

**Integrating Hazard Mitigation
into Comprehensive Planning**

Citrus 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 winds, tornadoes, surge, and/or flooding. But this was not the only time we have 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 Citrus County Profile 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 Citrus 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 Citrus 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.

CITRUS COUNTY GENERAL RECOMMENDATIONS

- Currently, the Community Development Division is responsible for drafting a Post Disaster Redevelopment Plan. Emergency Management staff could contribute in this process. The County could provide clear directives to planning and emergency management staff to work together on hazard mitigation and redevelopment plans and ensure that the plans fully address all aspects of hazards.
- The County can include a map of hazard locations overlaying land uses as a new map in the Future Land Use series. Also, the Comprehensive plan can reference the LMS as a

source of data to be used in the EAR process. The LMS could include existing and future land uses on hazard maps and reference the PDRP as a hazard mitigation tool after its adoption. By using consistent data and showing linkages between the different plans, each plan will be stronger. Maps, such as the ones in this profile, provide useful visual knowledge on the relationship between land uses and hazard zones that can be used for planning mitigation or changes in future land use.

- The County can support a program in coordination with the LMS committee to educate homeowners of mitigation techniques for protecting their structures, including wind, flood, firewise, and sinkhole mitigation techniques. While regulation can prevent new vulnerabilities to hazards, one of the best ways to mitigate existing vulnerabilities is through education. Also, LMS initiatives can be drafted to implement goals and objectives pertaining to education.
- The County can use impact fees linked to the LOS standards or special assessment districts to finance maintenance and expansion of evacuation routes. The County can prioritize evacuation route improvements in the Capital Improvements Schedule and MPO Long-Range Transportation Plan. This is considered a best management practice from *Protecting Florida's Communities*. (FDCA, 2005b) The LMS can add an objective that supports maintaining or reducing evacuation clearance times by planning for population growth.
- Policy 4.9.5 should be corrected to state that no shelters should be located within a Category 1 evacuation zone rather than a Cat. 5. The County can use impact fees based on its 70% standard (Policy 4.9.10) to finance new shelters. The County can encourage new residential developments to include a shelter in the development or build safe rooms into each home if not in a flood or surge zone. They can also identify safe zones (large defensible space and non-flammable materials) throughout the county for wildfire emergency shelters. The LMS could add an objective that supports increasing the amount of shelter space in the county.
- The County could adopt development regulations that employ cluster development to avoid natural features. Also, the LDRs can use setbacks and buffers to protect floodplains and wetlands.
- One of the best ways to reduce damages is to let the natural environment protect you. If natural drainage is not altered and structures are not built in the floodplain, there will not be as much risk of flooding. Beaches and dunes are the first defense against surge. The LMS can include a goal or objective to protect and restore natural resources, such as beaches and dunes, wetlands, and floodplains, through regulation and acquisition.
- Citrus County can use incentives or provide assistance in retrofit, relocation, or demolition of repetitive loss structures and/or acquire repetitive loss properties for parks or conservation. To eliminate repetitive loss structures (i.e. from flood or sinkhole damages) residents may need assistance with relocation or costly retrofits.
- The County could protect natural and cultural resources by locating cultural facilities away from hazard areas. The LMS could access the vulnerability and risk of historic sites and structures to natural hazards. Also, the County could prioritize drainage projects that will protect historical structures.
- The County can address redevelopment in the hazard area by only allowing redevelopment after a natural disaster to occur at the density/intensity of the land use designation currently in place. This is considered one of the best management practices from *Protecting Florida's Communities*. (FDCA, 2005b)

Wildfire Hazards

- The County can require management plans for conservation areas that address reduction of wildfire fuels. Forests that are maintained, through prescribed fire or other mechanical means, will not become a wildfire risk to the nearby community.
- The County can adopt LDRs that limit residential development in high-risk fire areas, such as those adjacent to conservation lands. Limiting development near conservation areas will assuage some of the liability and practical issues of using prescribed fire as a management practice.
- The County can require firewise neighborhood design as a condition of approval for subdivision or PUD in high-risk areas.
- The County can adopt a firewise building code before future development occurs in the wildland-urban interface.

Sinkhole Hazards

- The County can restrict development through overlay zones or preservation districts in high-risk, karst- sensitive areas. This is considered a best management practice from *Protecting Florida's Communities*. (FDCA, 2005b)
- The County can use buffers to prevent development from building too close to an existing sinkhole.
- In karst-sensitive areas, the County can require a geotechnical evaluation be made prior to development approval.

As part of this study, a similar analysis to that of the County profile was completed for a statewide sample of 14 Florida municipalities, including Crystal River in Citrus County. The options for integration of hazard mitigation into the City's comprehensive plan are as follows:

CRYSTAL RIVER GENERAL RECOMMENDATIONS

- The City can seek emergency management input for Comprehensive Plan amendments and land use decisions.
- The Comprehensive Plan can include hazard mitigation initiatives found in the LMS that apply to the City in its 5-year Capital Improvements Schedule. Criteria used to prioritize projects in the Capital Improvement Schedule can include hazard mitigation.
- The City can promote educational programs to the public, local businesses, and City personnel about flood prone areas, hurricane preparedness, wildfire hazards, hazardous materials, evacuation routes and shelters, and business emergency plans. Educational programs may help create an informed public and decrease loss of property and life in the event of a natural disaster. Further education of city officials and employees may promote hazard mitigation initiatives before development occurs. Also, the City 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 City can update existing polices that protect natural resources to include hazard mitigation as a benefit. Current growth management techniques, such as land conservation, the clustering of development away from natural resources, transfer of development rights, purchase of development rights, limiting density and intensity, and land acquisition, protect and conserve natural resources but also provide the benefit of protecting development from natural disasters. The City could update these policies in the Comprehensive Plan and emphasize the benefits of hazard mitigation.
- The Citrus County LMS provides a strong strategy to protect existing structures that are in hazard areas through retrofit and relocation. The City can strengthen this strategy by adding Comprehensive Plan polices that require the retrofitting or relocation of public and private facilities, and policies that prioritize such projects in the 5-year Capital Improvements Schedule. Also, the City can explore programs to purchase, relocate, or demolish repetitive loss structures.

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1. County Overview

Geography and Jurisdictions

Citrus County is located along the western coast of Central Florida. It covers a total of 584 square miles with an average population density of 202.3 people per square mile (U.S. Census, 2000).



There are two incorporated municipalities within the County, and these are listed in **Table 1.1**.

Population and Demographics

Official 2004 population estimates for all jurisdictions within Citrus 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 Citrus County is 129,110 people (University of Florida, Bureau of Economic and Business Research, 2004). The most populated city in Citrus County is Inverness, but 91.6% of the countywide population lives in the unincorporated portion of the County. Between 1990 and 2000, Citrus County as a whole had a growth rate of 26.3%, which was greater than the statewide growth rate of 23.5% in those 10 years.

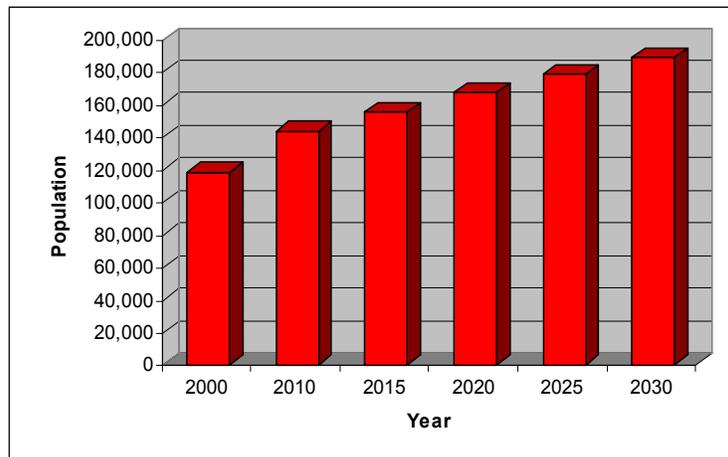
Table 1.1 Population Estimates by Jurisdiction

Jurisdiction	Population, Census 2000	Population Estimate, 2004	% Change, 2000-2004	% of Total Population (2004)
Unincorporated	107,811	118,320	9.7%	91.6%
Crystal River	3,485	3,685	5.7%	2.9%
Inverness	6,789	7,105	4.7%	5.5%
Countywide Total	118,085	129,110	9.3%	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), Citrus County’s population is projected to grow steadily for the next 25 years, reaching 188,500 people by the year 2030. **Figure 1.1** illustrates medium population projections for Citrus County based on 2004 calculations.

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



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

Of particular concern within Citrus 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, 32.2% of Citrus County residents are listed as 65 years old or over, 27.0% are listed as having a disability, 11.7% are listed as below poverty, and 6.6% live in a home with a primary language other than English.

2. Hazard Vulnerability

Hazards Identification

The following are natural hazards that pose a risk for the County as identified in the County's Local Mitigation Strategy (LMS): drought, extreme summer heat, earthquakes, flooding, hurricanes/coastal storms, landslides, land subsidence, severe storms, tornadoes, tsunamis, and wildfires/urban interface fires. The LMS did not prioritize these hazards, however, the hazard profiles did include a discussion of the probability of the hazard affecting the County. All of the identified hazards were considered to have a high probability of occurrence except extreme heat, which was considered a moderate probability, and earthquake, landslide, and tsunami, which were not considered significant threats.

The County experiences flooding on a regular basis from severe thunderstorms and tropical storms. In 1993, an unnamed storm damaged more than 3,100 homes. There have been 49 recorded tornado events in Citrus County since 1968, including 5 events in Crystal River, ranging from intensities of F0 to F3. Since the turn of the century, Citrus County has directly experienced (i.e., a storm within a 50-mile radius) eight Category 1, two Category 2, and five Category 3 hurricanes. The 2004 hurricanes caused a record flood stage on the Withlacoochee River within the County. In the past decade, 816 wildfires have occurred in the Withlacoochee State Forest (Citrus County, 2005).

Hazards Analysis

The following analysis looks at four major hazard types: hurricanes and tropical storms (specifically surge), 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 under contract with the Florida Department of Community Affairs (FDCA). Estimated exposure values were determined using the Category 3 Maxima Scenario for storm surge, 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. Storm surge exposure data are a subset of flood exposure, therefore the storm surge results are also included in the flood results. For more details on a particular hazard or an explanation of the MEMPHIS methodology, consult the MEMPHIS Web site (<http://lmsmaps.methaz.org/lmsmaps/index.html>) or your countywide LMS.

Existing Population at Risk

Table 2.1 presents the estimated 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 Citrus County that live within FEMA Flood Insurance Rate Map zones that signify special flood hazard areas. According to these maps, 23.5% of the population, or 27,769 people, are within the 100-year flood zone. A majority of those at risk of flooding are either elderly and/or disabled. These special-needs citizens require extra planning by local governments to ensure their safety. In Citrus County, sinkholes are a major risk, and 43% of the population is within a high to adjacent risk sinkhole zone. This is a 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. Wildfire is also a hazard of concern to the County, with 61.5% of the population living in medium- to high-risk wildfire zones. Forty-seven percent of those at risk from wildfire are disabled, making a quick evacuation difficult. Only 191 people of the entire County would be at risk from surge due to a Category 3 hurricane. Local emergency management officials likely would recommend that all of these residents at risk from surge evacuate or go to a County shelter.

Table 2.1 Estimated Number of Persons at Risk from Selected Hazards

Population	Flood	Sinkhole (high-adjacent risk)	Wildfire (medium-high risk)	Surge
Minority	1,756	2,899	3,782	0
Over 65	8,430	15,807	21,290	62
Disabled	13,599	25,076	34,003	76
Poverty	3,339	5,836	8,545	38
Language Isolated	56	45	102	0
Single Parent	1,444	2,294	3,586	15
Countywide Total	27,769	50,856	72,567	191

Note: Population categories are not exclusive; totals account for persons who fall in more than one category.

Source: Florida Department of Community Affairs, 2005a.

Evacuation and Shelters

As discussed in the previous sections, population growth in Citrus County has been steady, 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. Currently, evacuation clearance times for Citrus County are estimated to be 12 hours for Category 3 hurricanes and 19 hours for Category 4 and 5 hurricanes, as shown in **Table 2.2**. These data 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. Citrus County is able to meet this recommendation for now, but with continued growth and the limited road network of the region, it will be difficult to maintain this evacuation time. Additionally, 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 Citrus County, but also for other counties in the region as shown in **Table 2.2**.

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

County	Hurricane Category				
	1	2	3	4	5
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 Citrus County residents, then this could be a partial solution to the ever-increasing clearance times for evacuation. Currently, the State Shelter Plan reports that there is space for 3,344 people in the County’s shelters, and there are 11,494 more people that will need sheltering in the case of a Category 5 hurricane. It is projected that by 2009 the deficit will increase to 13,070 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 and surge zones. Residents who are further inland in the County and 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 recover from a disaster. **Table 2.3** presents estimates of the number of buildings in Citrus County by structure type that are at risk from each of the four hazards being analyzed.

Flooding presents a large risk to property in the County, with 39,550 structures within a flood zone. A majority of those structures are single-family homes. According to the latest National Flood Insurance Program Repetitive Loss Properties list, there are 180 homes in unincorporated Citrus County that have had flood damage multiple times and received insurance payments but have not remedied the recurring problem. There also are 93 structures at risk from surge, as shown in **Table 2.3**.

Table 2.3 also shows 27,399 structures within high to adjacent risk sinkhole areas, with 63% of those structures being single-family homes. Single-family homes are also at risk from wildfire, with 66% of the total 43,354 structures at risk being single-family 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	23,463	17,193	28,515	49
Mobile Homes	7,914	6,664	9,434	5
Multi-Family Homes	4,100	1,093	2,084	28
Commercial	2,375	1,729	1,880	3
Agriculture	1,445	313	731	1
Gov./Institutional	253	407	710	7
Total	39,550	27,399	43,354	93

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, wildfire, and surge 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 1999 geographic information system (GIS) shapefiles from the Florida Department of Environmental Protection and the Southwest Florida Regional Planning Council. Maps of future land uses in hazard areas were developed using the Citrus County future land use map obtained February 2004.

In **Attachment A**, four maps show the existing and future land uses within the coastal hazard zone (Category 1 storm surge zone) and the hurricane vulnerability zone (Category 1 evacuation zone). The affected area for the coastal hazard and hurricane vulnerability zones is mostly west of Highway 19. **Table 2.4** presents the number of acres of land in both of these zones. A majority of the land in these two categories is either used for agriculture or parks and conservation. The largest percentage of acreage in these categories is found in parks and conservation, with 51.5% in the coastal hazard zone and 40.7% in the hurricane vulnerability zone. This is very positive for the County since a large portion of these hazard areas are being conserved or have not yet been developed, thereby giving the County opportunities to limit the amount of people needing evacuation or shelter and the amount of property damage that can occur from a hurricane. **Table 2.5** presents future land use estimates and a breakdown of how currently undeveloped land has been designated for future use. For the coastal hazard zone, 50.5% is designated for conservation use, and for the hurricane vulnerability zone, 38.8% is to be conserved. These percentages are just slightly less than the existing acreage in parks and conservation, meaning that the County has done a terrific job at targeting coastal hazard areas for conservation and not allowing land use amendments to change that plan.

In **Attachment B**, two maps present the existing and future land uses within a 100-year flood zone. There are large swaths of flood-prone areas on both the western and eastern sides of the County, due to flooding from the Gulf of Mexico and on the east side from the Withlacoochee River and Tsala Apopka chain of lakes. The total amount of land in these special flood hazard areas is 147,498 acres for the unincorporated County. As shown in **Table 2.4**, only 1.6% of these acres are currently undeveloped, however, a majority of the flood prone land is in parks and conservation or agricultural uses. **Table 2.5** shows that 39% of the flood prone acres are designated for conservation and 25.3% are designated simply as water bodies. Only a very small percentage of the flood zone is designated for development, and only 39 acres are allowed high-density residential development.

