

# **Integrating Hazard Mitigation into Comprehensive Planning**

## **Martin County Profile**

**Florida Department of Community Affairs**

## Executive Summary

The experiences of the 2004 and 2005 hurricane seasons epitomize the importance of better integrating hazard mitigation activities into local comprehensive planning. In 2004, 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 Martin 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 Martin 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 Martin 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.

### MARTIN COUNTY GENERAL RECOMMENDATIONS

- Currently, the Emergency Management Department is responsible for drafting and maintaining the Local Mitigation Strategy. Growth 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, land use and redevelopment plans and ensure that the plans fully address all aspects of hazards. The two plans adequately address the various issues, but there is only one commitment to establish inter-departmental coordination by including EM staff in development review for proposals in hazard areas.



- The County can include a map of hazard locations overlaying land uses as a new map in the Future Land Use series. 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. Also, the Comprehensive plan can reference the LMS as a source of data to be used in the EAR process. By using consistent data and showing linkages between the different plans, each plan will be stronger.
- The County can support a program in coordination with the LMS committee to educate home and business owners of mitigation techniques for protecting their structures, including wind, flood, and firewise mitigation techniques. Currently, there is one policy addressing education of flooding hazards. While regulation can prevent new vulnerabilities to hazards, one of the best ways to mitigate existing vulnerabilities is through education.
- The County can use impact fees linked to the LOS evacuation standard or special assessment districts to finance maintenance and expansion of evacuation routes or shelters. This will likely affect the coastal and barrier island areas within the Hurricane Vulnerability Zone most specifically. The County can prioritize evacuation route improvements in the Capital Improvements Schedule, as it commits to in Policy 8.4.B.5.d, and MPO Long-Range Transportation Plan. This is considered a best management practice from *Protecting Florida's Communities* (FDCA, 2005b).
- Martin County provides assistance to rehabilitate damaged structures, but this could be expanded to include mitigation-related projects, such as retrofit, relocation, or acquisition. A prioritized land acquisition process is included currently, and could be expanded to cover repetitive loss properties for parks or conservation. There is also a need to include historic and cultural sites and structures in any discussion of assistance for rehabilitation, retrofit, or relocation.
- The County could protect natural and cultural resources by locating cultural facilities away from hazard areas. The LMS could assess the vulnerability and risk of historic sites and structures to natural hazards. Also, the County could grant higher priority to drainage projects that will protect historical structures.

### **Wildfire Hazards**

- The County requires management plans for conservation areas but the focus is on removing invasive vegetation and restoring the natural landscape. These plans could be expanded to address a 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 or regulate residential development in high-risk fire areas, such as adjacent to conservation lands. Limiting development or requiring defensible buffers near conservation areas will assuage some of the liability and practical issues of using prescribed fire as a management practice.
- The County promotes creative neighborhood design, such as TDR and clustering, in order to protect wetlands. In a similar vein, firewise neighborhood design can be included 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.

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# 1. County Overview

## Geography and Jurisdictions

Martin County is located along the southeast coast of Florida. It covers a total of 556 square miles with an average population density of 228.1 people per square mile (U.S. Census, 2000).

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



## Population and Demographics

Official 2004 population estimates for all jurisdictions within Martin 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 Martin County is 137,637 people (University of Florida, Bureau of Economic and Business Research, 2004). The most populated city in Martin County is Stuart, but 86.2% of the countywide population lives in the unincorporated portion of the County. Between 1990 and 2000, Martin County as a whole had a growth rate of 25.6%, which was slightly greater than the statewide growth rate of 23.5% in those 10 years.

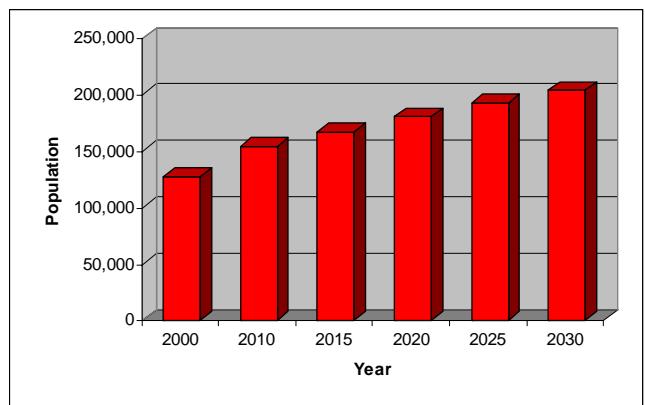
**Table 1.1 Population Estimates by Jurisdiction**

Jurisdiction	Population, Census 2000	Population Estimate, 2004	% Change, 2000-2004	% of Total Population (2004)
UNINCORPORATED	109,069	118,650	8.8%	86.2%
Jupiter Island	620	619	-0.2%	0.4%
Ocean Breeze Park	463	455	-1.7%	0.3%
Sewall's Point	1,946	1,991	2.3%	1.4%
Stuart	14,633	15,922	8.8%	11.6%
<b>Countywide Total</b>	<b>126,731</b>	<b>137,637</b>	<b>8.6%</b>	<b>100.0%</b>

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

According to the University of Florida, Bureau of Economic and Business Research (2004), Martin County's population is projected to grow steadily and rapidly for the next 25 years, reaching 203,300 people by the year 2030. **Figure 1.1** illustrates medium population projections for Martin County based on 2004 calculations.

**Figure 1.1 Medium Population Projections for Martin County, 2010-2030**



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

Of particular concern within Martin 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, 28.2% of Martin County residents are listed as 65 years old or over, 19.8% are listed as having a disability, 8.8% are listed as below poverty, and 11.3% 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): flooding, hurricanes/coastal storms, severe thunderstorms, tornadoes, agricultural pests and disease, wildfires/urban interface fires, soil/beach erosion, drought, dam/levee failure, and epidemics. The LMS did not prioritize these hazards, however, the hazard profiles did include a discussion of the probability of the hazard affecting the County. Of the identified hazards only flooding, hurricanes/ coastal storms, and severe thunderstorms/lightning were considered to have a high probability of occurrence.

Brief historic narratives are included in each hazards assessment section of the LMS. The County experiences flooding on a regular basis from severe thunderstorms and tidal surge caused by coastal storms. Though many of the flood events are not significant enough to warrant homeowner claims under the National Flood Insurance Program, each event disrupts daily life, municipal services, and infrastructure. The location of population centers in close proximity to waterbodies exacerbates the flooding problems in Martin County. Since the turn of the century, Martin County has experienced 53 storms of hurricane intensity (i.e., a storm within a 125-miles). Most recently, the 2004 hurricane season saw Jeanne and Francis make landfall along the shores of Martin County. In the past 12 years, more than 360 wildfires have occurred in the county (LMS, 2004).

### Hazards Analysis

The following analysis looks at three major hazard types: hurricanes and tropical storms (specifically surge), flooding, 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), and levels of concern 5 through 9 for wildfire. 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 Martin County that live within FEMA Flood Insurance Rate Map zones that signify special flood hazard areas. According to these maps, 10.5% of the population, or 14,439 people, are within the 100-year flood zone. The vast 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. Storm surge is also a concern for the county, as there is considerable development along the coast, rivers, and intracoastal waterway. There are 7,922 citizens living in

areas at-risk to surge. Wildfire is the hazard affecting the most Martin County residents, with 27,961 people, or 20.3% of the entire population, living in medium to high risk areas. Fifty-four percent of those at risk from wildfire are over 65 and/or disabled, making a quick evacuation difficult.

**Table 2.1 Estimated Number of Persons at Risk from Selected Hazards**

Population	Flood	Wildfire (medium-high risk)	Surge
Minority	632	2,751	214
Over 65	4,594	6,650	3,076
Disabled	5,030	8,565	2,734
Poverty	890	2,382	623
Language Isolated	287	201	191
Single Parent	513	1,226	299
<b>Countywide Total</b>	<b>14,439</b>	<b>27,961</b>	<b>7,922</b>

Source: Florida Department of Community Affairs, 2005a

*Evacuation and Shelters*

As discussed in the previous sections, population growth in Martin County has been rapid, and this trend is projected to continue as more southern counties become congested. 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 Martin County are estimated to be 12 hours for Category 3 hurricanes and 12.75 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. Martin 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 Martin 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
Indian River	5.5	5.5	12	12	12
Martin	7.5	12	12	12.75	12.75
Okeechobee	10	10	10	10	10
St. Lucie	8.75	8.75	9	9	9

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)

Coupled with evacuation is the need to provide shelters. If adequate space can be provided in safe shelters for Martin 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 11,271 people in the County’s shelters, and there are 8,266 people that will need sheltering in the case of a Category 5 hurricane. It is projected that by 2009 the surplus will decrease to 1,973 people in need of space (FDCA, 2004). The County will need to address this shrinking capacity, 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 Martin County by structure type that are at risk from each of the four hazards being analyzed.

