and provision of shelter space during emergencies.

Capital Improvement Element

Objective 10-3: Location of capital facilities: conservation open space and environmentally sensitive areas. Public expenditures located in county designated conservation lands or lands qualifying as environmentally sensitive shall be limited to those public improvements described in the following policies.

Policy 10-3.2: Limitation of Facilities in the 25-Year Floodplain. Public facilities shall be placed consistent to principles established in objectives and policies of the Future Land Use and Conservation Elements and shall not be located within the 25-year floodplain or in flood prone areas, except under the following conditions:

a. surface water management structures protecting the natural flow regime;
b. water-related recreation facilities, and passive recreation, and conservation facilities not affected by periodic flooding;
c. roads, causeways and bridges necessary to provide access to confined areas or to further the health and safety of the public. Such facilities shall be designed to maintain the natural flow regime of surface water and runoff.

DRAINAGE

Policy 10-9.3: Analyze Potential of Additional Impact Fee Sources. Impact fees shall be initiated and maintained for as many public facilities as feasible, but with consideration to the economic impact on affordable housing (particularly for very, low, low, and moderate income homes), and to the effects such fees might place on the local construction industry. By February 1992 Lake County shall analyze the merits of imposing impact fees for other services and facilities comprised of Parks and Recreation, Fire Protection, Emergency Medical Services, Law Enforcement, Library, Potable Water, and Sewer Services. Based on the impact fee study completed in 1990, the County shall initiate additional impact fees as warranted by the anticipated facility and service needs of new development and redevelopment.

Policy 10-9.5: Mandatory Provision of Certain Facilities or Fees in Lieu Thereof. Lake County shall incorporate provisions within the Land Development Regulations by February 1992 which require new development to bear all or a proportionate share of costs associated with the provisions of site-related public facilities needed to accommodate demands generated by such development and to maintain facilities and infrastructure according to adopted level of service standards. Development

thresholds for which mandatory provision of on-site public facilities shall be incorporated into the Land Development Regulations. New development shall be required to assume responsibility for following facility costs, including all applicable impact fees:

f. Drainage/Stormwater Impacts. New developments shall provide on-site stormwater management facilities that are necessary to maintain the adopted minimum level of service standard established for the surrounding drainage basin and to assure post-development run-off does not exceed pre-development levels.