In **Attachment C**, maps present the land uses associated with high-risk wildfire zones. The central area of the County that falls between the east and west flood hazard areas is most at risk from wildfire. A total of 15.7% of the land within these wildfire zones is currently vacant, as shown in **Table 2.4**. Of those 18,514 undeveloped acres, 71.6% is shown to be designated for residential mixed uses or rural residential use in the future (**Table 2.5**). If homes are built in these risk areas, Citrus County's vulnerability to wildfire hazards will greatly increase. Additionally, 30% of the wildfire susceptible areas already have low-density residential development present, as seen in **Table 2.4**. 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.

Attachment D includes maps of potential sinkhole areas in the County. The areas all along Highway 19 and along Highway 41 are at risk from sinkholes due to the karst foundation of the area. Again, though, a large portion of the sinkhole hazard area is being used for parks and

conservation, 12.9%, or agriculture, 43.1% (**Table 2.4**). There are also 15,355 acres, or 18.3% of the potential sinkhole area, in low-density residential use, however. Of the undeveloped land at risk, 38.9%, or 2,775 acres, is designated for future use as low intensity coastal lakes as seen in **Table 2.5**. This means that the potential persons and property at risk could increase in the future.

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

Existing Land Use Category		Coastal Hazard Zone	Hurricane Vulnerability Zone	Flood Zones	Wildfire Susceptible Areas	Potential Sinkhole Areas
Agriculture	Acres	29,987.4	43,040.0	50,780.8	33,237.8	36,105.5
	%	30.9	34.6	34.4	28.1	43.1
Commercial	Acres	871.2	1,100.2	663.0	849.6	1,490.3
	%	0.9	0.9	0.5	0.7	1.8
Government, Institutional, Hospitals, Education	Acres	80.7	137.1	59.7	259.7	236.4
	%	0.1	0.1	0.0	0.2	0.3
Industrial	Acres	31.4	29.7	34.3	109.5	133.6
	%	0.0	0.0	0.0	0.1	0.2
Parks, Conservation Areas, Golf Courses	Acres	49,927.4	50,699.9	71,113.8	21,247.5	10,760.7
	%	51.5	40.7	48.2	18.0	12.9
Residential High-Density	Acres	296.1	487.8	441.9	522.8	1,551.9
	%	0.3	0.4	0.3	0.4	1.9
Residential Low-Density	Acres	4,768.3	12,007.0	4,987.6	35,298.1	15,354.9
	%	4.9	9.7	3.4	29.9	18.3
Residential Medium-Density	Acres	2,670.5	4,653.2	3,755.5	5,607.8	7,636.3
	%	2.8	3.7	2.6	4.8	9.1
Submerged Lands	Acres	4,541.5	3,793.6	12,008.6	280.5	2,178.9
	%	4.7	3.1	8.1	0.2	2.6
Transportation, Communication, Rights-Of-Way	Acres	521.2	609.5	232.1	393.7	534.4
	%	0.5	0.5	0.2	0.3	0.6
Utility Plants and Lines, Solid Waste Disposal	Acres	1,205.4	1,451.5	1,007.6	1,832.0	616.7
	%	1.2	1.2	0.7	1.6	0.7
Vacant	Acres	2,070.8	6,436.2	2,413.2	18,514.1	7,132.7
	%	2.1	5.2	1.6	15.7	8.5
Total Acres	Acres	96,971.9	124,445.6	147,498.1	118,152.9	83,732.3
	%	100.0	100.0	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		Coastal Hazard Zone		Hurricane Vulnerability Zone		Flood Zones		Wildfire Susceptible Areas		Potential Sinkhole Areas	
		Total	Undev.	Total	Undev.	Total	Undev.	Total	Undev.	Total	Undev.
Agriculture	Acres	705.6	8.9	2,685.6	65.8	228.5	11.6	6,017.6	393.0	3,494.4	143.9
	%	0.7	0.4	2.2	1.0	0.2	0.5	5.1	2.1	4.2	2.0
Central Ridge Residential	Acres	0.0	0.0	0.0	0.0	0.0	0.0	83.4	31.9	10.3	0.0
	%	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0
Conservation	Acres	49,009.8	100.8	48,319.9	95.6	57,557.4	94.8	17,557.3	77.6	8,314.6	20.6
	%	50.5	4.9	38.8	1.5	39.0	3.9	14.9	0.4	9.9	0.3
Extractive	Acres	6,241.8	736.8	6,251.6	721.6	4,580.8	444.5	1,292.1	230.3	524.2	174.7
	%	6.4	35.6	5.0	11.2	3.1	18.4	1.1	1.2	0.6	2.4
General Commercial	Acres	1,516.8	137.6	1,793.5	178.3	1,329.3	125.7	1,781.2	277.6	2,713.3	256.9
	%	1.6	6.6	1.4	2.8	0.9	5.2	1.5	1.5	3.2	3.6
High-Density Residential	Acres	53.5	27.9	55.7	25.6	39.0	14.5	70.7	33.0	71.9	20.6
	%	0.1	1.3	0.0	0.4	0.0	0.6	0.1	0.2	0.1	0.3
Industrial	Acres	836.4	68.2	1,113.8	110.1	348.7	69.8	1,020.1	242.3	709.2	143.9
	%	0.9	3.3	0.9	1.7	0.2	2.9	0.9	1.3	0.8	2.0
Low-Density Residential	Acres	5,527.1	132.2	8,738.2	156.1	4,021.0	111.5	15,251.5	943.4	12,631.3	555.0
	%	5.7	6.4	7.0	2.4	2.7	4.6	12.9	5.1	15.1	7.8
Low Intensity Coastal Lakes	Acres	14,829.8	302.7	20,730.0	3,013.8	28,504.3	1,107.3	7,297.4	1,986.5	18,993.2	2,775.0
	%	15.3	14.6	16.7	46.8	19.3	45.9	6.2	10.7	22.7	38.9
Medium-Density Residential	Acres	3,190.4	130.4	4,566.7	192.6	2,181.8	87.6	7,296.5	671.5	9,198.5	472.8
	%	3.3	6.3	3.7	3.0	1.5	3.6	6.2	3.6	11.0	6.6
No Data	Acres	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Professional Service and Office	Acres	430.5	4.0	503.2	4.0	199.8	0.9	555.8	41.7	945.5	30.8
	%	0.4	0.2	0.4	0.1	0.1	0.0	0.5	0.2	1.1	0.4
Public, Semi-Public, Institutional	Acres	96.1	0.0	215.8	4.9	108.1	0.0	414.0	26.5	298.1	30.8
	%	0.1	0.0	0.2	0.1	0.1	0.0	0.4	0.1	0.4	0.4
Recreation	Acres	227.6	27.4	425.6	48.6	4,200.0	17.6	837.1	56.2	1,058.6	61.7
	%	0.2	1.3	0.3	0.8	2.9	0.7	0.7	0.3	1.3	0.9
Residential Mixed Use	Acres	1,349.2	124.2	4,498.7	756.0	807.0	45.7	26,280.3	10,916.2	6,382.4	1,490.3
	%	1.4	6.0	3.6	11.7	0.6	1.9	22.2	59.0	7.6	20.9
Rural Residential	Acres	3,564.7	179.7	13,787.6	952.4	1,970.5	109.7	29,021.7	2,329.6	12,014.6	894.2
	%	3.7	8.7	11.1	14.8	1.3	4.5	24.6	12.6	14.3	12.5
Transportation, Communication, Utilities	Acres	4,424.5	84.7	5,439.7	85.8	4,068.9	81.8	2,832.3	211.1	1,613.6	51.4
	%	4.6	4.1	4.4	1.3	2.8	3.4	2.4	1.1	1.9	0.7
Water Bodies	Acres	4,968.2	5.4	5,320.0	25.0	37,352.6	90.3	544.0	45.7	4,758.6	10.3
	%	5.1	0.3	4.3	0.4	25.3	3.7	0.5	0.2	5.7	0.1
Total	Acres	96,971.9	2,070.8	124,445.6	6,436.2	147,498.1	2,413.2	118,152.9	18,514.1	83,732.2	7,132.7
	%	100.0	100.0	100.0	100.0	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 Citrus County’s incorporated areas and how many of those acres are currently undeveloped. Crystal River is the only municipality that is subject to surge, or within the Category 1 evacuation zone, and only 4.7% of these acres at risk are not yet developed. It also has the most acres within a flood zone, and only 3.2% of those are currently vacant. Crystal River’s vulnerability will be presented in more detail in **Section 6** of this profile. Inverness has the most acres of any of the incorporated areas susceptible to wildfire. A third of the acres at risk from wildfire have not been developed yet. It also has 1,124 acres in sinkhole susceptible areas. The City can use some of the recommendations for wildfire and sinkhole mitigation from this profile to decrease Dunnellon’s vulnerability. Inverness also has land within a flood zone, and only 6.1% is still vacant. By working with the County on drainage projects and structure mitigation, they may be able to decrease the vulnerability in the already developed acres.

Table 2.6 Total and Vacant Incorporated Acres in Hazard Areas

Jurisdiction		Coastal Hazard Zone		Hurricane Vulnerability Zone		Flood Zones		Wildfire Susceptible Areas		Sinkhole Susceptible Areas	
		Total	Vacant	Total	Vacant	Total	Vacant	Total	Vacant	Total	Vacant
Crystal River	Acres	3,547.9	166.1	3,563.5	167.6	3,744.1	120.6	492.5	116.2	3,018.2	174.1
	%	100.0	4.7	100.0	4.7	76.5	3.2	24.2	23.6	72.9	86.5
Inverness	Acres	0.0	0.0	0.0	0.0	1,149.7	70.5	1,546.9	515.0	1,124.0	27.2
	%	0.0	0.0	0.0	0.0	23.5	6.1	75.9	33.3	27.1	13.5
Total Acres	Acres	3,547.9	166.1	3,563.5	167.6	4,893.8	191.1	2,039.4	631.1	4,142.3	201.3
	%	100.0	4.7	100.0	4.7	100.0	3.9	100.0	31.0	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 Plans (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 Citrus County LMS (adopted 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 LMS uses detailed data on structures at risk for all of the major hazards discussed in this profile. It does not, however, discuss populations at risk or future land use issues. The maps in the LMS show only the hazard areas and do not attempt to correlate this with population centers or land uses. Incorporating land use and population data into the risk assessment of the LMS provides a better source of data for planners to use in policy making and policy evaluation of the local Comprehensive Plan. The LMS also sets a standard for the quality of data that should be used in determining risk and thereby used to determine mitigation policies. Citrus County's LMS objectives to collect better flood data and update the Flood Insurance Rate Maps for the County show its commitment to providing the best source of hazard data for making these important decisions.

Guiding Principles

There is not a section of the Citrus LMS that directly fits the above-described Guiding Principles section. The Citrus LMS does not list policies from other plans that relate to hazard mitigation. It does, however, have a section that lists the plans and studies that were used in updating the LMS (Section 3.6 Integration with Existing Plans, pg. 18). It lists the Citrus Comprehensive Plan and Land Development Code, as well as the Comprehensive Emergency Management Plan (CEMP), as some of the plans consulted. It would be much more useful if a list of the hazard-related policies from each jurisdiction's Comprehensive Plan were included in the LMS for reference. This would allow 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 E**. The goals and objectives are also summarized in **Section 5** 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.

Citrus County has many objectives that tie mitigation through the LMS to programs and regulations that are found in other plans. Limited references are made to the Citrus County Comprehensive Plan and to the Land Development Code for the County. The first goal directs

the County and both of the cities to continue participation in the National Flood Insurance Program's Community Rating System. There also is an objective to create a County firewise program. Referencing other plans and programs in the goals and objectives of the LMS lays a clear foundation for this plan to be integrated with other plans and for its committee to oversee programs that may involve many different departments of the County and municipalities. There is no section in this LMS, however, that lists existing policies or guiding principles from other plans within the County or its municipalities. This component is found in most counties' LMSs and is useful in providing the different jurisdictions ideas for enhancing their own plans or providing the LMS committee an analysis of where there may be weaknesses in implementing mitigation strategies.

The LMS objectives also address planning for the coastal high hazard area. It encourages the County to "direct population concentrations away from known or predicted coastal high hazard areas through appropriate regulations..." (Citrus County, 2005, pg. 90). This is consistent with the requirements of Rule 163 and Chapter 9J-5, which the Comprehensive Plan must follow. Having the same language in the LMS presents a united front on decreasing risk in the County. The LMS also discourages the location of nursing homes and hospitals in Category 1 evacuation zones and encourages emergency response plans and generators for these facilities. Post-disaster planning is addressed through an objective as well. While the LMS may not be able to regulate land use, having these objectives increases the likelihood of the jurisdictions of Citrus County adopting and implementing corresponding policies that are legally enforceable.

A majority of the goals and objectives of the LMS promote educating residents, businesses, and elected officials in mitigation and disaster preparedness; a couple of them even support the use of incentives or economic support for protecting structures. These are good objectives because the LMS is an ideal arena for creating public education programs, and these initiatives are sometimes difficult to include in the Comprehensive Plan.

The LMS also has a good discussion following the goals and objectives of the different categories of mitigation activities and what plans, ordinances, regulations, or programs would guide mitigation initiatives (Citrus County, 2005, pg. 91). For instance, the first category of preventive measures lists the Comprehensive Plan and building codes, among other items, that could administer any initiatives aimed at minimizing disaster losses.

Comprehensive Emergency Management Plan

The Mitigation Annex of the 2002 Citrus County 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. The only paid employee who is directly responsible for mitigation, however, is the Flood Management Coordinator. While it is good that this position is housed in the Department of Community Development, there could be more responsibility for mitigation assigned to those responsible for land use planning. Major programs and initiatives from the LMS are cited, such as the Community Rating System and firewise program. Structural and non-structural mitigation activities are listed. Repetitive loss structures are addressed, as well as, zoning regulations and incentives for retrofitting. The risk assessment of the CEMP was not reviewed, however, it is suggested that this section be updated on a regular basis to be consistent with the risk assessment of the LMS.

Post-Disaster Redevelopment Plan

A PDRP for Citrus County was not available for review at the time this profile was drafted. If Citrus 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

Citrus County, Crystal River, and Inverness are all participating communities in the National Flood Insurance Program. In addition, Citrus County participates in the Community Rating System and has a current class of 7.

4. Comprehensive Plan Review

Citrus 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 F**. These policies are also presented in **Section 5**. The following is a summary of how well the plan addressed the four hazards of this analysis.

Coastal Hazards

Citrus County's Comprehensive Plan has many policies considered to be best management practices for mitigating hurricane and coastal surge impacts. There are several policies that deal with evacuation needs, including setting level of service standards for peak evacuation and coordinating residential land use allocations with the local and regional evacuation plans. The Comprehensive Plan also touches on sheltering needs requiring adequate space in public shelters for 70% of incoming residents prior to issuing a development permit and requiring manufactured home parks to provide an onsite shelter capable of holding all park residents. There are also many policies referring to the Coastal High Hazard Area (CHHA). The County must relocate or replace infrastructure in the CHHA, and all public expenditures in the CHHA are to be limited. There are several policies that also limit development in the CHHA, by not allowing certain uses, such as assisted living facilities, or not allowing the expansion of certain uses, including residential.

Flooding Hazards

Flooding was addressed in the Comprehensive Plan in multiple policies. There were many policies for protecting or limiting densities in floodplains and wetlands. The County has several policies that regulate new construction to be compliant with the County Floodplain Standards, and they require repetitive loss properties to be modified to remedy the recurring damage.