Flooding presents the largest risk to property in the County, with 30,266 structures within a flood zone. The largest portion of those structures is single-family homes. According to the latest National Flood Insurance Program Repetitive Loss Properties list, there are 98 homes in unincorporated Martin County that have had flood damage multiple times and received insurance payments but have not remedied the recurring problem. There also are 8,637 structures at risk from surge, as shown in **Table 2.3**.

**Table 2.3** also shows 17,795 structures within medium to high risk wildfire areas, with 68% of those structures being single-family homes.

**Table 2.3 Estimated Number of Structures at Risk from Selected Hazards**

Structure Type	Flood	Wildfire (medium-high risk)	Surge
Single-Family Homes	12,054	11,181	4,044
Mobile Homes	9,812	1,189	113
Multi-Family Homes	7,104	3,571	3,990
Commercial	912	523	278
Agriculture	289	373	19
Gov./Institutional	95	958	193
<b>Total</b>	<b>30,266</b>	<b>17,795</b>	<b>8,637</b>

*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, 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 South Florida Water Management District. Maps of future land uses in hazard areas were developed using the Martin County future land use map obtained July 2002.

In **Attachment A**, 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 east of Federal Highway (US 1) along the ocean shoreline or fronting the Indian River Lagoon. Properties along the two major rivers in Martin County, the St. Lucie and Loxahatchee, are also susceptible. **Table 2.4** presents the number of acres of land in both of these zones. The majority of the land in these two categories is either used for parks and conservation or agriculture. There is also a considerable amount in medium- and low-density residential. The largest percentage of acreage in these categories is found in parks and conservation, with 43.4% in the coastal hazard zone and 40.7% in the hurricane vulnerability zone. This is positive for the county since structural property and human life is removed from these high-risk areas, thereby reducing the potential for property damage, evacuation times, and shelter demand. **Table 2.5** presents future land use estimates and a breakdown of how currently undeveloped land has been designated for future use. In the coastal hazard zone, 34.4% of the total acreage is designated for conservation use and 34.0% of the hurricane vulnerability zone is to be conserved. These are promising numbers from a mitigation perspective. However, 423 undeveloped acres remain which are proposed for residential development in the coastal hazard zone, with 466 acres in the hurricane vulnerability zone.

In **Attachment B**, maps present the existing and future land uses within a 100-year flood zone. Primarily, the flood zones are found north of Jupiter Island along the coast and intracoastal waterway, throughout Hutchinson Island, and on the banks of the St. Lucie River in Sewall's Point, Port Salerno, and southeast of Stuart. There are also three isolated swaths of flood-prone area along the lakefront in the west, in the Loxahatchee River basin, and inland near the St. Lucie County line. The unincorporated county has a total of 19,867 acres in these flood hazard areas. As shown in **Table 2.4**, only 5% of the acreage is currently vacant, but a majority of the flood prone land, 10,340 acres, is currently in parks, conservation, or golf courses. However, a major concern is raised by the 3,935 low- and medium-density residential acres found in the flood zones. **Table 2.5** shows that nearly half of all flood prone acreage, or 9,611 acres, is slated for conservation. However, of the undeveloped acreage, 35.6% is designated for some form of residential development. Within the undeveloped areas proposed for residential development, 218 acres are slated for estate density at 2 dwelling units per acre.

In **Attachment C**, maps present the land uses associated with high-risk wildfire zones. There are small patches of wildfire susceptible areas throughout the eastern and western thirds of the county, with little occurrence in the central portion. The areas are found along the Highway 710 corridor and roughly from Interstate 95 to the coast. The majority of the lands, 51.6%, are held in agricultural use, as shown in **Table 2.4**. An additional 30.5% is comprised of parks, conservation areas, or golf courses. This bodes well for efforts to reduce threats to structural property. Of the 2,303 undeveloped acres, 31.9% is designated for rural density residential and 25.7% is slated for agricultural ranchette (**Table 2.5**). If homes are built in these risk areas, Martin County's vulnerability to wildfire hazards will greatly increase. Large-lot residential development, such as the agricultural ranchette or low density residential uses, 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 a neighborhood.

**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
Agriculture	Acres	2549.4	3249.4	3870.5	25715.6
	%	19.5	20.7	19.5	51.6
Attractions, Stadiums, Lodging	Acres	23.0	22.7	16.9	0.0
	%	0.2	0.1	0.1	0.0
Commercial	Acres	157.4	202.9	152.9	40.8
	%	1.2	1.3	0.8	0.1
Government, Institutional, Hospitals, Education	Acres	27.9	33.7	52.6	75.1
	%	0.2	0.2	0.3	0.2
Industrial	Acres	89.4	136.7	41.5	366.1
	%	0.7	0.9	0.2	0.7
Parks, Conservation Areas, Golf Courses	Acres	5658.0	6389.0	10340.4	15198.5
	%	43.4	40.7	52.0	30.5
Residential High-Density	Acres	513.0	754.4	564.7	129.7
	%	3.9	4.8	2.8	0.3
Residential Low-Density	Acres	1050.0	1182.9	1292.3	4266.2
	%	8.0	7.5	6.5	8.6
Residential Medium-Density	Acres	2051.6	2751.6	2147.3	686.8
	%	15.7	17.5	10.8	1.4
Submerged Land (Water Bodies)	Acres	226.7	170.8	317.2	621.5
	%	1.7	1.1	1.6	1.2
Transportation, Communication, Rights-Of-Way	Acres	43.0	85.8	70.9	325.0
	%	0.3	0.5	0.4	0.7
Utility Plants and Lines, Solid Waste Disposal	Acres	13.2	12.3	12.7	123.5
	%	0.1	0.1	0.1	0.2
Vacant	Acres	642.9	695.1	987.1	2303.3
	%	4.9	4.4	5.0	4.6
<b>Total Acres</b>	<b>Acres</b>	<b>13045.5</b>	<b>15687.3</b>	<b>19867.0</b>	<b>49852.1</b>
	<b>%</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**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	
		Total	Undev.	Total	Undev.	Total	Undev.	Total	Undev.
Agricultural Ranchette	Acres	2.0	0.0	7.4	0.0	0.0	0.0	9333.4	591.0
	%	0.0	0.0	0.0	0.0	0.0	0.0	18.7	25.7
Agricultural	Acres	103.4	0.0	167.9	0.0	45.5	0.0	15303.3	43.0
	%	0.8	0.0	1.1	0.0	0.2	0.0	30.7	1.9
Commercial General	Acres	42.1	13.2	66.7	20.7	40.4	9.8	247.2	48.2
	%	0.3	2.1	0.4	3.0	0.2	1.0	0.5	2.1
Commercial Limited	Acres	31.7	7.1	57.7	8.5	33.9	6.2	53.3	4.0
	%	0.2	1.1	0.4	1.2	0.2	0.6	0.1	0.2
Commercial Waterfront	Acres	140.7	25.6	145.1	24.5	142.9	24.7	63.5	11.4
	%	1.1	4.0	0.9	3.5	0.7	2.5	0.1	0.5
Commercial, Office, Restaurant	Acres	54.8	20.5	63.1	24.3	53.9	17.6	108.8	42.1
	%	0.4	3.2	0.4	3.5	0.3	1.8	0.2	1.8
Conservation	Acres	4483.8	2.0	5333.6	1.1	9610.7	279.6	8455.3	144.0
	%	34.4	0.3	34.0	0.2	48.4	28.3	17.0	6.3
Estate Density 1UPA	Acres	0.9	0.0	2.2	0.0	1.1	0.0	369.4	5.3
	%	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.2
Estate Density 2UPA	Acres	2487.0	245.7	2892.7	261.7	2808.7	218.2	2525.4	143.6
	%	19.1	38.2	18.4	37.6	14.1	22.1	5.1	6.2
General Institute	Acres	122.6	0.0	168.8	0.0	323.0	0.0	568.7	124.4
	%	0.9	0.0	1.1	0.0	1.6	0.0	1.1	5.4
High Density	Acres	118.4	1.8	216.7	2.7	135.8	0.7	20.3	0.0
	%	0.9	0.3	1.4	0.4	0.7	0.1	0.0	0.0
Industrial	Acres	46.8	3.6	102.8	4.7	91.0	0.4	1370.6	23.6
	%	0.4	0.6	0.7	0.7	0.5	0.0	2.7	1.0
Low Density	Acres	1276.7	118.2	1891.8	135.1	1300.6	75.1	2061.4	132.4
	%	9.8	18.4	12.1	19.4	6.5	7.6	4.1	5.7
Medium Density	Acres	434.0	6.2	580.3	7.1	460.4	6.9	382.3	27.2
	%	3.3	1.0	3.7	1.0	2.3	0.7	0.8	1.2
Mobile Home	Acres	52.2	1.1	67.3	1.6	72.5	0.7	84.0	5.3
	%	0.4	0.2	0.4	0.2	0.4	0.1	0.2	0.2
No Data	Acres	2133.4	92.1	2559.2	105.2	2059.2	105.0	2225.1	158.5
	%	16.4	14.3	16.3	15.1	10.4	10.6	4.5	6.9
Power Generation	Acres	0.0	0.0	0.0	0.0	0.0	0.0	1431.7	0.0
	%	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.0
Recreational	Acres	240.3	2.2	322.4	2.2	350.2	0.9	411.3	0.2
	%	1.8	0.3	2.1	0.3	1.8	0.1	0.8	0.0
Rural Density	Acres	353.1	49.7	485.3	58.0	515.2	49.5	4430.1	734.3
	%	2.7	7.7	3.1	8.3	2.6	5.0	8.9	31.9
Water	Acres	921.4	53.9	556.2	37.7	1822.2	191.7	407.3	64.7
	%	7.1	8.4	3.5	5.4	9.2	19.4	0.8	2.8
<b>Total</b>	<b>Acres</b>	<b>13045.4</b>	<b>642.9</b>	<b>15687.1</b>	<b>695.1</b>	<b>19867.1</b>	<b>987.1</b>	<b>49852.3</b>	<b>2303.3</b>
	<b>%</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**Table 2.6** presents the total numbers of acres in a hazard zone in Martin County's incorporated areas and how many of those acres are currently undeveloped. All the municipalities are subject to surge and flooding, and each has some acreage in the hurricane vulnerability zone. Stuart has the largest amount of land in the four analyzed hazard areas. The city has 404 and 501 vacant acres in the coastal hazard and hurricane vulnerability zones, respectively. There are also 234 acres in the flood zone. This vacant land suggests a good opportunity for the city to undertake mitigation actions. Lastly, wildfire is also a major concern in Stuart, with 467 acres in the urban-wildland interface. Sewall's Point has 35 vacant acres which are susceptible to flooding. Maintaining this vacant acreage will mitigate future damage. Within Sewall's Point there is also a small amount of vacant land, 14 acres, which is susceptible to wildfire. However, Jupiter Island is entirely within a hazard zone. It has the opportunity to institute some mitigation measures with 40 vacant acres in the coastal hazard zone and an additional 59 in the flood zone. Ocean Breeze Park is largely built out and has very little vacant land.