Wildfire Hazards

There were no policies in the Comprehensive Plan that related to wildfire hazards. An objective to conserve fresh water supplies indirectly relates to having sufficient water to put out a wildfire.

Sinkhole Hazards

No policies were found during this review that directly related to sinkhole hazards. There was a policy aimed at conserving land for groundwater recharge. This policy contributes to mitigating sinkholes by decreasing the probability of human-induced sinkholes, which can occur from changes in the water level of the aquifer in karst areas that are already susceptible to sinkhole activity.

Other Hazard Mitigation Policies

There were several policies that referenced hazard mitigation in other plans, such as coordinating the evacuation section of the CEMP with local and regional evacuation plans. There was also one policy that referred to the need to educate the public on emergency preparedness. There

were also a few policies that referred to developing a post-disaster plan and redevelopment regulations such as abiding by the Floodplain Ordinance.

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.

Citrus 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 disconnection 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, the County should consider other hazards, if appropriate, such as tornadoes and soil subsidence, during the update of the local Comprehensive Plan.

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

Strategies & Integration Topics	Current LMS Information, Goals, or Objectives	Current Comprehensive Plan Policies	Options for Further Integration into the Comprehensive Plan	Options for Enhancement of the LMS	Basis For Suggested Options
Strategy 1 - Collaboration, coordination, and education					
<p>a) Is there information sharing &/or involvement in plan development between planners & emergency managers?</p>	<p>County Dept. of Development Services participates in LMS committee and contributed data for plan.</p>	<p>CLRME P 4.11.1 Community Dev. Division will prepare PDRP</p>	<p>The Community Dev. Division could prepare the plan in cooperation with Emergency Management staff.</p>		<p>Clear directives for planning and emergency management staff to work together on plans will ensure that the plans completely address all aspects of hazards.</p>
<p>b) Do the Comp Plan, LMS, CEMP, & other local and regional plans cross-reference each other & include consistent data on hazardous locations?</p>	<p>O. 1.1 Protection of populations & property consistent with standards in LMS and Comp Plan O. 1.3 Participate in FEMA CRS program and increase rating O. 5.8 Collect flood data and complete countywide database</p>	<p>CLRME P 4.9.1 Coordinate evacuation section of CEMP with local and regional evacuation plans CLRME P. 4.11.2 CEMP modified to comply with PDRP CLRME P. 4.11.3 Components to be included in PDRP CLRME P 4.11.6 Interagency hazard mitigation reports considered for incorporation in Comp Plan</p>	<p>Include a map of hazard locations overlaying land uses as a new map in the Future Land Use series. Reference the LMS as a source of data to be used in updates to the comp plan.</p>	<p>Include existing and future land uses on hazard maps. Reference the PDRP after its adoption.</p>	<p>By using consistent data and showing linkages between the different plans, each plan will be stronger. Maps, such as the ones in this profile, provide useful visual knowledge on the relationship between land uses and hazard zones that can be used for planning mitigation or changes in future land use.</p>
<p>c) Are hazard mitigation projects addressed in the 5-year schedule of Capital Improvement Projects?</p>					

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<p>d) Are there measures to educate residents, homeowner/property associations, & the business community of ways they can mitigate against hazards?</p>	<p>G. 2 Emphasize education and training for property owners, families and individuals about hazard mitigation O. 2.1 Disaster preparedness education targeting homeowners, families, and individuals O. 2.2 Disaster preparedness education targeting public and private sectors O. 4.1 Disaster planning training for businesses O. 5.4 Promote mitigation features in new construction to elected officials, builders, and potential homeowners O. 5.6 Education and incentives for use of higher standards of protection G. 6 Encourage public support and commitment to mitigation by communicating benefits O. 6.1 Public info programs for hazard mitigation O. 6.2 Coordinate mitigation info programs and events with public and private partners O. 6.3 Seek funding for mitigation awareness programs O. 6.4 Develop a firewise program</p>	<p>CLRME P. 4.9.12 Emergency preparedness info and educational opportunities for public CE P 3.2.1 Provide and update the flood plain management handout to inform and educate people about the County's flood plain protection regulations. CLRME O 4.4 Continue the ongoing program of public education to assist in the protection of estuarine, riverine, and lake natural resources.</p>	<p>A program in coordination with the LMS committee to educate homeowners of mitigation techniques for protecting their structures, including wind, flood, firewise, and sinkhole mitigation techniques.</p>	<p>Ensure that there are mitigation projects to implement these goals and objectives pertaining to education.</p>	<p>While regulation can prevent new vulnerabilities to hazards, one of the best ways to mitigate existing vulnerabilities is through education.</p>

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

Strategies & Integration Topics	Current LMS Information, Goals, or Objectives	Current Comprehensive Plan Policies	Options for Further Integration into the Comprehensive Plan	Options for Enhancement of the LMS	Basis For Suggested Options
Strategy 2 - Get out of the way: provide evacuation and sheltering services					
<p>a) Are there measures to provide adequate evacuation clearance time to support current population and population growth?</p>		<p>CLRME P. 4.9.1 Coordinate evacuation section of CEMP with local and regional evacuation plans CLRME O. 4.9 Maintain or reduce evac times through 2005; new developments not degrade LOS FLUE P. 17.10.1 LOS standards for peak evacuation hours CLRME P. 4.9.2 Periodic reports on population at risk for use in evac planning CLRME P.4.9.8 Impact analysis of new dev. on evac times by 2007 CLRME P. 4.9.11 Use transportation modeling to plan for impact of large residential projects and county build out on evac FLUE O. 17.10 Coordinate residential allocations in coastal areas with county and regional evac plans CLRME P. 4.9.4 Roadway improvements on evac routes include remedies for flooding CLRME P 4.9.7 DRIs require mitigative measures for impacts on hurricane shelter capacity and hurricane evacuation times.</p>	<p>Use impact fees linked to the LOS standards or special assessment districts to finance maintenance and expansion of evacuation routes. Prioritize evac route improvements in Capital Improvements Schedule and MPO Long-Range Transportation Plan.</p>	<p>Add an objective that supports maintaining 12 hour or less evacuation clearance times by planning for population growth.</p>	<p>Best management practices from <i>Protecting Florida's Communities</i></p>

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

Strategies & Integration Topics	Current LMS Information, Goals, or Objectives	Current Comprehensive Plan Policies	Options for Further Integration into the Comprehensive Plan	Options for Enhancement of the LMS	Basis For Suggested Options
<p>b) Are there measures to provide adequate shelter space to meet population growth and special needs?</p>		<p>CLRME P.4.9.10 Adequate shelter capacity for 70% of incoming residents must be available prior to dev. permit CLRME P. 4.9.5 No hurricane shelters located within Category 5 evacuation area CLRME P. 4.9.3 Manufactured Home Parks outside surge zone must have building for use as shelter CLRME P. 4.10.8 LDC contain additional requirements for new dev. with residents that may have special needs CLRME P 4.9.7 DRIs require mitigative measures for impacts on hurricane shelter capacity and hurricane evacuation times.</p>	<p>Policy 4.9.5 should be corrected to state that no shelters should be located within a Category 1 evac zone rather than a Cat. 5. Use impact fees based on 70% standard (Policy 4.9.10) to finance new shelters Encourage new residential developments to include a shelter in the development or build safe rooms into each home if not in a flood or surge zone. Identify safe zones (large defensible space and non-flammable materials) throughout the county for wildfire emergency shelter.</p>	<p>Add an objective that supports increasing the amount of shelter space in the county.</p>	
<p>Strategy 3 - Make the environment less hazardous: Protect and enhance natural protective features</p>					
<p>a) Are there measures to protect and/or restore natural resources that might in turn decrease the risk from natural hazards?</p>		<p>CLRME G. 4 Preserve, protect, and enhance coastal, lakes, and river areas through restricting dev. which damages resources to protect human life and limit public expenditures Floodplains CE O. 3.2 Protect flood storage and conveyance capabilities by limiting dev. and fill CE P 3.2.2 Support acquisition of undeveloped floodplains for conservation CLRME P. 4.10.7 Floodplains in HVZ targeted for public acquisition for protection of natural functions Wetlands</p>	<p>Promote cluster development to avoid natural features. Require setbacks and buffers around floodplains as well as wetlands. Wildfire Require management plans for conservation areas that address reduction of wildfire fuels.</p>	<p>Include a goal or objective to protect and restore natural resources, such as beaches and dunes, wetlands, and floodplains, through regulation and acquisition. Map these natural resource areas.</p>	<p>One of the best ways to reduce damages is to let the natural environment protect you. If natural drainage is not altered and structures are not built in the floodplain, there will not be as much risk of flooding. Beaches and dunes are the first defense against surge. Forests that are maintained, naturally or through prescribed fire, will not become a wildfire risk to the nearby community.</p>

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

Strategies & Integration Topics	Current LMS Information, Goals, or Objectives	Current Comprehensive Plan Policies	Options for Further Integration into the Comprehensive Plan	Options for Enhancement of the LMS	Basis For Suggested Options
		<p>CE O 3.15 Protect and conserve wetlands</p> <p>CE P. 3.15.2 Wetland protection standards to be in LDC, including buffers, setbacks, easements, and impact of dev.</p> <p>CLRME P. 4.6.1 Dredging & filling prohibited, water-related uses must be built on uplands</p> <p>CE P 3.8.4 Continue to enforce wetland protection regulations in LDC.</p> <p>Water Conservation</p> <p>CE P.3.5.3 Public acquisition programs for conserving land for water supply and groundwater recharge</p> <p>CE O 3.6 Conserve fresh water resources</p> <p>CE O 3.6 Conserve fresh water resources.</p> <p>CE P 3.6.1 Adopt water conservation regulations.</p> <p>CE P 3.6.2 Adopt a water conservation ordinance.</p> <p>Soils</p> <p>CE O 3.11 Reduce soil erosion.</p> <p>CE P 3.11.1 Minimizing soil erosion.</p>			

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

Strategies & Integration Topics	Current LMS Information, Goals, or Objectives	Current Comprehensive Plan Policies	Options for Further Integration into the Comprehensive Plan	Options for Enhancement of the LMS	Basis For Suggested Options
Strategy 4 - Make structures more resistant to natural hazard forces					
<p>a) Are there measures that support relocating or retrofitting private &/or public structures in hazard areas?</p>	<p>O. 2.3 Economic incentive programs for public and private sector to do structural retrofitting G. 3 Prevent flood-related repetitive losses from natural disasters through regulation & education O. 3.1 Develop & support private/public projects to retrofit, relocate, or acquire rep loss properties O. 3.4 Upgrade & elevate structures in flood susceptible areas O. 5.5 Identify vulnerable critical facilities and retrofit</p>	<p>CLRME P. 4.10.6 Relocate or replace infrastructure in CHHA to limit public losses from natural disasters CLRME P. 4.11.5 Repetitive loss structure required to modify structure to correct reoccurring damage</p>	<p>Use incentives or provide assistance in retrofit, relocation, or demolition of repetitive loss structures. Acquire repetitive loss properties for parks or conservation.</p>		<p>To eliminate repetitive loss structures (i.e. from flood or sinkhole damages) residents may need assistance with relocation or costly retrofits.</p>

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

Strategies & Integration Topics	Current LMS Information, Goals, or Objectives	Current Comprehensive Plan Policies	Options for Further Integration into the Comprehensive Plan	Options for Enhancement of the LMS	Basis For Suggested Options
<p>b) Are there measures to require compliance with or exceed building codes &/or design standards for certain hazard areas?</p>		<p><u>Coastal High-Hazard Area</u> CLRME P 4.10.1 Continue to amend building code to reflect coastal hazard concerns CLRME P. 4.10.11 Replacement units in existing mobile home parks in the CHHA must be elevated CLRME P.4.10.12 Height restrictions in CHHA and restrictions on uses for underneath of elevated structures CLRME O 4.6 Protect coastal resources, LCD contains performance standards for shoreline development <u>Floodplain</u> FLUE P.17.4.1 New construction comply with FEMA and County Floodplain Standards FLUE P.17.4.2 Dev. orders not issued if not in compliance with Floodplain Standards CLRME P.4.10.2 Floodproof & back flow preventors required on sewer facilities in surge and flood zones FLUE P 17.1.1 LDC regulate of areas subject to seasonal and periodic flooding, and provision for drainage and stormwater management, protection of environmentally sensitive lands, and protection of natural and historic resources.</p>	<p><u>Wildfire</u> Adopt firewise building standards for high-risk fire areas</p>		

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

Strategies & Integration Topics	Current LMS Information, Goals, or Objectives	Current Comprehensive Plan Policies	Options for Further Integration into the Comprehensive Plan	Options for Enhancement of the LMS	Basis For Suggested Options
<p>c) Are there measures to protect cultural resources from natural disasters?</p>		<p>CLRME O 4.8 Protect preserve historic resources CLRME P 4.8.3 Protect historic and archeological resources using required setbacks, buffers, or open space. CLRME P 4.8.5 Prohibit vegetation removal on significant historic or archaeological site. FLUE P 17.1.2 The County LDC shall contain performance standards which address buffering between incompatible uses, protection of historically significant properties</p>	<p>Locate museums and other cultural facilities away from hazard areas.</p>	<p>Access the vulnerability and risk of historic sites and structures to natural hazards. Prioritize drainage projects that will protect historical structures.</p>	

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

Strategies & Integration Topics	Current LMS Information, Goals, or Objectives	Current Comprehensive Plan Policies	Options for Further Integration into the Comprehensive Plan	Options for Enhancement of the LMS	Basis For Suggested Options
Strategy 5 - Manage the development and redevelopment of land in hazardous areas					
<p>a) Are there measures to limit population densities in high-hazard areas?</p>	<p>O. 3.3 Direct population concentrations away from known or predicted CHHA through regulations in LDC O. 5.1 Discourage nursing homes & hospital facilities in Category 1 evac areas</p>	<p>Floodplain CE O. 3.2 Limit dev. In 100-yr floodplain UE G 9 Protection of natural drainage features and functions UE O 9.4 Natural drainage features shall be protected and included in Master Stormwater Drainage Plans UE P 9.4.1 Protect the natural drainage features</p> <p>Coastal High-Hazard Area CLRME O. 4.10 Direct population concentrations away from CHHA through regulations in LDC CLRME P. 4.10.5 Population concentration shall be directed away from CHHA CLRME P. 4.10.9 No new institutional occupancy uses in CHHA; existing facilities may not increase density CLRME P. 4.10.10 List of residential occupancy uses restricted from new dev. or expansion in CHHA FLUE P. 17.3.7 Assisted living facilities allowed in all residential areas except CHHA CLRME P 4.10.13 Temporary lodging facilities cannot convert to permanent residential uses; no increase in density in CHHA allowed UE P. 16.1 No new residential dev. greater than 1du/20acres in the general Coastal Area and 1du/40acres in FEMA V-zone</p>	<p>Wildfire Limit residential development in high-risk fire areas, such as adjacent to conservation lands. Sinkholes Restrict development through overlay zones or preservation districts in high-risk, karst- sensitive areas</p>		<p>Best management practices from <i>Protecting Florida's Communities</i></p>

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

Strategies & Integration Topics	Current LMS Information, Goals, or Objectives	Current Comprehensive Plan Policies	Options for Further Integration into the Comprehensive Plan	Options for Enhancement of the LMS	Basis For Suggested Options
<p>b) Are there measures to limit public expenditures that subsidize development in high-hazard areas?</p>		<p>Coastal High-Hazard Area CLRME P. 4.9.14 County shouldn't improve or build public facilities that encourage growth in CHHA CLRME P. 4.10.4 Expansion of infrastructure or public expenditure in CHHA shall be minimized & only serve existing land uses FLUE P. 17.18.2 School siting criteria including discourage citing in CHHA CIE O. 19.2 Public expenditures for new facilities in CHHA limited to improvements listed in CLRME CIE P. 19.2.1 Public funding in CHHA limited to replacement and renewal of existing facilities to serve existing land uses</p>			
<p>d) Are there creative neighborhood design solutions or development regulations that mitigate hazards, such as clustering or transfer of development rights?</p>	<p>O 5.2 Promote change to State law for hospitals and nursing homes to have approved emergency response plan and power generation on site</p>	<p>CE P 3.1.1 Setback of 50 ft from water bodies for newly subdivided parcels FLUE P 17.3.6 Use cluster developments on ESLs FLUE P 17.3.22 Limit PD densities in the Lakes and Rivers area and may require clustering.</p>	<p>Sinkholes Use buffers to prevent development from building too close to an existing sinkhole. In karst-sensitive areas, a geotechnical evaluation must be made prior to development approval. Wildfire Require firewise neighborhood design as a condition of approval for subdivision or PUD in high-risk areas.</p>		

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

Strategies & Integration Topics	Current LMS Information, Goals, or Objectives	Current Comprehensive Plan Policies	Options for Further Integration into the Comprehensive Plan	Options for Enhancement of the LMS	Basis For Suggested Options
<p>e) Are there measures to limit redevelopment in hazard areas and procedures for post-disaster recovery that will lead to a more disaster-resistant community?</p>	<p>G. 4 Reduce economic vulnerability & increase recovery capabilities of businesses O. 5.3 Pre-identify post-storm redevelopment options</p>	<p>CLRME O. 4.11 Adopt PDRP by 2007 to reduce exposure of life and property to natural hazards CLRME P 4.11.4 Immediate repair and cleanup activities defined and given 1st priority, long-term recovery postponed until Task Force finished CLRME P 4.11.7 Redevelopment in the coastal, lakes, and rivers areas governed by Floodplain Ordinance and FEMA guidelines</p>	<p>In the hazard area, only allow redevelopment after a natural disaster to occur at the density/intensity of the land use designation currently in place.</p>		<p>Best management practices from <i>Protecting Florida's Communities</i></p>

Abbreviations: G= Goal; O= Objective; P=Policy; PDRP= Post-Disaster Redevelopment Plan; HVZ= Hurricane vulnerability zone; CHHA= Coastal High Hazard Area
 CE= Conservation Element; CLRME= Coastal, Lakes, and River Management Element; FLUE= Future Land Use Element; UE= Utilities Element; CIE= Capital Improvements Element

6. Municipal Case Study: Crystal River

As part of this study, a similar analysis to that of the County profile was completed for a statewide sample of 14 Florida municipalities, including Crystal River in Citrus County. The results of this analysis are provided in this section.

Hazards Analysis

The following analysis looks at three hazard types that the City is vulnerable to: flooding, sinkholes, and wildfire. All of the information in this section was obtained online through MEMPHIS.

Existing Population at Risk

Table 6.1 presents the population of Crystal River 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 the City that live within FEMA Flood Insurance Rate Map zones that signify special flood hazard areas. According to these maps, 95.8% of the population, or 3,339 people, are within the 100-year flood zone. A majority of those at risk of flooding are disabled. There are 3,264 people living in a high to adjacent risk sinkhole zone which represents 93.7% of the City's population as reported in **Table 6.1**. Again a majority of those at risk from sinkholes are disabled. Wildfire does not affect as many people in Crystal River as flooding and sinkholes, however, 48.6% of the population are living within medium- to high-risk wildfire zones.

Table 6.1 Estimated Numbers of Persons at Risk from Selected Hazards

Population	Flood	Sinkhole (high-adjacent risk)	Wildfire (medium-high risk)
Minority	629	629	286
Over 65	895	865	214
Disabled	1,828	1,820	763
Poverty	306	306	181
Language Isolated	22	0	0
Single Parent	169	169	106
Countywide Total	3,339	3,264	1,697

Source: Florida Department of Community Affairs, 2005a.

Existing Built Environment

While the concern for human life is always of greatest 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 recover from a disaster. **Table 6.2** presents estimates of the number of buildings in Crystal River, by structure type, that are at risk from each of the three hazards being analyzed.

Flooding is by far the largest risk to property in the City, with 3,562 structures located in a flood zone. According to the latest National Flood Insurance Program Repetitive Loss Properties list, there are 143 homes in the City of Crystal River that have had flood damage multiple times and received insurance payments but have not been mitigated.

Table 6.2 also shows 1,841 structures in high to adjacent risk sinkhole areas, with 55% of those being single-family homes. Single-family homes are also at risk from wildfire, with 50.8% of the total 1,249 structures at risk being single-family homes.

Table 6.2 Estimated Number of Structures at Risk from Selected Hazards

Structure Type	Flood	Sinkhole (high-adjacent risk)	Wildfire (medium- high risk)
Single-Family Homes	1,489	1020	634
Mobile Homes	782	83	87
Multi-Family Homes	754	323	267
Commercial	434	325	204
Agriculture	92	79	46
Gov./Institutional	11	11	11
Total	3,562	1,841	1,249

Source: Florida Department of Community Affairs, 2005a.

Analysis of Current and Future Vulnerability

Crystal River’s vulnerabilities to flood, sinkhole, and wildfire were analyzed spatially in relation to existing and future land uses within the City. The following maps of existing land use within hazard areas are based on the 1999 GIS shapefiles from the Florida Department of Environmental Protection and the Southwest Florida Regional Planning Council. Maps of future land uses in hazard areas were developed using the Crystal River Future Land Use Map obtained April 2005.

In **Attachment A**, two maps show the existing and future land uses within the hurricane vulnerability zone (Category 1 evacuation zone) for Crystal River. **Table 6.1** presents the acres of land in the hurricane vulnerability zone for the City. The majority of the acres are currently used for agriculture or parks and conservation. However, 20.5% of the City’s acres within the Category 1 evacuation zone are classified as medium-density residential. **Table 6.2** presents future land use estimates and a breakdown of how currently undeveloped land has been designated for future use. As with the existing uses, large percentages are designated for conservation - 12.9% as conservation acres and 18.5% as coastal preservation acres. Unfortunately, 17.5% of the City’s land in the hurricane vulnerability zone is designated for future medium-density residential and 80% of the vacant acres left in the City are allocated for residential use. The City also allocated 12.4% of the acres in the hurricane vulnerability zone as large-scale commercial. Because of the Crystal River’s location near the coast, the City will always have to deal with development in the Category 1 evacuation zone since most of its land falls in this zone; however, they can concentrate on building codes and other mitigation techniques as well as carefully designating their land uses.

In **Attachment B**, two maps present the existing and future land uses within a 100-year flood zone. Most of the City falls within the 100-year flood zone except for a few small areas on the eastern boundary. The total land area in these special flood hazard areas is 3,509 acres. As shown in **Table 6.1**, only 5.4% of these acres are currently undeveloped. **Table 6.2** shows that 78.7% of the undeveloped lands are designated for future residential use. If homes must be built in these areas, proper elevations and other mitigation measures should be enforced. The City has also designated many of the acres within the floodplain for conservation purposes; 32.6% are allocated either for conservation or coastal preservation.

In **Attachment C**, maps present the land uses associated with high-risk wildfire zones. Most of the wildfire risk areas are in the southeast corner of the City or along Highway 19. According to the data in **Table 6.3**, 27.8% of the land within these wildfire zones is currently vacant and 23.4% is currently used for medium-density residential. Of the 125 undeveloped acres, 89.3% is shown to be designated for medium-density residential uses in the future (**Table 6.2**). If firewise precautions are taken in building these homes and in landscaping around the homes, wildfire risk can be reduced.

Attachment D includes maps of the land uses found in potential sinkhole areas. As with the hurricane vulnerability and flood zones, a majority of the City is within a potential sinkhole area. Approximately half of the sinkhole risk area is still vacant; however, 23.4% is still in current use as medium-density housing. Of the vacant acres, 26% of them are designated for future conservation use and 17.5% are designated for more medium-density residential. While these areas only have a high potential for sinkholes, it still would be in the best interest of the City and its residents to do geotechnical testing before approving building permits.

Table 6.3 Total Municipal Acres in Hazard Areas by Existing Land Use Category

Existing Land Use Category		Hurricane Vulnerability Zone	Flood Zones	Wildfire Susceptible Areas	Potential Sinkhole Areas
Agriculture	Acres	755.5	760.9	62.2	0.0
	%	23.3	21.7	13.8	0.0
Commercial	Acres	369.0	371.9	78.9	367.8
	%	11.4	10.6	17.5	13.6
Government, Institutional, Hospitals, Education	Acres	72.2	72.2	23.0	76.0
	%	2.2	2.1	5.1	2.8
Industrial	Acres	8.3	8.3	1.3	8.9
	%	0.3	0.2	0.3	0.3
Parks, Conservation Areas, Golf Courses	Acres	961.1	1,008.8	19.4	18.9
	%	29.6	28.8	4.3	0.7
Residential High-Density	Acres	23.9	24.3	8.7	24.5
	%	0.7	0.7	1.9	0.9
Residential Low-Density	Acres	36.6	39.2	7.1	35.9
	%	1.1	1.1	1.6	1.3
Residential Medium-Density	Acres	663.4	742.6	105.5	635.1
	%	20.5	21.2	23.4	23.4
Submerged lands	Acres	101.0	220.7	8.9	116.6
	%	3.1	6.3	2.0	4.3
Transportation, Communication, Rights-Of-Way	Acres	65.5	65.5	10.5	67.3
	%	2.0	1.9	2.3	2.5
Utility Plants and Lines, Solid Waste Disposal	Acres	5.6	5.6	0.0	6.5
	%	0.2	0.2	0.0	0.2
Vacant	Acres	180.8	188.6	125.3	1,354.1
	%	5.6	5.4	27.8	49.9
Total Acres	Acres	3,242.7	3,508.5	450.8	2,711.6
	%	100.0	100.0	100.0	100.0

Table 6.4 Total and Undeveloped Acres in Hazard Areas by Future Land Use Category for the City

Future Land Use Category		Hurricane Vulnerability Zone		Flood Zones		Wildfire Susceptible Areas		Potential Sinkhole Areas	
		Total	Undev.	Total	Undev.	Total	Undev.	Total	Undev.
Central Business District	Acres	23.2	0.5	23.2	0.5	0.0	0.0	21.0	1.1
	%	0.7	0.3	0.7	0.2	0.0	0.0	0.8	0.1
Coastal Preservation	Acres	599.5	1.8	630.7	2.2	3.6	0.0	149.8	129.7
	%	18.5	1.0	18.0	1.2	0.8	0.0	5.5	9.6
Conservation	Acres	418.9	6.0	511.4	6.0	9.1	1.8	378.3	352.5
	%	12.9	3.3	14.6	3.2	2.0	1.4	14.0	26.0
Education	Acres	56.6	0.0	56.6	0.0	25.0	0.0	53.9	9.8
	%	1.8	0.0	1.6	0.0	5.5	0.0	2.0	0.7
Heavy Industrial	Acres	1.3	0.0	1.3	0.0	0.0	0.0	1.3	0.0
	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
High-Density Residential	Acres	167.4	8.7	167.4	8.7	43.5	5.4	171.2	61.8
	%	5.2	4.8	4.8	4.6	9.6	4.3	6.3	4.6
Highway Commercial	Acres	204.4	8.0	205.5	8.0	16.3	3.8	200.4	51.1
	%	6.3	4.4	5.9	4.3	3.6	3.0	7.4	3.8
Large Scale Commercial	Acres	401.7	0.0	401.7	0.0	61.1	0.0	402.2	224.9
	%	12.4	0.0	11.5	0.0	13.6	0.0	14.8	16.6
Light Industrial	Acres	15.6	0.0	15.6	0.0	2.0	0.0	15.4	1.8
	%	0.5	0.0	0.4	0.0	0.5	0.0	0.6	0.1
Low-Density Residential	Acres	160.1	0.0	162.7	0.0	1.8	0.0	158.7	109.9
	%	4.9	0.0	4.6	0.0	0.4	0.0	5.9	8.1
Medium-Density Residential	Acres	568.0	144.5	615.7	148.5	209.3	111.9	527.9	236.8
	%	17.5	79.9	17.6	78.7	46.4	89.3	19.5	17.5
Office/Service Commercial	Acres	100.1	3.6	100.1	3.6	9.1	0.0	103.9	40.4
	%	3.1	2.0	2.9	1.9	2.0	0.0	3.8	3.0
Public/Semi-Public	Acres	41.0	0.7	43.9	0.7	8.9	0.0	35.7	9.4
	%	1.3	0.4	1.3	0.4	2.0	0.0	1.3	0.7
Recreation	Acres	95.2	2.9	96.5	2.9	18.3	2.0	100.3	68.4
	%	2.9	1.6	2.8	1.5	4.1	1.6	3.7	5.1
Right-of-Way	Acres	89.2	1.1	89.2	1.1	10.7	0.0	87.6	14.5
	%	2.8	0.6	2.5	0.6	2.4	0.0	3.2	1.1
Transportation/Communications/Utility	Acres	49.5	0.5	49.5	0.5	20.3	0.5	49.7	28.5
	%	1.5	0.3	1.4	0.2	4.5	0.4	1.8	2.1
Water	Acres	13.2	0.0	13.4	0.0	1.1	0.0	11.8	1.3
	%	0.4	0.0	0.4	0.0	0.3	0.0	0.4	0.1
Waterfront Commercial	Acres	25.2	0.0	35.0	0.0	0.2	0.0	24.3	0.0
	%	0.8	0.0	1.0	0.0	0.1	0.0	0.9	0.0
Waterfront Medium-Density Resid.	Acres	212.7	2.7	288.9	6.0	10.5	0.0	218.2	12.3
	%	6.6	1.5	8.2	3.2	2.3	0.0	8.0	0.9
Total Acres	Acres	3,242.7	180.8	3,508.5	188.6	450.8	125.3	2,711.7	1,354.1
	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Comprehensive Plan

Crystal River's Comprehensive Plan (revised in 2003) was reviewed in order to see what the City has already done to integrate the Citrus County LMS policies, and hazard mitigation in general, into their planning process. A list of the goals, objectives, and policies currently in the plan that contributes to hazard mitigation is found in **Attachment G**. The policies are also summarized in **Table 6.5**. The following is a summary of how well the plan addressed the three hazards of this analysis.

There are many polices that address hazard mitigation in the Crystal River Comprehensive Plan. Many growth management techniques and development requirements are employed by the City to protect natural resources. These include the use of buffer zones, restoration of natural features, density and intensity limitations, land conservation, easements, acquisition, density transfers, transfer of development rights, purchase of development rights, and land exchanges.

Coastal Hazards

There are several policies that protect coastal resources using density controls, transfer of development rights, and land conservation. Also, there are Comprehensive Plan policies that restrict certain types of structures and development within the Waterfront Protection Zone and the Hurricane Vulnerability Zone. Policies also restrict government subsidies and facilities in hazard areas and aim to limit populations in the CHHA.

Flooding Hazards

There are many policies that protect water bodies, wetlands, and the 100-year floodplain. By controlling and restricting development near these features, flood hazard risk is reduced. Also, by protecting the natural drainage features of wetlands can also reduce flooding in developed areas. There is a policy that requires development to adhere to the Waterfront Ordinance which restricts and regulates development in flood prone areas.

Sinkhole Hazards

There is a policy that refers to guidelines that provide vegetative buffers around sinkholes. This practice is used to act as a natural filter for runoff and to reduce erosion. There are polices that refer to the protection of soils to reduce erosion. Also, soils are analyzed prior to development approval.