**Table 2.6 Total and Vacant Incorporated Acres in Hazard Areas**

Jurisdiction		Coastal Hazard Zone		Hurricane Vulnerability Zone		Flood Zones		Wildfire Susceptible Areas	
		Total	Vacant	Total	Vacant	Total	Vacant	Total	Vacant
Jupiter Island	Acres	915.4	39.9	883.9	25.4	996.7	58.9	81.6	6.0
	%	100.0	4.4	100.0	2.9	100.0	5.9	100.0	7.4
Ocean Breeze Park	Acres	10.5	0.0	10.7	0.0	18.7	0.0	0.0	0.0
	%	100.0	0.0	100.0	0.0	100.0	0.0	0.0	0.0
Sewall's Point	Acres	324.1	0.9	344.0	3.3	513.6	34.6	39.2	13.6
	%	100.0	0.3	100.0	1.0	100.0	6.7	100.0	34.7
Stuart	Acres	404.4	30.1	501.4	31.0	233.9	14.0	464.6	2.7
	%	100.0	7.4	100.0	6.2	100.0	6.0	100.0	0.6
Total Acres	Acres	1663.1	70.9	1760.3	60.4	1775.4	107.5	590.5	24.5
	%	100.0	4.3	100.0	3.4	100.0	6.1	100.0	4.2

### 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 Martin County LMS (adopted in 2004) 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. There is a good introductory discussion of the particular hazard, followed by a recount of historical events. Exposure is analyzed along economic terms. The LMS uses detailed MEMPHIS data on structures at risk for all of the major hazards, revealing the structural value at-risk. 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 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. Martin County's LMS objective to create and maintain an all-hazards database shows its commitment to providing the best source of hazard data for making these important policy decisions. This is especially important for the County's objective to integrate hazard reduction into local planning and development processes.

#### *Guiding Principles*

The Martin County LMS addresses the Guiding Principles, as described above. The hazard-related plans, policies, and programs are presented in tabular form in Appendix A of the LMS. Relevant policies from the each element of the County Comprehensive Plan are covered in Table A.1. Table A.2 addresses existing programs and policies from the county and its municipalities, as well as non-governmental organizations. There is also a brief listing and summary of existing hazard-related plans, reports, and studies from municipalities and NGOs.

#### *LMS Goals and Objectives*

The LMS Goals and Objectives can be found in **Attachment D**. The following is a summary of how well the LMS has addressed mitigation issues that coincide with planning concerns.

Martin County has many general objectives that tie mitigation through the LMS to programs and regulations that are found in other plans. However, there are few explicit mentions of specific documents or programs. The first goal directs the County to reduce the loss of life and property. The associated objectives could easily direct actions to be taken in certain elements of the Comprehensive Plan. For example, Objective 1.6 states the intent of the County to reduce the potential threat of wildfires. There are several ways this could be achieved through the Comprehensive Planning process and Land Development Regulations. Including more explicit references would lay a clear foundation for this plan to be integrated with other plans.

In addition to the first goal, noted above, the second goal states the county's will to achieve safe and fiscally sound sustainable communities. Goal 3 hopes to facilitate orderly recovery during post-disaster redevelopment. And, the final goal intends to optimize the effective use of all available resources (Martin County LMS, 2004). Under these goals, the objectives are general in nature, but they do cover the relevant hazards. Flooding, wind damage, and fires are each noted. Most importantly, though, are the directives provided in the objectives. The County intends to create a post-disaster redevelopment plan, improve evacuation routes, create disaster-resistant businesses, strengthen intergovernmental coordination, and reduce exposure to potential environmental hazards among others. Though lacking specificity, the majority of these objectives could be incorporated into the Comprehensive Plan, thereby lending credence to the associated policies and assuring eventual implementation or action.

### **Comprehensive Emergency Management Plan**

The Mitigation Annex of the 2002 Martin 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 in organization of pertinent information, previously made decisions, and responsible parties. However, it appears the Director of Emergency Management has authority over mitigation efforts, which has the potential of separating mitigation from the comprehensive planning process and, specifically, pre-disaster land use planning. In fact, the predominant focus of the Mitigation Annex is operational organization and post-disaster mitigation assessments. The second section in the annex does address mitigation activities, including public education, structural and non-structural mitigation activities, and potential sources of funding and technical assistance, each of which is included in the LMS goals and objectives. As the CEMP predates the current LMS by two years, much of the mitigation information in the Annex may now be redundant.

### **Post-Disaster Redevelopment Plan**

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

Martin County, Stuart, Sewall's Point, Ocean Breeze Park, and Jupiter Island are all participating communities in the National Flood Insurance Program. In addition, Martin County participates in the Community Rating System and has a current classification of 7. The municipalities of Jupiter Island and Sewall's Point also participate in the CRS, with each classified as an 8.

## 4. Comprehensive Plan Review

Martin County's Comprehensive Plan (updated in 2005) was reviewed in order to see what the County has already done to integrate their LMS policies, and hazard mitigation in general, into their planning process. A list of the goals, objectives, and policies currently in the plan that contribute to hazard mitigation is found in **Attachment E**. The following is a summary of how well the plan addressed the four hazards of this analysis.

### Coastal Hazards

Martin County's Comprehensive Plan has many policies considered to be best management practices for mitigating hurricane and coastal storm surge impacts. There are several policies that deal with evacuation needs, including setting a level of service standard for peak evacuation that takes into consideration the development review process. Also, evacuation concerns recognize the need to coordinate traffic capacity and development approvals with neighboring jurisdictions. The Comprehensive Plan seeks to limit allowable densities and public expenditures which would subsidize development in the coastal high hazard area (CHHA), specifically transportation systems that provide access. The County is committed to pursuing acquisition opportunities of those coastal properties that are most susceptible to hurricane surge hazards. Shoreline stabilization, dune protection, and adequate buffering are included as a part of development approval, assuring these natural protective features are preserved.

### Flooding Hazards

Flooding was extensively addressed in the Comprehensive Plan. Martin County focuses on the flood mitigation services provided by the natural environment, seeking to protect and buffer wetlands, floodplains, and mangroves along harbors or rivers. These also include limiting allowable densities in floodplains and wetlands and prohibiting fill that could displace floodwaters. Submission of a "Preserve Area Management Plan" is required to ensure all wetlands are protected prior to construction. The County allows development to utilize density transfers or on-site clustering in order to protect the natural drainage features.

### Wildfire Hazards

There were no policies in the Comprehensive Plan that specifically relate to wildfire hazards. However, there are several provisions which have implicit effects. Policies stipulate residential development should only occur in those areas with adequate fire protection. Management plans are required for all protected upland areas, but the focus is on invasive vegetation. Such plans could be expanded to cover wildfire risk.