Wildfire Hazards

There are no policies in the Comprehensive Plan that address wildfire areas. There are several policies that support the conservation of water and could reserve water for fire suppression during drought conditions.

Recommendations

For the LMS to be effective in the decision-making process of growth management, its objectives and policies must be integrated into all jurisdictions' Comprehensive Plans. 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.

Crystal River has begun the process of integrating hazard mitigation throughout its Plan's elements. The previous section summarized how the major hazards for the City have been for the most part well-addressed. There is, however, still an opportunity to incorporate more of the Citrus LMS objectives into the policies in the Comprehensive Plan. By tightening the connection between these documents, the City will find it easier to implement hazard mitigation, and there will be higher awareness of these issues within the City. **Table 6.5** 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 jurisdiction. While the profile addresses hurricanes, flooding, and wildfire, during the update of the local Comprehensive Plan, the City should consider other hazards if appropriate, such as tornadoes or erosion.

Table 6.5 Options for Integrating LMS Hazard Mitigation Principles into Crystal River's Comprehensive Plan

Strategies & Integration Topics	LMS	Comp Plan	Current LMS Information, Goals, or Objectives	Current Comp Plan Policies	Options for Further Integration into the Comprehensive Plan	Basis for Suggested Options
Strategy 1 - Collaboration, coordination, and education						
a) Is there information sharing &/or involvement in plan development between planners & emergency managers?	Yes	Yes	County Dept. of Development Services participates in LMS committee and contributed data for plan.	<p>CME P [1.1] E Continue to coordinate with all applicable resource protection agencies through participation in the WRPC</p> <p>CME O. 7.1: Coordinate Coastal Zone Management element with the plans of all adjacent local governments.</p> <p>CME O. 4.5: Conformance with ACOE and WRPC Hurricane Evacuation Studies. revise as necessary the Comprehensive Plan and related land development regulations to incorporate the final findings of the ACOE and WRPC Hurricane Evacuation Studies upon completion.</p>	Emergency managers can provide valuable input to Comprehensive Plan amendments and land use decisions.	
b) Do the Comp Plan, LMS, CEMP, & other local and regional plans cross-reference each other & include consistent data on hazardous locations?	Yes	Yes	<p>O. 1.1 Protection of populations & property consistent with standards in LMS and Comp Plan</p> <p>O. 1.3 Participate in FEMA CRS program and increase rating</p> <p>O. 5.8 Collect flood data and complete countywide database</p>	<p>CME P[4.4]E The recommendations of interagency hazard mitigation reports shall be considered for incorporation in the City's Comprehensive Plan.</p> <p>CME O. 4.5: Conformance with ACOE and WRPC Hurricane Evacuation Studies. revise as necessary the Comprehensive Plan and related land development regulations to incorporate the final findings of the ACOE and WRPC Hurricane Evacuation Studies upon completion.</p> <p>CME O. 7.1: Coordinate Coastal Zone Management element with the plans of all adjacent local governments.</p>	The Comp Plan can support the County LMS and use it as mitigation tool to identify hazard areas and to create or enhance policies that reduce vulnerability to these hazards.	Better integration of Citrus LMS and Crystal River Comp Plan policies can improve the hazard mitigation strategy.
c) Are hazard mitigation projects addressed in the 5-year schedule of Capital Improvement Projects?	No	No				

Table 6.5 Options for Integrating LMS Hazard Mitigation Principles into Crystal River's Comprehensive Plan

Strategies & Integration Topics	LMS	Comp Plan	Current LMS Information, Goals, or Objectives	Current Comp Plan Policies	Options for Further Integration into the Comprehensive Plan	Basis for Suggested Options
<p>d) Are there measures to educate residents, homeowner/property associations, & the business community of ways they can mitigate against hazards?</p>	<p>Yes</p>	<p>No</p>	<p>G. 2 Emphasize education and training for property owners, families and individuals about hazard mitigation O. 2.1 Disaster preparedness education targeting homeowners, families, and individuals O. 2.2 Disaster preparedness education targeting public and private sectors O. 4.1 Disaster planning training for businesses O. 5.4 Promote mitigation features in new construction to elected officials, builders, and potential homeowners O. 5.6 Education and incentives for use of higher standards of protection G. 6 Encourage public support and commitment to mitigation by communicating benefits O. 6.1 Public info programs for hazard mitigation O. 6.2 Coordinate mitigation info programs and events with public and private partners O. 6.3 Seek funding for mitigation awareness programs O. 6.4 Develop a firewise program</p>		<p>Promote educational programs to the public, local businesses, and City personnel about flood prone areas, hurricane preparedness, wildfire hazards, hazardous materials, evacuation routes and shelters, and business emergency plans.</p>	<p>Educational programs may help create an informed public and decrease loss of property and life in the event of a natural disaster. Further education of city officials and employees may promote hazard mitigation initiatives before development occurs.</p> <p>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</p>

Table 6.5 Options for Integrating LMS Hazard Mitigation Principles into Crystal River's Comprehensive Plan

Strategies & Integration Topics	LMS	Comp Plan	Current LMS Information, Goals, or Objectives	Current Comp Plan Policies	Options for Further Integration into the Comprehensive Plan	Basis for Suggested Options
Strategy 2 - Get out of the way: provide evacuation and sheltering services						
<p>a) Are there measures to provide adequate evacuation clearance time to support current population and population growth?</p>	No	Yes		<p>CME O. 4.1: Evacuation of Population. The City of Crystal River shall maintain the clearance time for the evacuation of the population in the Hurricane Vulnerability Zone at 9 hours.</p> <p>CME P[4.1]A Reduce the clearance time for evacuation of the population in the Hurricane Vulnerability Zone at or below 9 hours.</p> <p>CME P[4.1]B Require the assessment of the impact of all new development on the hurricane evacuation network</p> <p>CME P[4.1]C Ensure adequate local roadway capacity to facilitate the evacuation of residents</p> <p>CME P[4.1]E During the preparation of the EAR-based amendment, evacuate Hurricane Evacuation times and adopt mitigative measures to ensure that Hurricane Evacuation times will be maintained or reduced</p> <p>CME O. 4.5: Revise Comp Plan and LDRs to incorporate ACOE and WRPC Hurricane Evacuation Studies</p> <p>CME P[7.1] F Ensure evacuation routes are designated to optimize flow</p> <p>FLUE O. 2.2: The hurricane evacuation time of 9 hours for the City of Crystal River will be maintained or improved throughout the planning period</p> <p>FLUE P[2.2] B The City will continue to implement the adopted disaster plan which includes a hurricane evacuation plan and coordinate with Citrus County regarding shelters, evacuations, and emergency response.</p>		

Table 6.5 Options for Integrating LMS Hazard Mitigation Principles into Crystal River's Comprehensive Plan

Strategies & Integration Topics	LMS	Comp Plan	Current LMS Information, Goals, or Objectives	Current Comp Plan Policies	Options for Further Integration into the Comprehensive Plan	Basis for Suggested Options
<p>b)Are there measures to provide adequate shelter space to meet population growth and special needs?</p>	<p>No</p>	<p>Yes</p>		<p>CME O. 4.2: Shelter for Protection. The City of Crystal River shall designate hurricane evacuation shelters to protect the population evacuated from the Hurricane Vulnerability Zone. CME P[4.2]A The City of Crystal River, in cooperation with Citrus County, other Coastal Cities and the American Red Cross, shall designate by 1997 appropriate and adequate hurricane emergency shelter facilities to accommodate the population within the Hurricane Vulnerability Zone under a Category 3 storm. CME P[4.2]B New hurricane emergency shelter space shall not be located in the Hurricane Vulnerability Zone. CME P[4.2]C Existing hurricane emergency shelters which are located in life threatening areas susceptible to flooding during a hurricane shall be replaced by 1997 FLUE P[2.2] B The City will continue to implement the adopted disaster plan which includes a hurricane evacuation plan and coordinate with Citrus County regarding shelters, evacuations, and emergency response.</p>		

Table 6.5 Options for Integrating LMS Hazard Mitigation Principles into Crystal River's Comprehensive Plan

Strategies & Integration Topics	LMS	Comp Plan	Current LMS Information, Goals, or Objectives	Current Comp Plan Policies	Options for Further Integration into the Comprehensive Plan	Basis for Suggested Options
Strategy 3 - Make the environment less hazardous: Protect and enhance natural protective features						
<p>a) Are there measures to protect and/or restore natural resources that might in turn decrease the risk from natural hazards?</p>	No	Yes		<p>Natural Resources CME P [2.1] D. Protect environment using buffer zones, restoration, limiting density and intensity, conservation, easements, acquisition, density transfers, TDR, PDR or land exchanges CE G 1: Protect natural resources CE P[1.3] B Protect ESLs using ESL Ordinance CE P[1.11] B Develop an Emergency Water Conservation Program FLUE P[2.1] H Preservation of land areas which exhibit significant environmental, cultural, or historical characteristics through the TDR procedure IE G 3 The City will conserve potable water resources IE P[3.1] A Establish a program of city-wide voluntary water conservation. IE P[3.1] B Interdepartmental coordination will be used to educate public about water conservation. IE P[3.1] C The City will cooperate with Southwest Florida Water Management District, the U.S. Soil Conservation Service, and the Citrus County Cooperative Extension Service in informing citizens about effective conservation issues ICE P[1.1]E The City will annually review the plans of the Withlacoochee Regional Water Supply Authority to insure coordination with the Crystal River Plan.</p> <p>Sinkholes IE P[4.2] B The City will develop guidelines providing for vegetative buffers around sinkholes. These guidelines will be developed in conjunction with the SWFWMD.</p>	<p>Update existing polices that protect natural resources to include hazard mitigation as a benefit.</p>	<p>The City has many existing policies that mitigate the impacts of hazards, however they have not been identified as beneficial in this area. Current growth management techniques such as land conservation, the clustering of development away from natural resources, and TDR protect and conserve natural resources but also provide the major benefit of protecting development from natural disasters. The City could update these policies in the Comprehensive Plan and emphasize the benefits of hazard mitigation.</p>

Table 6.5 Options for Integrating LMS Hazard Mitigation Principles into Crystal River's Comprehensive Plan

Strategies & Integration Topics	LMS	Comp Plan	Current LMS Information, Goals, or Objectives	Current Comp Plan Policies	Options for Further Integration into the Comprehensive Plan	Basis for Suggested Options
<p>a) Are there measures to protect and/or restore natural resources that might in turn decrease the risk from natural hazards?</p>	No	Yes		<p>Wetlands /Waterbodies CE P [1.1] I Water Front Ordinance to protect waterbodies. CE O. 1.3: Protect and conserve the natural functions of rivers, bays, and wetlands CE P[1.3] Preserve the natural functions of wetlands using waterfront protection regs, ground water protection regs CE O. 1.5: Wetlands will be protected CE P[1.5] A Limit permits in wetlands CE P[1.5] B Development in wetlands will be limited CE P[1.5] C Single-Family Homes that are permitted in wetlands will be built at or above the 100 year flood level on pilings CE P[1.5] E Drainage of floodwater will not be obstructed on any portion of the 100 year floodplain. CE P[1.5] F Development shall be directed away from wetland areas by clustering FLUE P[2.1] B Land uses in wetlands will be limited IE O. 4.2: Wetlands will be protected IE P [4.2] A Regulate permits in wetlands. RE O. 3.2: Wetlands will be used to maintain open space. RE P[3.2] A Wetlands will be designed for conservation and recreation land uses. RE P[3.2] B The City will protect wetlands through land use controls</p> <p>Coastal Resources CME G 1: Coastal Resources – Conserve, protect and manage the coastal resources CME G 2: Manage growth to conserve, protect and restore coastal resources CME O. 2.1: Protection of coastal resources. CME P [2.1] B. Limit residential densities to in the Coastal Low Density CME P[2.2] B Use TDR to protect</p>		

Table 6.5 Options for Integrating LMS Hazard Mitigation Principles into Crystal River's Comprehensive Plan

Strategies & Integration Topics	LMS	Comp Plan	Current LMS Information, Goals, or Objectives	Current Comp Plan Policies	Options for Further Integration into the Comprehensive Plan	Basis for Suggested Options
				coastal resources		
Strategy 4 - Make structures more resistant to natural hazard forces						
<p>a) Are there measures that support relocating or retrofitting private &/or public structures in hazard areas?</p>	Yes	No	<p>O. 2.3 Economic incentive programs for public and private sector to do structural retrofitting G. 3 Prevent flood-related repetitive losses from natural disasters through regulation & education O. 3.1 Develop & support private/public projects to retrofit, relocate, or acquire rep loss properties O. 3.4 Upgrade & elevate structures in flood susceptible areas O. 5.5 Identify vulnerable critical facilities and retrofit</p>		<p>Adopt policies that support LMS goals and objectives regarding the relocation and retrofit of public and private structures and facilities.</p> <p>Develop procedures to acquire repetitive loss structures.</p>	<p>The County LMS provides a strong strategy to protect existing structures that are in hazard areas through retrofit and relocation. The City can strengthen this strategy by adding Comprehensive plan policies that require the retrofitting or relocation of public and private facilities, and policies that prioritize such projects in the 5-year Capital Improvements Schedule.</p>

Table 6.5 Options for Integrating LMS Hazard Mitigation Principles into Crystal River's Comprehensive Plan

Strategies & Integration Topics	LMS	Comp Plan	Current LMS Information, Goals, or Objectives	Current Comp Plan Policies	Options for Further Integration into the Comprehensive Plan	Basis for Suggested Options
<p>b) Are there measures to require compliance with or exceed building codes &/or design standards for certain hazard areas?</p>	No	Yes		<p>CME P[2.3] C Require adherence to the location and building standards specified in the City of Crystal River Code (Ordinance No. 90-O-7) for proposed development within the "Waterfront Protection Zone".</p> <p>CME P[4.3]B A new residential development of 25 units or more in the Hurricane Vulnerability Zone shall be required to provide continuing information to residents concerning hurricane evacuations and shelters.</p> <p>CME P[4.3]C A new residential development of 25 units or more in the Hurricane Vulnerability Zone shall be required to formulate an emergency hurricane preparedness plan</p> <p>CME P[4.3]D All development in the Hurricane Vulnerability Zone shall be consistent with the federal flood hazard requirements.</p> <p>FLUE P[2.2] A The first floor of living space of any building constructed within the City must be at FEMA flood elevation or higher.</p> <p>FLUE O. 3.4 Maintain waterfront protection zone densities</p> <p>FLUE P[3.2] A Establish and enforce waterfront densities</p> <p>FLUE P[3.2] B Will increase densities in waterfront protection zone.</p>		
<p>c) Are there measures to protect cultural resources from natural disasters?</p>	No	Yes		<p>CME O. 2.5: Protect and preserve historic and archeological resources within the Coastal Management Area</p> <p>CME P[2.5] D Prohibit the destruction or disturbance of any known historical resource site</p> <p>FLUE P[2.1] H Preservation of land areas which exhibit significant environmental, cultural, or historical characteristics through the TDR procedure</p> <p>FLUE O. 3.2 Encourage preservation of historic resources</p>	<p>The City can explore using TDR in high hazard areas in order to steer development away from areas of risk.</p>	<p>The use of TDR could limit development in high hazard areas by transferring development rights to land more suitable for development. Also, TDR may promote development near existing development and infrastructure.</p>

Table 6.5 Options for Integrating LMS Hazard Mitigation Principles into Crystal River's Comprehensive Plan

Strategies & Integration Topics	LMS	Comp Plan	Current LMS Information, Goals, or Objectives	Current Comp Plan Policies	Options for Further Integration into the Comprehensive Plan	Basis for Suggested Options
Strategy 5 - Manage the development and redevelopment of land in hazardous areas						
<p>a) Are there measures to limit population densities in high-hazard areas?</p>	Yes	Yes	<p>O. 3.3 Direct population concentrations away from known or predicted CHHA through regulations in LDC O. 5.1 Discourage nursing homes & hospital facilities in Category 1 evac areas</p>	<p>CIE O.1.2: Capital Improvements in the CHHA will be limited CME O. 2.4: Restrict overdevelopment within Coastal Management Area-1 through flood damage prevention regulations CME P[2.4] D Prohibit the siting of new or the expansion of existing mobile home within Coastal Management Area-1 CME P[2.4] E Prohibit the siting of acute care medical facilities within Coastal Management Area-1 CME P [3 .1]B Restrict the use of public funds to construct infrastructure that would subsidize development in the CHHA , CME O. 4.3: Mitigation of Property Damage. minimize danger to life and property in the Hurricane Vulnerability Zone and CHHA . CME P[6.1] F Public Buildings – Ensure through capital improvement planning and site selection that public buildings meet the needs of population growth and are located outside of areas most susceptible to damage from storms or flooding.</p>		
<p>b) Are there measures to limit public expenditures that subsidize development in high-hazard areas?</p>	No	Yes		<p>CIE O.1.2: Capital Improvements in the CHHA will be limited CME P [3 .1]B Restrict the use of public funds to construct infrastructure that would subsidize development in the CHHA , CME P[4.3]A All public facilities in the Hurricane Vulnerability Zone shall be flood proof</p>		

Table 6.5 Options for Integrating LMS Hazard Mitigation Principles into Crystal River's Comprehensive Plan

Strategies & Integration Topics	LMS	Comp Plan	Current LMS Information, Goals, or Objectives	Current Comp Plan Policies	Options for Further Integration into the Comprehensive Plan	Basis for Suggested Options
<p>d) Are there creative neighborhood design solutions or development regulations that mitigate hazards, such as clustering or transfer of development rights?</p>	<p>Yes</p>	<p>Yes</p>	<p>O 5.2 Promote change to State law for hospitals and nursing homes to have approved emergency response plan and power generation on site</p>	<p>CME P [2.1] D. Protect environment using buffer zones, restoration, limiting density and intensity, conservation, easements, acquisition, density transfers, TDR, PDR or land exchanges CME P[2.4] C Require the clustering of uses for land development projects located within Coastal Management FLUE P[2.1] H Preservation of land areas which exhibit significant environmental, cultural, or historical characteristics through the TDR procedure</p>		

Table 6.5 Options for Integrating LMS Hazard Mitigation Principles into Crystal River's Comprehensive Plan

Strategies & Integration Topics	LMS	Comp Plan	Current LMS Information, Goals, or Objectives	Current Comp Plan Policies	Options for Further Integration into the Comprehensive Plan	Basis for Suggested Options
<p>e) Are there measures to limit redevelopment in hazard areas and procedures for post-disaster recovery that will lead to a more disaster-resistant community?</p>	<p>Yes</p>	<p>Yes</p>	<p>G. 4 Reduce economic vulnerability & increase recovery capabilities of businesses O. 5.3 Pre-identify post-storm redevelopment options</p>	<p>CME GOAL 4: Coastal Hazards – Reduce the risks to human life and public and private property within Coastal Management Area-1 from natural disasters through implementation of hazard mitigation measures and post-disaster redevelopment planning within the hurricane vulnerability area. CME P[4.3]E Establish a post-disaster management plan CME O. 4.4: Post-Disaster Redevelopment. A post-disaster redevelopment plan shall be consistent with the Citrus County Plan (when adopted). CME P[4.4] A The post-disaster redevelopment plan shall be consistent with the Citrus County Plan (when adopted). CME P[4.4] B The post-disaster redevelopment plan shall outline reconstruction CME P[4.4]C Immediate repair and cleanup actions needed to protect the public health and safety include repairs to potable water, wastewater, and power facilities; removal of debris; stabilization or removal of structures about to collapse; and minimal repairs to make dwellings habitable. These actions shall receive first priority in permitting decisions. Long-term redevelopment efforts activities shall be postponed until the Recovery Task Force has completed its duties. CME P[4.4]D Structures which suffer repeated damage to pilings, foundations, or load-bearing walls shall be required to modify the structure to correct the reoccurring damage.</p>		

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

7. Sources

- Citrus County. 2004. *Citrus County Comprehensive Plan*.
- Citrus County. 2005. *Local Mitigation Strategy*.
- City of Crystal River. 2003. *City of Crystal River Comprehensive Plan*.
- Florida Department of Community Affairs. 2004. *Statewide Emergency Shelter Plan*. Tallahassee, FL.
- Florida Department of Community Affairs. 2005a. *Mapping for Emergency Management, Parallel Hazard Information System*. Tallahassee, FL.
<http://lmsmaps.methaz.org/lmsmaps/index.html>.
- Florida Department of Community Affairs. 2005b. *Protecting Florida's Communities: Land Use Planning Strategies and Best Development Practices for Minimizing Vulnerability to Flooding and Coastal Storms*. Tallahassee, FL.
- State of Florida. 2005. Hurricane Evacuation Study Database. Florida Department of Community Affairs, Division of Emergency Management.
- University of Florida, Bureau of Economic and Business Research. 2004. *Florida Statistical Abstract*. Gainesville, FL.
- U.S. Census Bureau. 2000. *State & County Quickfacts*. Retrieved in 2005 from <http://quickfacts.census.gov/qfd/index.html>.

Attachment A

**Maps of the Existing and Future Land Uses within the
Coastal Hazard Zone and the Hurricane Vulnerability Zone**

Attachment B

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

Attachment C

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

Attachment D

**Maps of the Existing and Future Land Uses
within Potential Sinkhole Hazard Areas**

Attachment E

Citrus County Local Mitigation Strategy Goals and Objectives

GOAL 1: Minimize future losses from all disasters by reducing the risk to people and property.

1.1 Protection of populations and properties in Citrus County susceptible to economic or physical loss from disasters shall be consistent with the standards established in the Local Mitigation Strategy and the Citrus County Comprehensive Plan.

1.2 Provide protection of critical facilities vital to disaster response, such as fire and police, and those vital to the continuous operations of the county, such as hospitals and health care facilities, water and sewer facilities, electrical and other utility, and transportation systems.

1.3 Citrus County should continue to participate in the Community Rating System program established by FEMA and seek ways to reduce flood insurance premiums by increasing the County's rating.

1.4 Both the City of Crystal River and the City of Inverness should continue to actively pursue participation in the Community Rating System program.

GOAL 2: Support a balance between government regulation/enforcement, and personal awareness/responsibility for hazard mitigation, by emphasizing education and training for property owners, families and individuals.

2.1 Develop and support disaster preparedness education and awareness programs, targeting specific benefits to homeowners, families, and individuals.

2.2 Develop and support disaster preparedness education and awareness programs, targeting specific benefits to public and private sectors.

2.3 Develop and support economic incentive programs for both public and private sectors promoting benefits of structural retrofitting.

GOAL 3: Prevent flood-related repetitive losses from natural disasters through regulation and education.

3.1 Develop and support public and private projects and programs to retrofit, relocate, or acquire properties susceptible to repetitive flooding.

3.2 Require systematic maintenance programs for stormwater management systems.

3.3 The County shall direct population concentrations away from known or predicted coastal high hazard areas (in the unincorporated area) through appropriate regulations in the Land Development Code.

3.4 Support economic viability of historic areas susceptible to flooding through encouragement of upgrading and elevating structures for greater resistance to flooding.

GOAL 4: Reduce economic vulnerability and increase recovery capabilities of business and industry.

4.1 Develop and implement disaster planning training through collaborative programs with appropriate government agencies and community organizations. Programs should include seminars and handout materials addressing needs relevant to businesses.

GOAL 5: Emphasize pre- and post-disaster planning to decrease vulnerability of existing and new construction to loss.

- 5.1 Discourage the location of nursing homes and hospital facilities in Category 1 coastal hurricane evacuation areas.
- 5.2 Promote and encourage changes to State law to require that hospitals and nursing homes have an approved emergency response plan and emergency power generation on site.
- 5.3 Use pre-storm planning to identify post-storm redevelopment options in vulnerable coastal areas, taking into consideration short- and long term environmental, economic, and structural issues.
- 5.4 Promote to elected officials, builders, and potential homeowners, the economic and safety benefits of designing mitigation features into new construction.
- 5.5 Identify vulnerable existing public and private critical facilities and encourage pre-disaster retrofit.
- 5.6 Offer and support incentives and education to encourage higher standards of protection to structures and facilities from hazards.
- 5.7 Promote accuracy of Flood Insurance Rate Maps (FIRMs) by requesting FEMA restudy Citrus County.
- 5.8 Collection of flood data information and analysis and completion of a countywide database that incorporates a wider range of property data, topographical data, storm drainage data, rainfall data, building permit data, data on insurance, history of flooding, etc.

GOAL 6: Encourage public support and commitment to hazard mitigation, by communicating its benefits and justification in simple and understandable terms.

- 6.1 Develop and implement public information programs for hazard mitigation, emphasizing its direct benefits to citizens, including public officials and private businesses.
- 6.2 Identify and coordinate hazard mitigation public information programs and events such as contests and festivals with public and private partners.
- 6.3 Identify and seek multiple funding sources that will support hazard mitigation awareness and training programs.
- 6.4 Create and develop a firewise program in Citrus County.

Attachment F

Citrus County Comprehensive Plan Excerpts Related to Hazard Mitigation

Conservation Element

- Policy 3.1.1 A minimum setback of 50 feet from water bodies shall be established and maintained for all new subdivided parcels. The setback requirement shall be measured from the mean high water line or line of ordinary high water as appropriate.
- Policy 3.1.4 A mechanism shall be established in the Land Development Code, which allows for greater setbacks and buffers when environmental characteristics require additional protection measures.
- Objective 3.2 The County shall protect the flood storage and conveyance functions of the 100 year flood plain and properties within flood prone areas by limiting development and fill activities consistent with the policies and standards in the Future Land Use Element.
- Policy 3.2.1 The County shall provide and update the flood plain management handout to inform and educate people about the County's flood plain protection regulations.
- Policy 3.2.2 The County shall support the acquisition of undeveloped lands within flood plain areas under the Conservation and Recreation Lands Program (CARL) or the Save Our Rivers program (SOR) if warranted.
- Policy 3.5.3 The County shall recognize public acquisition programs as an alternative to purchase lands for water supply and groundwater recharge.
- Objective 3.6 The County shall continue measures to conserve fresh water resources as defined by F.A.C.
- Policy 3.6.1 The County shall adopt water conservation regulations providing recognition and/or incentives for xeric landscaping, reuse of grey and treated wastewaters, and public information.
- Policy 3.6.2 The County shall adopt a water conservation ordinance and plan which supports the SWFWMD water conservation rule and addresses local concerns.
- Policy 3.8.2 The County shall support an acquisition program to identify and recommend prioritization of environmentally endangered lands for State/local acquisition. Communities that will receive priority include scrub, sand hill, and hardwood hammocks.

Policy 3.8.4 The County shall continue to enforce wetland protection regulations in the County Land Development Code (LDC) and revise them to reflect Ecosystem Management and Environmental Resource Protection (ERP) standards.

Objective 3.11 The County shall reduce soil erosion which may result from agriculture, roadway construction, and land development, in accordance with the US Natural Resources Conservation Service (USNRCS) adopted practices.

Policy 3.11.1 The County shall assist the USNRCS in activities directed towards minimizing soil erosion.

Objective 3.15 Citrus County will protect and conserve wetlands. Alterations will only be allowed when there is a recognized benefit pursuant to Ecosystem Management as determined by the FDEP within the region.

Policy 3.15.1 The County shall incorporate FDEP ERP permit and other State or Federal wetland requirements within local development permits. Where no State or Federal permit is required, the County shall require mitigation for wetlands loss.

Policy 3.15.2 Wetland protection standards and criteria shall be prepared, included within the County's LDC. The standards and regulations shall include at a minimum:

- Setbacks and buffers;
- Conservation easements;
- Compensatory mitigation, unless otherwise controlled by an ERP Permit;
- Performance standards;
- Evaluation-ranking scheme;
- Drainage criteria;
- Allowed and exempted uses;
- Wetland functions;
- Significant and insignificant effects of development on wetlands; and
- Recognition of Ecosystem Management principles.

For those projects which receive exemptions from State or Regional wetland rules, the concepts and principles of Ecosystem Management will be implemented on a local level to achieve environmental benefit.

Coastal, Lakes, and River Management Element

GOAL 4 - Preserve, protect, and enhance resources of the Coastal, Lakes, and River areas and where appropriate, restrict development activities which would damage or destroy these resources, protect human life, and limit the public expenditure in areas subject to natural disasters.

Objective 4.4 Continue the ongoing program of public education to assist in the protection of estuarine, riverine, and lake natural resources.

Objective 4.6 In order to protect coastal resources, the County LDC shall contain performance standards for shoreline development and criteria for marina siting consistent with the County Manatee Protection Plan.

Policy 4.6.1 Water-related and water-dependent uses shall be built on upland areas. Dredging and filling of wetlands or open water to accommodate water-related and non-water-dependent uses is prohibited.

Policy 4.6.5 The Department of Development Services shall utilize the shoreline development model prepared by the Southwest Florida Water Management District (SWFWMD).

Objective 4.8 The protection, preservation, and sensitive reuse of historic resources shall be implemented through the policies below and development of a comprehensive analysis and plan by 1998.

Policy 4.8.3 Historic and Archaeological resources determined to be significant shall be incorporated into the required setbacks, buffers, or open space.

Policy 4.8.5 Vegetation removal is prohibited on the site of a significant historic or archaeological site unless the removal is part of an approved excavation or development plan.

Objective 4.9 The County shall maintain or reduce hurricane evacuation times through the year 2005, by requiring that new developments not degrade the existing evacuation Level of Service (LOS).

Policy 4.9.1 Maintain and improve the County's Hurricane Evacuation sections of the Peacetime Emergency Plan and coordinate the integration of existing evacuation deficiencies into the regional and local evacuation plans.

Policy 4.9.2 The Community Development Division shall prepare periodic reports on the population at-risk for use in evacuation planning.

Policy 4.9.3 New manufactured home parks outside hurricane surge areas shall include a building(s) for use as shelter(s) for park residents. These shelters shall be designed to meet the minimum ratio of 20 square feet per park resident and shall be sized to accommodate 100 percent of a park's residents. Additionally, adequate space must be provided for registration, showers/bathrooms, food preparation, health services, and fire and safety considerations.