### Other Hazard Mitigation Policies

There were several policies that referenced hazard mitigation through inter-jurisdictional and inter-agency coordination and cooperation. These policies included working with Okeechobee County on flooding issues near the lake, securing a commitment from St. Lucie County to reduce coastal densities that increase evacuation times, and coordinating flood issues and waterway protection with the South Florida Water Management District and local Soil Conservation Service. There was also a policy that referred to the need to educate the public on emergency preparedness and raise awareness of flood issues. Under Goal 8 of the Coastal Management element, the County provides direction for post-disaster recovery and redevelopment.

## 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.

Martin 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. In the final draft of this profile, **Table 5.1** will present options for further integration as well as the basis for the recommendations found in the **Executive Summary**.

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.



## 6. Sources

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**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**

**Martin County Local Mitigation Strategy Goals and Objectives**

- Goal 1.** Reduce the loss of life and property
  - Objective 1.1** Reduce flooding and/or wind damage.
  - Objective 1.2** Eliminate or retrofit repetitive loss properties.
  - Objective 1.3** Retrofit and/or construct new critical facilities.
  - Objective 1.4** Protect and restore areas susceptible to erosion.
  - Objective 1.5** Improve local roadways to ensure safe, efficient, evacuation.
  - Objective 1.6** Reduce the potential threat of fires, wildland and structural.
  - Objective 1.7** Increase public awareness of hazards and their impacts.
  - Objective 1.8** Evaluate codes, policies, ordinances, and regulations dealing with natural hazards.
  - Objective 1.9** Reduce exposure to potential environmental hazards
  
- Goal 2.** Achieve safe and fiscally sound, sustainable communities.
  - Objective 2.1** Integrate hazard reduction into local planning and development processes.
  - Objective 2.2** Enhance environmental quality and/or function of natural resource.
  - Objective 2.3** Prepare informational materials explaining the positive relationship between sustainable communities and disaster-resistant communities.
  - Objective 2.4** Create and maintain current an all-hazards database.
  - Objective 2.5** Promote the implementation of cost-effective mitigation projects.
  - Objective 2.6** Enhance geographic information system (GIS) capabilities for use in hazard analysis.
  
- Goal 3.** Facilitate orderly recovery during post-disaster redevelopment.
  - Objective 3.1** Prepare a post-disaster redevelopment plan.
  - Objective 3.2** Create disaster-resistant businesses.
  - Objective 3.3** Ensure the economic viability of the local business community following a disaster event.
  
- Goal 4.** Optimize the effective use of all available resources.
  - Objective 4.1** Establish public/private partnerships.
  - Objective 4.2** Establish procedures that strengthen intergovernmental coordination and cooperation.

**Attachment E****Martin County Comprehensive Plan Excerpts Related to Hazard Mitigation****Intergovernmental Coordination Element****Goal 3.2.A.**

- O2 Policy d: As part of its ongoing program of environmental resource protection, the County shall support the development and adoption of inter-jurisdictional natural resource management plans for the Atlantic Ocean, St. Lucie River, Indian River Lagoon, Loxahatchee River, Lake Okeechobee, the Savannas and any significant corridors of native habitat of endangered, threatened and special concern species.
- O2 Policy e: During 1993, the County shall formally approach Okeechobee County with a plan to implement regular communication on issues of common concern. The County has become increasingly interested in protecting environmentally sensitive areas throughout the County which includes Lake Okeechobee. A regular dialogue between governments is a beginning step.
- O3 Policy c: Martin County staff shall attend the South Florida Water Management District Board meetings as appropriate, in order to facilitate lines of communication regarding drainage and water management issues.
- O3 Policy d: Martin County staff shall regularly attend Florida Inland Navigation District meetings as needed, in order to facilitate lines of communication regarding conservation and coastal management issues
- O3 Policy g: As an ongoing effort, the County shall encourage the U.S. Army Corps of Engineers to stabilize bank erosion along the St. Lucie Canal in an environmentally acceptable manner that controls sedimentation into the St. Lucie estuary.
- O3 Policy i: As an ongoing effort, the County shall jointly evaluate and monitor with the Departments of Environmental Regulation and Natural Resources major causative factors underlying shoreline erosion and desirable preventive measures for abatement, preservation and restoration of shorelines.
- O3 Policy l: As an ongoing effort, the County shall coordinate with the Department of Environmental Protection in managing development and conservation decisions in a way which protects the values and functions of wetlands, spoil islands and submerged lands, plus other shoreline protection measures, as appropriate.
- O5 Policy g: Martin County shall continue to maintain and improve its programs that provide public services, including water and

wastewater service, road and drainage maintenance, recreation, fire and emergency medical service, and library and police protection. The departments responsible for individual County services shall provide information, as requested, to other agencies and the public in order to assure that services are meeting the needs of Martin County residents and visitors.

O8 Policy b: Martin County shall continue to solicit and to transmit materials relating to the development of all local municipal and County plans in order to ensure the consistency of the data, inventory and analysis and the goals, objectives and policies of its plan with other local plans.

O8 Policy h: In 1993, Martin County shall establish formal lines of communication with Okeechobee County and shall develop priority projects to implement issues, as appropriate. Issues such as corridor enhancement, development projects, impacts of a major evacuation from Martin County and potential commuter rail and regional aviation systems need to be coordinated.

Objective 9. Martin County shall continue to coordinate with local, State and Federal entities on evacuation plans in the case of a natural disaster or an emergency at the nuclear power plant on Hutchinson Island in order to protect the general welfare, public and private property, and human lives.

O9 Policy a: Martin County shall adhere to the Florida Radiological Emergency Management Plan for Nuclear Power Plants and recommend to the Division of Emergency Management revisions in the document, as warranted. The section entitled "ANNEX R St. Lucie Site Plan" of the above listed plan shall be followed regarding coordination activities among Martin, St. Lucie, Indian River, Palm Beach and Brevard Counties during an emergency at the St. Lucie Power Plant.

O9 Policy b: The Martin County Division of Emergency Management, in coordination with the St. Lucie Department of Emergency Management, shall participate in yearly emergency exercises at the St. Lucie Nuclear Power Plant.

O9 Policy c: Martin County shall participate in updating the Treasure Coast Regional Planning Council Emergency Preparedness Plan and update its own plans, policies and procedures accordingly.

O9 Policy d: By October, 1990, the County shall petition St. Lucie County to reconsider the issue of reducing residential densities south of the FPL Power Plant on Hutchinson Island in order to facilitate the County's post-disaster procedures response to hurricanes or natural disasters.

O9 Policy e: Martin County shall continue to encourage all of the municipalities to provide input to the Board of County Commissioners and assist in the planning and implementation of evacuation routes, as appropriate

**Future Land Use Element**

**Goal 4.4.A**

O1 Policy a: The County's existing Land Development Regulations shall be revised to conform to all guidelines and standards contained in this plan and will:

- (1) Regulate the use of land and water consistent with this element and Future Land Use Map, while ensuring land use compatibility and providing open space.
- (2) Regulate the subdivision of land.
- (3) Protect environmentally sensitive lands, and incorporate minimum landscape standards.
- (4) Regulate areas subject to seasonal and periodic flooding and provide for drainage and stormwater management.
- (5) Regulate signage.
- (6) Ensure safe and convenient on-site traffic flow and parking needs.
- (7) Protect potable water wellfields and aquifer recharge areas.
- (8) Protect endangered and threatened species and species of special concern and their habitats as defined in the State of Florida Game and Freshwater Fish Commission's official list or as determined as regionally significant by the Treasure Coast Regional Planning Council.
- (9) Provide that development orders and permits shall not be issued which result in a reduction of the level of services for the affected public facilities below the base level of service standards adopted in this Growth Management Plan, Capital Improvement Element.
- (10) Include provisions for the transfer of development rights to:
  - (a) Protect environmentally sensitive areas and/or historic resources; and
  - (b) Specify those receiving zones within the Primary Urban Service District where additional density can be accepted and where infill development allows for new development and redevelopment of previously under-utilized portions of the Primary Urban Service District.

O1 Policy f: The maintenance of internal consistency among all elements of the plan shall be a prime consideration in evaluating all requests for amendments to any element of the plan. Among other considerations, the Future Land Use Map (FLUM) shall not be amended to provide for additional urban expansion unless traffic circulation, mass transit, water, sewer, solid waste, drainage, and park and recreation facilities necessary to serve the area, and the associated funding sources, are included in the Comprehensive Growth Management Plan.

**Goal 4.4.B.**

Objective 1. Martin County shall establish a program to assist areas in need of redevelopment.