- Policy 4.9.4 All roadway improvements along the County's evacuation network shall include practicable remedies for flooding problems.
- Policy 4.9.5 No hurricane shelters shall be located within the Category 5 hurricane evacuation area. All hurricane shelters shall be inspected and approved by Citrus County Department of Public Safety and the Citrus County Sheriff's Department, Office of Emergency Management.
- Policy 4.9.7 Development orders issued for developments of regional impact should contain condition which require mitigative measures for impacts on hurricane shelter capacity and hurricane evacuation times for developments which generate a number of evacuating vehicles greater than the evacuation traffic capacity on designated hurricane evacuation routes.
- Policy 4.9.8 Citrus County shall develop an impact analysis procedure for assessing the impact of new development on hurricane evacuation times by 2007.
- Policy 4.9.9 Citrus County shall assess and adopt regulations in the hurricane vulnerable zone which: (1) limit new development in coastal areas and additional mobile home units; and/or (2) allow new development in coastal areas provided that mitigative measures are established which do not increase hurricane evacuation times; and/or (3) promote land acquisition.
- Policy 4.9.10 Citrus County shall enact development regulations which require that adequate public shelter capacity, defined as a minimum of 20 square feet of useable shelter space per person, is available to 70 percent of incoming new residents to the Coastal High Hazard Area, prior to issuance of development permits. Such shelters shall include adequate space for registration, health services, showers/sanitation facilities, food preparation, and fire and safety considerations.
- Policy 4.9.11 The County shall conduct evacuation traffic analysis using the planned distribution of the County's build out population. To facilitate this task, the County will utilize a transportation network modeling system. Transportation network modeling shall also be utilized to monitor the impact of large residential projects and of ongoing development on hurricane evacuation times.
- Policy 4.9.12 In order to increase public awareness of hurricane hazards, the County shall provide emergency preparedness information and educational opportunities to the public.
- Policy 4.9.13 Lands within hurricane vulnerable areas, particularly low-lying and shoreline areas shall be targeted for public

acquisition to protect the natural and beneficial functions of floodplains.

Policy 4.9.14 The County should not improve or build public facilities which encourage growth in the Coastal High Hazard Area, except for necessary public services for existing developments or resource based recreation facilities.

Policy 4.14.1 The County shall develop joint planning and management programs with the Cities of Crystal River, Inverness, Yankeetown, Inglis, and Dunnellon and the Counties of Hernando, Marion, Sumter, and Levy to:

- Ensure adequate water-dependent and water-related land uses;
- Prevent water pollution;
- Control and retrofit stormwater runoff and inadequate facilities;
- Protect living marine resources;
- Reduce exposure to natural hazards; and
- Ensure public access.

Objective 4.10

The County shall direct population concentrations away from the Coastal High-Hazard Area through appropriate regulations in the Land Development Code.

Policy 4.10.1 The County shall continue to amend its building codes to reflect coastal hazard concerns and the amendments to the Southern Standard Building Code.

Policy 4.10.2 New sanitary sewer facilities and on-site sewage systems in the Hurricane Surge Areas (vulnerability zone) and areas subject to freshwater flooding shall be flood proofed and equipped with back flow preventors, respectively.

Policy 4.10.4 The expansion of public infrastructure or the expenditure of public funds in the CHA shall be minimized and shall only be used to serve existing land uses.

Policy 4.10.5 Population concentration shall be directed away from the Coastal High Hazard Area.

Policy 4.10.6 The County shall relocate or replace infrastructure located in the Coastal High Hazard Areas to limit public losses from various events including, but not limited to, storm damage, hurricanes, severe flooding, abandonment of facilities and/ or structures, and tornadoes.

Policy 4.10.7 Lands within hurricane vulnerable areas, particularly low-lying and shoreline areas subject to storm surge shall be targeted for public acquisition to protect the natural and beneficial functions of floodplains.

- Policy 4.10.8 The LDC shall contain additional disaster preparedness requirements for new developments whose residents might have limited mobility and/or demand specialized facilities.
- Policy 4.10.9 No new Institutional Occupancy uses (i.e., places of unrestrained or restrained occupancy including, but not limited to; hospitals, nursing homes (24-hour care for six or more people), mental institutions, jails, detention centers, reformatories, pre-release centers and other residential restrained or supervised care facilities) shall be allowed within the Coastal High Hazard Area. Existing facilities shall not expand beyond the density/intensity approved as of January 01, 2004 unless an overriding public need can be demonstrated.
- Policy 4.10.10 New construction or expansion of the following residential occupancy uses, as defined by the Florida Building Code (First Edition, Chapter 3, Section 311), are not allowed anywhere within the Coastal High Hazard Area.
- R4: Residential Care/ Assisted Living Facilities housing 6 or more occupants on a 24-hour basis; these occupancies include the following: Alcohol and drug abuse centers, assisted living facilities, congregate care facilities, convalescent facilities, halfway houses, group homes, residential board and care facilities, social rehabilitation facilities. New construction or expansion of the following residential occupancy uses are not allowed within that portion of the Coastal High Hazard Area which is located to the West of U.S. Highway 19, but shall be allowed to the East of U.S. 19 provided all minimum standards of the LDC are met, the proposed development is compatible with surrounding development, the development's access, internal design, and general location do not impede the evacuation of its residents or neighbors, and the project does not negatively impact area evacuation clearance times: R2: Multiple dwellings where the occupants are primarily permanent in nature, including: apartment houses, convents, dormitory facilities which accommodate 6 or more persons of more than 2 ½ years of age who stay more than 24 hours, fraternities, sororities, monasteries, and rooming houses (transient): New construction or expansion of the following residential occupancy uses are allowed within the Coastal High Hazard Area: R1: Residential occupancies where the occupants are primarily transient in nature, including: Boarding housing (transient), hotels, and motels: and R3: Residential occupancies including the following: One- and two-family dwellings where the occupants are primarily permanent in nature and not classified as R1, R2, or Institutional, child care facilities which accommodate 3 or fewer children of any age for any time period, rectories and parsonages. Existing undeveloped subdivisions and

groupings of lots are encouraged to cluster dwellings rather than develop typical lots and honesties in order to minimize the overall footprint of development. Such clustering shall not increase density.

Policy 4.10.11 No new mobile home parks shall be developed within the Coastal High Hazard Area (CHHA) nor shall any existing mobile home park with the CHHA be expanded beyond the number of dwelling units approved as of January 01, 2004. Existing mobile home parks may continue and dwelling units may be maintained, repaired, or replaced as needed, appropriate, and consistent with all other provisions and ordinances. Any replacement unit shall be elevated in compliance with current regulations. No lot or parcel within the CHHA, which currently does not allow mobile homes, shall be permitted to change to allow mobile homes.

Policy 4.10.12 The County shall limit the height of structures within the Coastal High Hazard Area. Residential structures shall be limited to no more than two stories above the base flood or finished floor elevation. Areas under elevated residential structures may be used only for parking of vehicles, limited dead storage, and access to the structure, not finished living area. Nonresidential structures shall be limited to four stories above finished grade. Industrial facilities, electric power generation and transmission facilities, mining operations, agricultural operations, dry boat storage at marinas, and Seven Rivers Community Hospital are exempt from this provision. Construction or expansion of exempted facilities shall require the assurance of compatibility with surrounding development and may require additional buffers, setbacks, and similar measures.

Policy 4.10.13 Recreational Vehicle (RV) parks, campgrounds, resorts, motels, hotels, and similar temporary lodging facilities are commercial uses. Such uses shall not be allowed to convert to permanent residential uses. No increase in residential dwelling unit densities within the Coastal High Hazard Area shall be allowed.

Objective 4.11 In order to reduce the exposure of human life and public/private property to natural hazards, a Post-Disaster Redevelopment Plan shall be prepared and adopted by 2007.

Policy 4.11.1 The Community Development Division shall prepare the Post-Disaster Redevelopment Plan for County adoption.

Policy 4.11.2 The Peacetime Emergency Plan shall be modified to comply with the Post-Disaster Redevelopment Plan.

Policy 4.11.3 The Post-Disaster Redevelopment Plan shall outline reconstruction procedures and should include:
• Intergovernmental coordination;

- Guidelines for determining feasibility of repairing and reconstructing damaged structures including standards to which reconstruction should be complete;
 - Post-disaster, timetable outlining recovery, redevelopment, relocation, and hazard mitigation priorities;
 - Identification of those areas which have the highest potential for damage based on past experiences and studies; and establish policies for evaluating the possibility of relocating or structurally modifying public infrastructure located in those areas;
 - Identification of funding sources or funding mechanisms which may be needed to replace, repair, and/or relocate damaged public infrastructure; and
 - Identification of the feasibility of public acquisition following a natural disaster.
- Acquisition should address areas adjacent to public holdings and those areas with a history of frequent storm impacts.

- Policy 4.11.4 Immediate repair and cleanup actions needed to protect the public health and safety include repairs to potable water, wastewater, and power facilities; removal of debris; stabilization or removal of structures about to collapse; and minimal repairs to make dwellings habitable. These actions shall receive first priority in permitting decisions. Long term redevelopment activities shall be postponed until the Recovery Task Force has completed its duties.
- Policy 4.11.5 Structures which suffer repeated damage to pilings, foundations, or load bearing walls shall be required to modify the structure to correct the reoccurring damage.
- Policy 4.11.6 The recommendations of the interagency hazard mitigation reports shall be considered for incorporation in the County Comprehensive Plan.
- Policy 4.11.7 Redevelopment in the Coastal, Lakes, and River areas shall be governed by the local Floodplain Ordinance and Federal Emergency Management Administration Guidelines to the end that unsafe conditions and inappropriate uses are eliminated.

Utilities Element

- Goal 9 - To develop a comprehensive stormwater drainage program including design requirements, unified drainage plans, and protection of natural drainage features and functions.
- Objective 9.4 Natural drainage features shall be protected and included in Master Stormwater Drainage Plans by 2000 for suburbanized watersheds and by 2005 for rural watersheds (refer to Policy 9.5.1).
- Policy 9.4.1 Natural drainage features shall be analyzed in all development plans and measures to protect the natural

drainage features will be incorporated into the County Land Development Code.

Objective 16.1 Land use regulations shall allow agricultural, industrial, commercial, and mining activities but will prohibit new residential development greater than one unit per 20 acres in the general Coastal Area (see Figure 10-2) and one unit per 40 acres in the Federal Emergency Management Agency’s Velocity Zone (V-zone).

Future Land Use Element

- Policy 17.1.1 The County LDC shall contain development regulations and detailed provisions to implement the Comprehensive Plan, including at a minimum: subdivision regulations, tree protection, protection of potable water sources, regulation of areas subject to seasonal and periodic flooding, and provision for drainage and stormwater management, protection of environmentally sensitive lands, regulation of signs, and protection of natural and historic resources.
- Policy 17.1.2 The County LDC shall contain performance standards which address buffering between incompatible uses, protection of historically significant properties, potable water well fields, and environmentally sensitive land.
- Policy 17.1.6 Performance standards shall be established in the County LDC providing for, but not limited to, drainage, flood protection, utilities, separation of uses and buffering, densities, parking, access, environmental and water resource protection, open spaces, and convenient on-site traffic flow.
- Policy 17.3.6 The County LDC shall utilize flexible development techniques, such as cluster developments, in order to facilitate siting of residential development on environmentally sensitive land or in areas where it is difficult to accommodate normal design considerations.
- Policy 17.3.7 The County LDC shall permit Assisted Living Facilities (ALF) within all residential areas of the County outside of the Coastal High Hazard Area in concert with established design criteria.
- Policy 17.3.17 Multifamily residential development, up to a maximum of 10 units per acre, shall be allowed in the Professional Services/Office land use district outside of the Coastal High Hazard Area.
- Policy 17.3.22 Planned Development in the Lakes and Rivers area may be permitted at a density not to exceed 0.1 dwelling units per acre (one dwelling unit per 10 acres) subject to the following special conditions:
 1. A minimum of 20 upland acres is required;

2. Documentation of sufficient upland soils on-site shall be provided by the applicant based on data from the USDA NRCS, water management district, or other appropriate agency;
3. Clustering of units to preserve at least 80 percent of the gross site area as permanent open space is required;
4. All projects proposed under this option shall provide a biological survey pursuant to Conservation Element, Policy 3.8.8; and
5. A Comprehensive Plan amendment is required.

Policy 17.3.23 Mobile home parks shall be developed according to a comprehensive and detailed master plan, shall provide a minimum of 20 percent of the site as permanent open space and another 10 percent as recreation areas, and shall locate lots or home sites so as to maximize the number adjacent to common open space and recreation areas. No new mobile home parks, expansions of existing parks which are not vested, or redesignations of land to allow for mobile homes shall be allowed within the Coastal High Hazard Area (CHHA).

Objective 17.4 The County LDC shall contain provisions to protect residents from flooding using criteria established by the Federal Emergency Management Administration (FEMA).

Policy 17.4.1 All new construction shall be built in conformance with FEMA and the County's Flood Plain Standards as described in the County LDC.

Policy 17.4.2 Development orders shall not be issued for proposed construction which does not conform with the requirements and guidelines of the Flood Plain Standards.

Policy 17.5.6 The LDC shall contain standards for PDs including provisions for residential clustering to preserve wetlands or other natural features. Such provisions may include density bonuses and/or allowance for additional land uses on non-environmentally sensitive portions of the project, such as neighborhood commercial centers.

Policy 17.6.4 The County LDC shall contain standards for the location of commercial development which: - Protect the development from natural hazards;

Policy 17.9.2 Runoff from streets and yards will be carefully controlled to prevent flooding in adjacent areas and pollution of water bodies.

Objective 17.10 Public and private transportation projects shall provide for disaster preparedness needs. The County shall assure that the amount of

residential land allocated in the Coastal, Lakes, and River Areas is coordinated with the County's and the Region's hurricane plans.

- Policy 17.10.1 The transportation system shall be designed and built to handle traffic generated during emergency evacuations on designated evacuation routes at LOS "E", east of US-19 and LOS "D", west of US-19, during the two peak hours of evacuation.

- Policy 17.18.2 The County shall provide criteria for school siting that is consistent with the school board's criteria in accordance with Section 235.19 and 235.193, F.S., for meeting the projected needs for public schools:
 - Discourage siting within coastal high hazard areas;
 - Discourage siting within areas having significant environmental constraints unless adaptable to suit outdoor educational purposes (with drainage improvements) as appropriate for the educational program; and
 - Discourage siting that will interfere with archaeological resources or historical sites as listed in the National Register of Historic Places, the Local Register of Historic Places, or the State Inventory of Historical Places.

Capital Improvements Element

- Objective 19.2 Public expenditures for new public facilities in the Coastal High Hazard Area shall be limited to those improvements included in the Coastal, Lakes, and River Management Element.
 - Policy 19.2.1 The County shall limit public funding in the Coastal High Hazard Area for the replacement and renewal of existing public facilities or to serve existing land uses.

 - Policy 19.2.2 The County shall provide public funding for facilities within the Coastal High Hazard Area for the restoration or enhancement of natural resources or public access.

Housing Element

- Objective 1.2 The analysis has demonstrated that Citrus County contains historically significant housing. To preserve the integrity of this system, the County Land Development Code(LDC) shall contain provisions to protect and preserve all historically significant housing units.

Attachment G

Crystal River Comprehensive Plan Excerpts Related to Hazard Mitigation

Capital Improvements Element

O. 1.2: Capital Improvements in the Coastal High Hazard Areas will be limited to those improvements included in the Conservation Element.

Coastal Management Element

GOAL 1: Coastal Resources – Conserve, protect and manage the coastal resources within coastal management area-1 of the City, including the wetland and upland ecosystem so as to maintain and enhance native habitats, floral and faunal species, diversity, water quality and natural surface water characteristics.

P [1.1] E The City shall continue to coordinate with all applicable resource protection agencies through participation in the Withlacoochee Regional Planning Council (WRPC) and other appropriate resource programs.

GOAL 2: Land Use – To conserve, protect and restore coastal resources within Coastal Management Area-1 by managing growth and land use so as not to damage or destroy those resources.

O. 2.1: Establish the location, extent, and distribution of land uses consistent with the protection of coastal resources.

:

P [2.1] B. The City shall limit residential densities to the maximum density established in the Coastal Low Density residential land use category

P [2.1] D. The City shall require that significant environmental or ecological features, wildlife habitat, environmental system corridors or conservation areas be protected through a variety of mechanisms including buffer zones, restoration, limiting density and intensity, conservation, easements, acquisition, density transfers, transfer of development rights (TDRs), purchase of development rights or land exchanges.

P[2.2] B The City shall consider the use of innovative or alternative zoning districts or techniques to protect coastal resources in its rezoning program following adoption of its EAR. Such techniques may include overlay districts, floating zones, bonus ordinances, performance standards, fast-tracking of development applications, quality development programs,

Transferable Development Rights or other incentive-based methods.

O. 2.3: The City shall give priority for shoreline land use to water-dependent uses over water-related land uses, and shall be based on type of water-dependent use, adjacent land use, water quality, impact on habitat and impact on coastal resources.

P[2.3] B The following standards shall apply to marina siting or expansion with priority given to expansion of existing marinas:

12. All new or expanded marinas shall prepare a hurricane preparedness plan subject to review by the DCA's and Citrus County's Division of Emergency Management.

P[2.3] C The City shall require adherence to the location and building standards specified in the City of Crystal River Code (Ordinance No. 90-O-7) for proposed development within the "Waterfront Protection Zone".

O. 2.4: Restrict overdevelopment within Coastal Management Area-1 through required conformance with the Future Land Use Plan and implementation of flood damage prevention regulations.

P[2.4] C Require the clustering of uses for land development projects located within Coastal Management Area-1 through implementation of Planned Development (PD) zoning requirements.

P[2.4] D Prohibit the siting of new or the expansion of existing mobile home and/or recreational vehicle parks within Coastal Management Area-1.

P[2.4] E Prohibit the siting of acute care medical facilities or any other facilities which house nonambulatory persons within Coastal Management Area-1.

O. 2.5: Protect and preserve historic and archeological resources within the Coastal Management Area of the City of Crystal River, consistent with the other elements

P[2.5] D Prohibit the destruction or disturbance of any known historical resource site without the consent of the City of Crystal River and the Florida Department of State, Division of Historical resources

O. 3.1: Meet or exceed state estuarine water quality standards for designated classification and uses of coastal water bodies

P [3 .1]B Restrict the use of public funds to construct infrastructure that would subsidize development in the coastal high hazard area, except to serve development consistent with the Future Land Use Map or to correct existing water quality/public health or safety problems.

GOAL 4: Coastal Hazards – Reduce the risks to human life and public and private property within Coastal Management Area-1 from natural disasters through implementation of hazard mitigation measures and post-disaster redevelopment planning within the hurricane vulnerability area.

O. 4.1: Evacuation of Population. The City of Crystal River shall maintain the clearance time for the evacuation of the population in the Hurricane Vulnerability Zone at 9 hours. The Hurricane Vulnerability Zone shall be defined as Hurricane Evaluation Zones C1, C2, and C3 within the Citrus County Comprehensive Plan (Figure 29 – Citrus County Evacuation Zones).

P[4.1]A Land Use Plan Amendments in the Hurricane Vulnerability Zone shall maintain or reduce the clearance time for evacuation of the population in the Hurricane Vulnerability Zone at or below 9 hours.

P[4.1]B The City shall require the assessment of the impact of all new development on the hurricane evacuation network to ensure it will maintain or reduce clearance time for evacuation of the population in the Hurricane Vulnerability Zone at or below 9 hours.

P[4.1]C The City shall ensure adequate local roadway capacity to facilitate the evacuation of residents in the Hurricane Vulnerability Zone by evaluating any proposed changes in land use intensity against the currently acceptable evacuation plan.

P[4.1]D The City shall participate in hurricane preparedness simulations organized by the appropriate County agency and provide general information to the public evacuation procedures.

P[4.1]E During the preparation of the EAR-based amendment, the City shall evacuate Hurricane Evacuation times and adopt mitigative measures to ensure that Hurricane Evacuation times will be maintained or reduced.

O. 4.2: Shelter for Protection. The City of Crystal River shall designate hurricane evacuation shelters to protect the population evacuated from the Hurricane Vulnerability Zone.

P[4.2]A The City of Crystal River, in cooperation with Citrus County, other Coastal Cities and the American Red Cross, shall designate by 1997 appropriate and adequate hurricane emergency shelter facilities to accommodate the population within the Hurricane Vulnerability Zone under a Category 3 storm.

P[4.2]B New hurricane emergency shelter space shall not be located in the Hurricane Vulnerability Zone.

P[4.2]C In cooperation with the American Red Cross, existing hurricane emergency shelters which are located in life

threatening areas susceptible to flooding during a hurricane shall be replaced by 1997.

O. 4.3: Mitigation of Property Damage. The City shall minimize danger to life and property in the Hurricane Vulnerability Zone and Coastal High Hazard Area.

- P[4.3]A If constructed, all public facilities in the Hurricane Vulnerability Zone shall be floodproof to ensure minimum damages from storms and hurricanes.
- P[4.3]B A new residential development of 25 units or more in the Hurricane Vulnerability Zone shall be required to provide continuing information to residents concerning hurricane evacuations and shelters.
- P[4.3]C A new residential development of 25 units or more in the Hurricane Vulnerability Zone shall be required to formulate an emergency hurricane preparedness plan for that development. Prior to the issuance of the first Site Development Permit, the plan shall be reviewed by the Citrus County Director of Emergency Operations for Consistency with the County Emergency Plan.
- P[4.3]D All development in the Hurricane Vulnerability Zone shall be consistent with the federal flood hazard requirements.
- P[4.3]E Establish a post-disaster management plan by 1997, which includes temporary measures to reduce impact upon hazard-prone areas,

O. 4.4: Post-Disaster Redevelopment. In order to reduce the exposure of human life and public/private property to natural hazards, a post-disaster redevelopment plan shall be consistent with the Citrus County Plan (when adopted).

- P[4.4] A The City’s post-disaster redevelopment plan shall be consistent with the Citrus County Plan (when adopted).
- P[4.4] B The post-disaster redevelopment plan shall outline reconstruction procedures and should include:
 - Recovery Task Force (appointed body);
 - Guidelines for determining feasibility of repairing and reconstructing damaged structures including standards to which reconstruction should be complete;
 - Post-disaster, timetable outlining recovery, redevelopment, relocation, and hazard mitigation priorities;
 - Identification of those areas which have the highest potential for damage on past experiences and studies’ and establish policies for evaluating the possibility of relocating or structurally modifying public infrastructure located in those areas;

- Identification of funding sources or funding mechanisms which may be needed to replace, repair, and/or relocate damaged public infrastructure; and
- Identification of the feasibility of public acquisition following a natural disaster. Acquisition should address areas adjacent to public holdings and those areas with a history of frequent storm impacts.

P[4.4]C Immediate repair and cleanup actions needed to protect the public health and safety include repairs to potable water, wastewater, and power facilities; removal of debris; stabilization or removal of structures about to collapse; and minimal repairs to make dwellings habitable.

These actions shall receive first priority in permitting decisions. Long-term redevelopment efforts activities shall be postponed until the Recovery Task Force has completed its duties.

P[4.4]D Structures which suffer repeated damage to pilings, foundations, or load-bearing walls shall be required to modify the structure to correct the reoccurring damage.

P[4.4]E The recommendations of interagency hazard mitigation reports shall be considered for incorporation in the City's Comprehensive Plan.

O. 4.5: Conformance with ACOE and WRPC Hurricane Evacuation Studies. The City shall revise as necessary the Comprehensive Plan and related land development regulations to incorporate the final findings of the ACOE and WRPC Hurricane Evacuation Studies upon completion.

P[6.1] F Public Buildings – Ensure through capital improvement planning and site selection that public buildings meet the needs of population growth and are located outside of areas most susceptible to damage from storms or flooding.

O. 7.1: Pursuant to the Intergovernmental Coordination element of the City of Crystal River Comprehensive Plan, the City shall coordinate the implementation of the Coastal Zone Management element with the plans of all adjacent local governments and with any local, regional and state agencies that directly provide services or have jurisdiction within the City limits.

P[7.1] F The City shall ensure that evacuation routes shall be designated in such a way as to distribute traffic demand to provide optimum utilization of available roadway facilities.

Conservation Element

GOAL 1: Crystal River will ensure that development does not endanger important natural resources.

P [1.1] I The City adopted and will enforce a Waterfront Protection Ordinance to apply to all “waterfront lots” defined as all property located within 150 feet of Crystal River or Kings Bay as provided by the Land Development Code Waterfront Protection Zone and providing for development restrictions which will provide greater environmental protection to Crystal River and Kings Bay. These will include: setback restrictions, stormwater retention standards, density restrictions, vehicular access restrictions, wetland protective measures, restrictions on the storage and disposal of hazardous materials, and impervious-to-pervious surface ratios. The purpose of the Waterfront Protection Ordinance is to ensure that all development and redevelopment is designed to maintain or improve the water quality in Crystal River and Kings Bay and ensure the protection of endangered species

O. 1.3: The City shall protect and conserve the natural functions of rivers, bays, wetlands, estuarine and marina habitats, in order to assure the protection of fisheries, native flora and fauna and associated habitat, and especially species designated as endangered, threatened or species of special concern under the Endangered Species Act of 1973, as amended, or the Florida Endangered Species Act of 1977, as amended. This objective is implemented through the following policies:

P[1.3] A The City shall undertake the following actions in order to protect and preserve the natural functions and water quality of the rivers, bay, and associated wetlands at least to the level of quality present in 1989:

1. Continue to enforce the waterfront protection regulations contained in the Crystal River Land Development Code.
5. Adopt and enforce ground water protection regulations as part of the Wellfield Protection Ordinance by 1998.

P[1.3] B The City shall protect environmentally sensitive lands and species which depend upon those lands. The City defines environmentally sensitive lands as wetlands (shown on Figure 3-1), coastal high hazard areas, and those lands used by endangered, threatened or species of special concern. In order to implement this objective, the City shall:

1. Adopt and enforce an Environmentally Sensitive Lands Ordinance by January 1991 as part of the City’s land development regulations. The ordinance shall apply to all land designated for Conservation on the Future Land Use Map, all wetlands, all undisturbed properties in the coastal high hazard area, and all other lands used by endangered, threatened or species of special concern. The ordinance shall require field verification of wetlands

with wetland boundaries based on vegetation, soils, hydrology, or some combination and consistent with SWFWMD criteria. The ordinance shall require completion of a survey of potential endangered, threatened or species of special concern by competent professionals as part of the development application process. The ordinance shall require a determination by the City if there exists evidence of use by endangered, threatened, or species of special concern for all undisturbed lands on which development orders are requested. For lands determined to be environmentally sensitive, the Ordinance shall establish the maximum amount of bush-hogging, clearing and removal of trees, plants, and shrubs in sensitive areas and shall allow only that development consistent with maintaining the natural functions of these lands.

O. 1.5: Wetlands will be protected from destruction through the use of permit restriction and land use regulation.

P[1.5] A No building permits will be issued for work in a wetland without prior approval from the U.S. Army Corps of Engineers, SWFWMD, and DEP.

P[1.5] B Development in wetlands will be limited to conservation, passive recreation, preservation, and elevated low density residential uses.

P[1.5] C Single-Family Homes that are permitted in wetlands will be built at or above the 100-year flood level on pilings without the use of fill material (Note: Development of that portion of the Crystal Cove Subdivision designated "Coastal Low Density Residential" is subject to the following permits and their conditions obtained prior to the date of the adoption of this policy. ACOE Dredge and Fill Permit No. 199202092 (IP-ME) dated December 21, 1994; DEP Permit No. 0090577129 which became effective April, 1992, and Southwest Florida Water Management District exemption dated June 29, 1990. Development activities that are in compliance with the terms and conditions of these permits and authorizations will be deemed activities consistent with the relevant portions of the Crystal River Comprehensive Plan. Any future amendments to these permits will require review by the City to determine consistency with the Comprehensive Plan).

P[1.5] E Drainage of floodwater will not be obstructed on any portion of the 100 year floodplain.

P[1.5] F Development shall be directed away from wetland areas by clustering on the non-wetland portions of the site. The density or intensity of the clustered development shall be limited so as to not cause adverse impacts to the wetland portions of the site.

P[1.11] B The City will coordinate with SWFWMD to develop an Emergency Water Conservation Program by 1990. This plan will be consistent with existing SWFWMD regulations

Future Land Use Element

GOAL 2: Crystal River will be a balanced and well planned community.

P[2.1] B Land uses in wetlands will be limited to recreation, preservation, and low density residential development.

P[2.1] H The City will encourage the preservation of land areas which exhibit significant environmental, cultural, or historical characteristics that may be sensitive to certain forms and intensities of development through the Transfer of Development Rights (TDR) procedure.

O. 2.2: The hurricane evacuation time of 9 hours for the City of Crystal River will be maintained or improved throughout the planning period.

P[2.2] A The first floor of living space of any building constructed within the City must be at FEMA flood elevation or higher.

P[2.2] B The City will continue to implement the adopted disaster plan which includes a hurricane evacuation plan and coordinate with Citrus County regarding shelters, evacuations, and emergency response.

O. 2.5: The planned unit development or PD concept will be utilized in Crystal River.

P[2.5] D The implementation of the Transfer of Development Rights (TDR) procedure will be accomplished through the Planned Development (PD) zoning approval process to ensure that the proposed plan of development is compatible with adjacent land uses.

P[2.5] E In order to accommodate the transfer of residential development rights from the Coastal Preservation land use category, the residential land use categories of Low Density Residential, Medium Density Residential, and High Density Residential (Receiver sites) may accept a density transfer in accordance with the following procedures and standards:

O. 3.2 The City will encourage the preservation of important historic resources through requirements in the land development code to be included in the code by 1998.

P[3.2] A All historic sites and structures will be identified during the site plan process and those resources known as the State Division of Historical Resources will be documents and or protected in coordination with that agency.

O. 3.4: The existing densities of recorded subdivisions in the waterfront protection zone (as defined by Ordinance 90-O-7 as amended) will be maintained at the densities not to exceed those in effect at the adoption of this Plan.

P[3.2] A The City will adopt and enforce a zoning ordinance which establishes residential densities in the waterfront protection zone described in Conservation Policy 1.1 K, consistent with the densities of the existing recorded subdivisions.

P[3.2] B The City will not change the zoning by increasing density for any parcel within the waterfront protection zone described in Conservation Policy 1.1 K without an amendment to the Comprehensive Plan.

Infrastructure Element

GOAL 3 The City will conserve potable water resources so that residents may be assured of a reliable source of drinking water.

P[3.1] A The City will establish a program of city-wide voluntary water conservation. Criteria for such a program will be based on rainfall during any given four (4) week time period.

P[3.1] B Interdepartmental coordination will be utilized to effect the greatest possible dissemination of conservation information to the public.

P[3.1] C The City will cooperate with Southwest Florida Water Management District, the U.S. Soil Conservation Service, and the Citrus County Cooperative Extension Service in informing citizens about effective conservation issues.

O. 4.2: Wetlands and City wellfields will be protected and maintained through the following policies. Additional objectives and policies to be implemented by the City for the protection of wetlands are described in the Conservation and Future Land Use elements.

P [4.2] A Prior approval from the U.S. Army Corps of Engineers and/or any other government agency with jurisdictional authority must be granted before building permits are issued for development or road construction in wetlands.

P[4.2] B The City will develop guidelines providing for vegetative buffers around sinkholes. These guidelines will be developed in conjunction with the SWFWMD.

Intergovernmental Coordination Element

P[1.1]E The City will annually review the plans of the Withlacoochee Regional Water Supply Authority to insure coordination with the Crystal River Plan.

I) The City will meet annually with DEP and SWFWMD to discuss issues of mutual interest including but not limited to: the protection of water quality and quantity.

Recreation Element

O. 3.2: Wetlands will be used to maintain open space.

P[3.2] A Wetlands will be designed for conservation and recreation land uses.

P[3.2] B The City will protect wetlands through land use controls and not by acquisition.