O1 Policy c: At a minimum, redevelopment plans, activities, and regulations shall:

- 2) Be coordinated with the availability of the following public facilities and services at the levels of service adopted in the Growth Management Plan: transportation, potable water, sanitary sewer, drainage and aquifer recharge, solid waste, and recreation.

(3) Address the impacts of redevelopment activities on the natural systems and historic resources of Martin County.

Objective 3. Martin County shall develop a program which would identify residential structures which are substandard and provide for the rehabilitation of these structures, as well as for the provision, renovation or reconstruction of public facilities and services which target very low and low income households and neighborhoods.

**Goal 4.4.D.** (eliminate inconsistent uses). Martin County shall eliminate or reduce uses of land within the County which are inconsistent with community character or desired future land uses.

Objective 3. By July 1990, nonconforming reduction procedures shall be adopted as part of the land development regulations to ensure that those existing uses which are nonconforming as to land use, as illustrated on the Growth Management Plan Future Land Use Map Series, are gradually reduced or eliminated, where possible

O3 Policy a: At a minimum, the following shall be included within the reduction procedures:  
 (1) Existing nonconforming land uses damaged beyond 50 percent of their assessed value by natural or manmade causes, shall not be allowed to be reconstructed to a land use which is nonconforming to this Comprehensive Growth Management Plan.

**Goal 4.4.E.** (natural resource protection). Martin County shall protect all the natural resource systems of the County from the adverse impacts of development, provide for continued growth in population and economy and recognize the inter-relationship between the maintenance of urban support infrastructure in waste management, air and water quality, and the coastal zone environmental quality.

Objective 1. By July 1990, the County's Land Development Regulations (LDR) shall be revised to incorporate regulations that implement all objectives of the conservation, coastal management, potable water, drainage and aquifer recharge and recreation elements of this Growth Management Plan which are required to be addressed in the LDR and which ensure that the high quality of the natural environment in Martin County is maintained.

O1 Policy a: Land development regulations shall be established which, at a minimum ensure that cumulative impacts of development projects on natural resources are addressed within the comprehensive plan amendment and development review process:  
 3) Protect coastal and marine resources and assure that volume, timing and quality of fresh water reaching the estuary is controlled to prevent discharges of poor quality and high volume.  
 (4) Protect and preserve the functions and values of all wetlands and environmentally significant upland natural systems by directing inconsistent and/or incompatible future land use away from these areas  
 (7) Reduce the rate of soil erosion.

(9) Coordinate future land uses with the most appropriate topography and soil conditions and assure that site plans protect scenic assets, natural features and natural systems.

O1 Policy c: The County shall establish a land acquisition selection process for identifying and prioritizing parcels, in order to assist in classifying coastal property for acquisition as part of the State's land acquisition programs.

Objective 2. Martin County shall evaluate and monitor new innovations for the protection of environmentally sensitive features and areas and prepare an annual report by April of each year, starting in 1994, [on] the effectiveness of implementing these innovations in Martin County.

O2 Policy a: The following shall be investigated, at a minimum:  
 (3) The use of fiscally sound mechanisms, such as tax incentives and transfer of development rights, to encourage landowners to preserve critical habitats, and to discourage development adjacent to lands held for conservation or preservation that are identified in the Conservation Element of the Growth Management Plan.  
 (4) The use of natural systems for multiple purposes to the maximum extent possible, such as combining wellfields within natural system preserve areas and designating park systems to prevent development in floodplains or high hazard coastal areas.  
 (5) The use of transfer of development rights (TDR's) or other flexible methods of land development transfer that would direct development from unsuitable lands to those most suitable for active use.

O2 Policy b: All programs designed for the protection of environmentally sensitive areas shall be evaluated for any possible exclusionary impacts, and implemented only upon determination that all regulations are fair and equitable.

Objective 3. Martin County shall recognize the adopted "Soil Survey of Martin County, Florida Area" (Martin Soil and Water Conservation District, 1981), and coordinate all future land uses, including the designations on the Future Land Use Maps, with the noted soil and topographic conditions. The Soil Survey is attached as Appendix 4-2 to this Future Land Use Element, Part I [sic]. The County will also utilize available data sources for wetlands, uplands and critical habitats in future delineation of land uses and evaluation of requests for land use changes.

O3 Policy a: The County will continue to rely on the Soil Survey of Martin County to provide the basic information on soil conditions and topographic relief for all land use decisions ranging from designations on the Future Land Use Maps to subdivision, site plan and building permit reviews.

O3 Policy b: Limitations on future land uses are identified as soil conditions, topographic characteristics, natural/water resources, vegetation and wildlife habitat. Martin County recognizes these limitations to the use of all properties in its jurisdiction in its existing development regulations. The policies for proposed development regulations referenced in this Element (section 4.5, Performance



Standards) and the development restrictions established in the Coastal Management Element (chapter 8), and Conservation and Open Space Element (chapter 9) shall direct the establishment of additional land development regulations which will further recognize the natural resource limitations to land uses as per the analysis in section 4-3, 6.a. [4.3.6.a.] [sic], Natural Resources and Vacant Land Potentials.

Objective 5. Provide for emergency evacuation procedures and requirements in conjunction with requests for residential development approvals on Hutchinson Island and other high hazard areas identified on the Hurricane Vulnerability Zone Map (Figure 8-5) and detailed in section 8.4.B.2., Hurricane Evacuation.

O5 Policy a: Land development regulations and supporting urban infrastructure improvements shall be coordinated to assure that development on coastal barrier islands and other high hazard coastal areas result in prudent concentrations of population and expenditure of public and private funds, consistent with the Martin County Hurricane/Natural Disaster Preparation Planning Study, as periodically updated.

O5 Policy b: Barrier island development regulations shall address at a minimum:

- (1) Maximum residential densities;
- (2) Wetland preservation;
- (3) Shoreline protection;
- (4) Flood damage prevention;
- (5) Endangered species habitat protection;
- (6) Potable water and wastewater requirements;
- (7) Site design standards;
- (8) Recreation and open space standards;
- (9) Transportation standards;
- (10) Public safety standards; and
- (11) Stormwater quality standards.

The major purpose of the development regulations will be to limit public expenditures and direct population concentrations away from the coastal high hazard area.

**Goal 4.4.F.** (historic resource protection). Martin County shall protect historical resources in the County from the adverse impacts of development.

Objective 1. By July 1990, Martin County's Land Development Regulations shall establish procedures to ensure that all public and private development and redevelopment proposals, including those for infrastructure, are reviewed for their impact upon historic resources.

O1 Policy a: These procedures shall ensure that, at a minimum:

- (1) Historically significant resources are those locally defined in the Housing Element and the Coastal Management Element, Part II, Data, Inventory and Analysis as well as those listed in the National Register of Historical Places, the Florida Master Site File, the Local Register of Historic Places, and those to be discovered in the future.
- (3) Every effort shall be taken during the review process to preserve the resource. Where preservation is not a feasible

alternative, the resource shall be relocated, information regarding the resource shall be recorded, or elements of the resource shall be salvaged for further study.

Objective 2. By July 1990, Martin County's Land Development Regulations shall establish procedures to ensure that all public and private development and redevelopment activities, including those for infrastructure, shall temporarily cease where historic, archaeological, or pale ontological artifacts and resources are discovered to allow for an evaluation of significance.

O2 Policy a: These procedures shall ensure that, at a minimum:

(3) Where the discovery is determined to be significant, every effort shall be taken to preserve the resource. Where preservation is not a feasible alternative, the resource shall be relocated, information regarding the resource shall be recorded, or elements of the resource shall be salvaged for further study, at public expense.

Objective 3. After the preparation of a Historical Resources Inventory, by December, 1996, Martin County shall adopt an Historic Preservation Ordinance to provide appropriate protection for significant historic resources.

O3 Policy a: At a minimum, the Historic Preservation Ordinance shall:

(1) Provide protection for the resources locally defined to have historic significance as well as those listed on the National Register of Historic Places, the Florida Master Site File, the Local Register of Historic Places, and those to be discovered in the future.

(2) Outline standards for the identification and evaluation of historic resources.

(3) Utilize the Standards for Rehabilitation established by the United States Department of the Interior shall be used [sic] in the review of alterations to historic buildings.

(4) Encourage rehabilitation and adaptive reuse of historic properties through incentives, and regulate activities that would harm or destroy the historic value of such resources.

Objective 4. By 2000/2001, Martin County shall aid and cooperate with the Treasure Coast Regional Planning Council in identifying and mapping significant historical, archaeological, and paleontological resources within the County.

O4 Policy a: Access to these resources shall be evaluated and increased when appropriate, for scientific, educational, and recreational purposes.

O4 Policy b: Historic resources and their environments shall be included in public acquisition programs for recreation, open space, and conservation areas which, at a minimum:

(1) Ensure that development or activities planned for such sites are passive in nature and do not endanger the integrity and character of the resource.

(2) Encourage the incorporation of these sites into educational programs.

O4 Policy c: Development proposals on or near such sites will be required to preserve these areas or necessary buffer zones adjacent to them.

**4.4.I. Goal**

O1 Policy a: Residential development shall occur in locations which are suitable as reflected by such factors as the following: efficient land use planning principles in location and design of residential units; projected availability of service and infrastructure capacity; proximity and accessibility to employment, commercial and cultural centers, and fire and police protection; avoidance of adverse impacts to natural resources; and continued viability of agricultural uses. The guideline in determining proximity is that distance and trip times to commercial and employment opportunities should not exceed 7.5 miles or 20 minutes.

Objective 6. By July 1990, Martin County Land Development Regulations shall establish procedures to ensure the provision of amenities and enhance the appearance of residential areas.

O6 Policy b: Regulations shall consider, at a minimum:  
 (1) The preservation of open space and existing native vegetation.  
 (2) The installation and maintenance of landscaping.  
 (3) The application of sound principles of community design.

**Goal 4.4.L.** (agricultural lands). Martin County shall fairly and equitably preserve agricultural lands by enhancing and protecting appropriate and productive lands for agricultural uses.

Objective 2. Martin County shall monitor and evaluate new innovations and management practices for preserving agricultural farmlands while protecting the property rights of farmers, and prepare a report by January, 2000/2001, for the purpose of determining the applicability of these concepts to Martin County.

(2) Transferable Development Rights (TDR's) which compensate the owners of preserved land for the loss of their rights to develop.

**Goal 4.4.M.** (allocation of land use). Martin County shall allocate land use indicated on the Year 2005 Land Use Map in order to provide for compatibility with existing development, consistency with the Capital Improvements Element, protection of natural resources, and implementation of the adopted level of service standards.

**Transportation Element**

**Goal 5.5.C.** The County shall establish an integrated transportation system consistent with future development plans.

O1 Policy c: The County shall eliminate or minimize roadway designs which lead to hazardous conditions by: (5) Providing adequate

capacity for emergency evacuation or emergency response vehicles.

Objective 2. Plan and develop a transportation system that preserves environmentally sensitive areas, conserves energy and natural resources, and minimizes adverse environmental impacts.

O2 Policy a: The County will avoid transportation improvements that encourage or subsidize increased development in coastal high hazard areas or environmentally sensitive areas identified in the Coastal Management and Conservation Elements.

O2 Policy b: Interchanges and other road/rail improvements shall not be placed or constructed in a manner that would provide access to environmental protection areas or other areas to be conserved in order to prevent undue pressure for the development of such areas.

O2 Policy e: New roadways or rail routes shall be designed to prevent and control soil erosion, minimize clearing and grubbing operations, minimize storm runoff and avoid unnecessary changes in drainage patterns.

**Goal 5.5.J.** The County shall ensure that provisions for future aviation transportation facilities are developed in a manner that minimizes adverse environmental impacts.

O1 Policy a: New or expanded airport/aviation facilities shall be sited on the least environmentally sensitive lands, and shall be consistent with the conservation element.

O1 Policy c: Prior to expansion of existing airport/aviation facilities or siting of new aviation facilities, methods for protection of natural resources shall be identified.

**Housing Element**

**Goal 6.4.A**

Objective 3. Martin County shall encourage the conservation and rehabilitation of housing determined to be or having the potential of being historically significant.

O3 Policy a: Identify historical preservation programs. Martin County shall continue to identify programs related to the conservation and rehabilitation of historically significant housing.

O3 Policy c: Historic Preservation Ordinance. After the inventory of historic structures is completed, Martin County shall adopt a Historic Preservation Ordinance by December, 2000/2001. This ordinance shall, at a minimum:  
 (3) Utilize the Standards for Rehabilitation established by the United States Department of the Interior in the review of alterations to historic buildings.

(4) Encourage rehabilitation and adaptive reuse of historic properties through incentives, and regulate activities that would harm or destroy the historic value of such resources.

**Coastal Management Element**

**Goal 8.4.A.** Coastal natural resources goal. The goal of this element is to effectively manage, conserve, preserve and protect Martin County's coastal natural resources, giving consideration to an equitable balance of public and private property rights, by developing and implementing programs and procedures, limiting coastal development activities and providing for mitigation of development impacts.

Objective 1. To protect and preserve the functions and values of coastal wetland and barrier island natural systems. These systems serve a multitude of functions, including, but not limited to, flood control, groundwater aquifer recharge and wildlife habitat.

O1 Policy a: Protection of wetlands. All wetlands in Martin County shall be protected. No negative impacts shall be allowed in wetlands, within the wetland buffer, nor within the upland transition area surrounding the wetland. Wetland protection requirements as detailed in this objective and in objective 9.4.A.7 of the Conservation and Open Space Element are defined as a "performance standard" in section 4.5 of the Future Land Use Element. All development must be consistent with the wetland protection requirements of the Comprehensive Growth Management Plan and F.A.C. 9J-5.013(3). The requirements include directing inconsistent and/or incompatible future land uses away from wetland areas. Compliance with all wetland protection requirements must be demonstrated prior to the issuance of a development approval or order.

O2 Policy a: Wetlands, general provisions. The following definitions, restrictions, violations, waivers and density transfer provisions shall apply:

(2) No negative impacts shall be allowed in wetlands, or within the wetland buffer, and upland transition area surrounding the wetland. Where illegal activities in violation of the Comprehensive Growth Management Plan or the Code of Ordinances of Martin County have altered any wetland area so that all or part of the original area no longer meets the definition of a wetland, or has negatively impacted a wetland, restoration shall be required at the site of the alteration. Restoration of buffers, habitat and hydrology of the original wetland area shall be required. The restored wetland shall be protected as a natural wetland.

(4) Preserve area management plan provisions. For all wetland areas as defined in this element, a preserve area management plan shall be required and implemented. Any application for development plan approval must contain a preserve area management plan to protect all wetland areas located on-site and off-site. The preserve area management plan is subject to the review and approval of the Martin County Growth Management Department. No development approval will be issued until the preserve area management plan is approved by

the Martin County Growth Management Department. The preserve area management plan must contain a statement that indicates that the County has authority to enforce all provisions of the preserve area management plan. In accordance with the preserve area management plan, the wetland areas on-site must be maintained. The preserve area management plan must contain provisions to:

- (a) Remove and provide continued management of exotic vegetation and debris;
  - (b) Re-vegetate the wetland area and the surrounding upland transition buffer with appropriate native plant material, if necessary;
  - (c) Mitigate previous or potential drainage impacts to the maximum extent technically feasible in order to restore the natural hydroperiod;
  - (d) Assure that the quality and quantity of natural drainage patterns which provide inflow to the wetlands are maintained by incorporating these areas into the project's surface water management plan. Water quality and the rate, timing and volume of runoff should recreate natural conditions for the benefit of wetlands and recurring waters;
  - (e) Provide buffers of appropriate native upland vegetation adequate to assure continuance of the wetlands' values and functions. Wetlands on adjacent property shall also be protected from adverse impacts;
- 8) Density transfer. All property owners shall have the right to transfer density to the upland area on any site which contains wetlands pursuant to the following stipulations:
- (a) The development must be submitted for review as either a planned unit development or a clustered multifamily project in one of the multiple-family residential zoning districts.
  - (b) In addition, the following equations shall apply:
    - 1) The resulting residential density of the upland property shall be no greater than 15 units per acre, except that for densities in excess of ten dwelling units per acre there shall be a 75-foot native upland transition zone around all wetlands;
    - 2) The total number of units allowed in any development using this density transfer formula shall be equal to or less than the allowed maximum density for the entire parcel as shown on the Future Land Use Map;
    - 3) Density transferred must be equal to or less than one-half of the wetland acreage multiplied by gross density; and
    - 4) For parcels with wetlands that occupy 50 percent or more of the total site, the gross residential density of the upland property must be equal to or less than two times the gross residential density of the entire parcel.

O2 Policy d:

Buffer zones and performance criteria for wetlands. The following buffer zone provisions and performance criteria for wetland areas identified in Policies 8.4.A.1.b. and c. must be met. These provisions and criteria shall be incorporated into Martin County's Development Regulations by July 1, 1990.

- (1) Buffer zone provisions.
  - (a) For natural creeks, rivers, water bodies connected to waters of the State and waters of the State as defined and protected according to F.S. ch. 403, a minimum 75-foot wide buffer zone of



native upland and transitional vegetation shall be provided and maintained from the landward extent of wetland vegetation or from mean high water (as determined in accordance with F.A.C. 17-4.022), whichever is greater.

(e) For isolated wetland areas, a minimum 50-foot buffer zone of appropriate native vegetation shall be provided and maintained from the landward extent of the wetland.

2) Performance criteria for wetland areas.

(a) The following restrictions shall apply to the direct removal of natural vegetation from the wetlands or the buffer zone surrounding the wetlands:

1) Clearing or direct removal of vegetation shall not occur except in compliance with a preserve area management plan approved by the Martin County Growth Management Department or in compliance with those minimal activities permitted for riparian usage (e.g., docks and walkways).

O2 Policy I: Management plans for upland areas. For all required upland preserve areas and/or upland transition zones, new development shall provide and implement a preserve area management plan to:

(1) Remove and provide continued management of exotic vegetation and debris;

(2) Revegetate the upland preserve area with appropriate native vegetation, if necessary;

Objective 4. Marine natural systems. To protect and preserve the functions and values of marine natural systems. These systems serve a multitude of functions including, but not limited to, wildlife habitat, flood control and erosion control.

O4 Policy a: (4) Performance standards.  
(b) Protection of buffer zones and/or preserve areas. Wetland buffer zones, or any other designated upland preserve area, shall be protected from encroachment due to construction and/or building maintenance activities.

1) New construction proposed to be adjacent to these areas shall be setback a minimum of ten feet (or greater if warranted by specific site conditions) for primary structures. Minimum preserve area setbacks for accessory structures (pool decks, screen enclosures, driveways, etc.) shall be five feet.

(d) Shoreline uses. No structure, other than docks and bridges in public rights-of-way (waterward of the mangrove line) and elevated walkways, limited to those necessary for the use and enjoyment of the shoreline property owner and County approved public utilities, shall be permitted within the shoreline protection zone. Elevated walkways that cross over navigable waters of the State shall be reviewed by the Martin County Board of County Commissioners for compliance with the policies of this plan.

(e) Transition zone development. Within the 50-foot upland transition zone of the shoreline protection zone no permits shall be required for maintenance of existing uses or maintenance of uses permitted by this section.

O4 Policy c: Proposed alterations to natural tidal flushing patterns and circulation of estuarine waters. Martin County shall not permit significant alteration of tidal flushing and circulation patterns by development without demonstrated proof by the applicant that such alteration will not have a negative impact on the natural environment.

The phrase "significant alteration of tidal flushing and circulation patterns" is defined as an alteration that would:

- (1) Reduce water quality.
- (2) Cause erosion.
- (3) Reduce nutrient input into estuarine system (mangrove detrital matter).
- (4) Cause potential for saltwater intrusion into groundwater.
- (5) Cause siltation or shoaling.
- (6) Prevent or restrict tidal flushing.

O4 Policy g: Mangrove protection. The County shall continue to actively enforce existing regulations to protect mangroves. Any modification to existing regulations must effectively address minimum criteria, standards and any adverse environmental impacts.

Objective 6. Beach and dune and off-shore systems. To develop procedures and standards to protect, enhance and restore beach and dune systems and minimize construction-related impacts.

O6 Policy a: Barrier island restrictions. The County shall continue to actively enforce barrier island development through:

- (1) Density limitations on the barrier island (Hutchinson Island) which restrict development on vacant, uncommitted properties to single-family units;
- (2) The shoreline protection provisions of Policy 8.4.A.4.a. of this element and Policy 9.4.A.8.a. of the Conservation and Open Space Element;
- (3) Beach/dune protection provisions which prohibit development within the dune preservation zone other than approved shore protection, beach restoration, dune crossovers or activities related to beach safety; and
- (4) Site plan design standards which are applicable to all developments on the barrier islands that require site plan approval, and which specify provisions for the following: open space, buffer areas, minimum building separations, maximum height of structures and requirements for setbacks, park and recreation, transportation, public safety and stormwater systems.

O6 Policy b: Coastal Construction Code. The County shall examine any changes to the Florida Department of Community Affairs Model Coastal Construction Code and modify those regulations on coastal construction, where necessary, to be consistent with the State requirements established.

O6 Policy d: Cumulative impacts on beach/dune systems. Land use decisions shall consider the specific and cumulative efforts of development and redevelopment activities upon beach and dune systems. Existing barrier island regulations shall guide developments affecting beach and dune systems, as specified in Coastal Management Policies 8.4.A.6.a. and 8.4.A.6.c., and in

accordance with the shoreline protection zone standards found in Policy 8.4.A.4.a. and 9.4.A.4.a. in the Coastal Management and Conservation and Open Space Elements, respectively.

- O6 Policy e: Shoreline preservation and restoration. The County shall continue to monitor and evaluate jointly with the U.S. Army Corps of Engineers, Florida Department of Environmental Protection and other interested parties, major causative factors underlying shoreline erosion and desirable preventative measures for abatement, preservation and restoration of shorelines.
- O6 Policy f: Erosion control structures. The County recognizes that nonstructural environmental management techniques for shoreline stabilization are preferable to structural plans designed to harden and reinforce the shoreline. Generally, structural plans to harden the shoreline promote erosion on adjacent properties and intensify longterm erosion by altering natural defenses against erosion. It is best to stabilize the shoreline by protecting and enhancing the preservation of indigenous vegetation which contributes to natural dune building. Therefore, shoreline erosion control measures shall be limited to those techniques that do not interfere with the natural beach and dune systems, adversely affect adjacent properties, sea turtle nesting and hatching activities or negatively impact coastal natural resources such as Sabellariid worm reefs. Structural means (i.e., permabags, seawalls, etc.) may be used only if:
- 1) Nonstructural means are not suitable to the specific and unique conditions of the site; and
  - 2) Structural means do not negatively impact adjacent properties by creating more erosion potential or deteriorating land values.
- Existing erosion control structures that are damaged or destroyed may be repaired or replaced only with structures which are compatible with this policy and found to be necessary to protect existing, previously approved structures.
- O6 Policy g: Beach and dune protection. Motorized vehicles shall be prohibited from operation on the beach and primary dune system, except in an emergency situation or as approved by special permit from the Florida Department of Environmental Protection and the Martin County Board of Commissioners.
- O6 Policy i: Clearing restrictions. Martin County shall restrict the clearing of beach and dune vegetation, and restrict the excavation of dune materials in the dune preservation zone. The "dune preservation zone" is defined as the mean high water line of the Atlantic Ocean to a point 50 feet westerly of the coastal construction control line, as in force and in effect on June 1, 1985. Clearing or excavation of the beach or dune, for any reason, other than approved shore protection, beach restoration, dune crossovers or activities related to beach safety shall not be permitted.
- O6 Policy j: Flood proofing of sanitary sewer systems. New sanitary sewer facilities in the hurricane vulnerability zone shall be flood proofed to prevent inflow of raw sewage from leaking into sanitary sewer

facilities during flood events. New septic tanks shall be fitted with backflow preventors.

Objective 4 . Historic resources. After the adoption of the Comprehensive Growth Management Plan, there shall be no loss of historic resources on County-owned property, and historic resources on private property shall be protected, preserved or used in a manner that will allow their continued existence.

O4 Policy a: Procedures within the Land Development Code. The Land Development Code, when revised pursuant to F.S. § 163.3202(1), will establish procedures that require that all public and private development and redevelopment proposals are reviewed for their impact upon historic resources. These procedures shall be developed according to Policy F.1.a. [sic] in the Land Use Element.

O4 Policy b: Site plan review to protect historic or archaeological resources. Applicants for site plan review shall consult the Florida Master Site File maintained by the Florida Department of State, Division of Historical Resources, to determine if the proposed project will affect historic or archaeological resources in the County. These findings shall then be submitted to the Growth Management Department as part of the development and site plan review procedure.

O4 Policy c: Setback requirements for historic or archaeological sites. Historic and archaeological sites shall be incorporated into required setbacks, buffer strips or open spaces up to the maximum area required by the development regulations. The County shall consider the feasibility of establishing waivers for nonsafety related setback requirements and site planning requirements in order to accommodate historic structures or sites within a proposed development.

O4 Policy d: Historic or archaeological site preservation alternatives. As an alternative to preserving historic or archaeological sites, the owner may allow excavation of the site by the Division of Historic Resources, or their approved alternate, prior to development. Should a site be scientifically excavated, then development may proceed without preserving the site.

**Goal 8.4.B.** The protection of human life and capital facilities from the destructive effects of hurricanes and natural disasters by limiting public expenditures and development activities in identified coastal high hazard areas, providing for safe and effective emergency evacuation and establishing procedures for post-disaster redevelopment.

Objective 1. Hazard mitigation and coastal high hazard area. To limit public expenditures in the designated coastal high hazard area to necessary public services in order not to subsidize new development in this area.

O1 Policy b: Limit public expenditures. In order to limit public expenditures in the coastal high hazard area, Martin County will:

(1) Continue to approve only detached single-family development in residentially designated areas in the Hutchinson Island area, not exceeding two units per gross upland acre;  
 (4) Provide services needed to minimize evacuation times during emergency events as specified in the policies of subsection 8.4.B. of this section of the Coastal Management Element; and/or  
 (5) Provide those services that restore or enhance natural resources.

O1 Policy c: Public services. Necessary public services are defined as:  
 (3) Services needed to minimize evacuation times during emergency events; and/or  
 (4) Services that restore or enhance natural resources.

O1 Policy d: Infrastructure or service expansion restrictions. Public funds shall not be used for infrastructure or service expansion or improvements to areas designated as coastal high hazard areas unless such funds are necessary to meet one of the following conditions:  
 (2) Provide adequate evacuation in the event of an emergency;  
 (4) Provide support to public and private land development specifically designed to minimize storm hazards as deemed necessary for such public facilities by the Land Development Code.

O1 Policy e: Expansion of Barrier Island Ordinance. Martin County shall investigate the need to expand the provisions of the Barrier Island Ordinance to all areas within the coastal high hazard area, as defined in Policy 8.4.B.1.a. This investigation shall be performed in 1991, and either adopted revisions to existing ordinances or the adoption of a new ordinance shall be done by October, 1993.

O1 Policy f: Relocation of infrastructure. Martin County shall consider relocating infrastructure outside of the coastal high hazard area when opportunities for replacement exist. Any such relocation may not cause a lowered level of service standard for existing residents. The County's policy is to replace infrastructure in the coastal high hazard area if damaged and when State funding is available.

Objective 2. Direct population away from coast. Encourage low density land uses within the coastal high hazard area in order to direct population concentrations away from this area.

O2 Policy a: Coordination of land development regulations and infrastructure improvements. Land development regulations and supporting urban infrastructure improvements shall be coordinated to assure that development on coastal barrier islands and other high hazard coastal areas do not result in a concentration of population or over expenditure of public and private funds.

O2 Policy b: Barrier island development regulations. Martin County shall continue to enforce the barrier island development regulations which address, at a minimum:

- (1) Maximum residential densities;
- (2) Wetland preservation;
- (3) Shoreline protection;
- (4) Flood damage prevention;
- (5) Endangered species habitat protection;
- (6) Potable water and wastewater requirements;
- (7) Site design standards;
- (8) Recreation and open space standards;
- (9) Transportation standards;
- (10) Public safety standards; and
- (11) Stormwater quality standards.

O2 Policy c: Hutchinson Island Resource Planning and Management Plan. The County shall continue to implement the findings and recommendations of the Hutchinson Island Resource Planning and Management Plan by requiring that until such time as Martin County and St. Lucie County have adopted a plan to increase traffic capacity to Hutchinson Island to assure future LOS, that new development on the island which is not vested shall be limited to single-family residences.

O2 Policy d: Acquisition of coastal high hazard area lands. Martin County shall identify funding that would be available for buying land within the areas within the category 1, 2 and 3 hurricane surge areas as identified in the 1993 Florida Hurricane Surge Atlas for public access, conservation or open space. This policy shall be coordinated with Policies 9.4.A.1.g., 9.4.A.2.e., 9.4.A.2.g. and 9.4.A.11.b. of the Conservation and Open Space Element.

O2 Policy e: Construction restrictions within the category 1, 2 and 3 hurricane surge areas as identified in the 1993 Florida Hurricane Surge Atlas. Martin County shall continue its existing limits on construction within the category 1, 2 and 3 hurricane surge areas as identified in the 1993 Florida Hurricane Surge Atlas. Furthermore, the County shall investigate the feasibility of expanding the Barrier Island Ordinance development restrictions, as well as other applicable development restrictions, to include all areas within the category 1, 2 and 3 hurricane surge areas as identified in the 1993 Florida Hurricane Surge Atlas.

Objective 3. Hurricane evacuation. To provide for public safety during emergency evacuation by maintaining or reducing Martin County emergency evacuation clearance time and maintaining an adequate emergency evacuation roadway system.

O3 Policy a: Emergency evacuation plan. Martin County shall maintain an in-County emergency evacuation clearance time for a category V hurricane of NTE 13 hours as documented in the Treasure Coast Regional Hurricane Evacuation Study Update 2003.

O3 Policy b: New development evacuation plans. All new development proposed within the category 1, 3 and 5 hurricane surge areas as identified in the 1993 Florida Hurricane Surge Atlas shall include detailed plans and procedures for evacuation in the event of a hurricane.



- O3 Policy c: Emergency evacuation mitigation requirements. All new developments which are projected to increase emergency evacuation clearance times above the adopted Martin County emergency evacuation clearance time shall mitigate their impacts fully prior to issuance of certificates of occupancy.
- O3 Policy d: Emergency shelter space requirements. All residential developments vulnerable to coastal flooding shall provide emergency shelter space to accommodate the 25 percent of development residents who are expected to seek shelter locally, or as technical studies deem appropriate. The requirement to provide emergency shelter space is in addition to the emergency evacuation mitigation requirements of Policy 8.4.B.3.c. Emergency shelter space shall be allocated at 20 square feet per person, or as the guidelines for hurricane evacuation shelter selection (ARC 4496) and the State of Florida Model Hurricane Evacuation Shelter Selection guidelines recommend. In addition, new mobile/manufactured home developments outside areas vulnerable to flooding shall provide shelter space as required above, which meets established wind load, cyclical load and impact resistance requirements contained in the Martin County, South Florida or State-wide Building Codes. Shelter space may be established either on-site or off-site, provided this space is located, equipped and stocked with provisions and maintained and retained in accordance with the specifications provided by the Martin County Emergency Management Director. No emergency storm shelters shall be approved on the barrier islands. The on-site shelter space option will not be available to developments that lie in surge vulnerable areas as identified on Figure 8-5 of this Element. No certificates of occupancy shall be issued for any units until such time as the developer can verify by an inspection accomplished by the Martin County Emergency Management Office that emergency shelter space to accommodate the needs generated by development is available. Emergency shelter space, once verified by the developer and the Martin County Emergency Management Office, shall not be modified, changed or used in any manner which would render it unusable as a shelter. This requirement shall be imposed on successor owners or operators of the property so designated as a shelter.
- O3 Policy e: Emergency evacuation road improvements. Martin County, as part of the 2010 Transportation Study, shall examine the emergency evacuation routes to determine those that may be inadequate. Inadequate roadway links are those that have insufficient traffic capacity as determined by its level of service, are subject to flooding and prone to blockage by tree fall in high winds. The study will determine responsibility for the costs of improvements. Those roadway links determined to be inadequate by this examination will be given priority in the Capital Improvements Element. Roadway links that are insufficient due to tree fall shall be corrected by the County's ongoing tree trimming and/or removal program.
- O3 Policy f: Hazardous tree fall program. An ongoing program to be administered by the Martin County Road Department shall

remove Australian pines and other trees prone to high wind damage along identified emergency evacuation routes to eliminate hazardous tree fall condition along these routes.

O3 Policy g: County/City cooperation. Martin County and the City of Stuart shall coordinate hurricane evacuation plans. As part of that coordination, Martin County shall request that the City of Stuart participate in the determination of emergency evacuation routes that may be inadequate.

O3 Policy h: Density limitations on Hutchinson Island. New development on Hutchinson Island that is not vested (that is, vacant, uncommitted parcels) shall continue to be limited to single-family residences.

O3 Policy i: Emergency technical data update requirements. Emergency technical data reports and plans used in emergency management for hurricanes, floods, nuclear power plant emergencies and other emergencies should be updated annually to reflect changes in population size and distribution, location of high-risk populations, adequacy of transportation systems and shelters and the latest scientific findings affecting emergency management.

Objective 4. Post-disaster redevelopment. The establishment of post-disaster procedures for immediate and longterm response to a hurricane or natural disaster, including cleanup and redevelopment.

O4 Policy a: Post-Disaster Recovery Task Force. The County Commission shall appoint a Post-Disaster Recovery Task Force to include, at a minimum, the Growth Management Director, Emergency Management Director, Public Services Director and other members at the discretion of the Commission. Staff shall be provided by the departments whose directors sit on the task force.

O4 Policy b: Post-disaster procedures. The Post-Disaster Recovery Task Force shall adhere to the procedures of the Comprehensive Emergency Management Plan.

O4 Policy c: Cleanup and repair priorities. Immediate cleanup and repair actions needed to protect the public health and safety shall receive first priority (within two weeks of the storm event) in emergency permitting decisions. These actions include the following:

- (1) Repairs to potable water, wastewater and power facilities;
- (2) Removal of debris and inspection for hazardous materials;
- (3) Stabilization or removal of structures about to collapse;
- (4) Minimal repairs to make dwellings habitable; and
- (5) An environmental assessment by the Martin County Environmental Health Unit.

O4 Policy d: Redevelopment activities. Longterm redevelopment activities shall be postponed until the Recovery Task Force has completed its tasks. At that time, Martin County shall encourage activities that are consistent with the Comprehensive Emergency

Management Plan and specific redevelopment plans developed by the Recovery Task Force.

- O4 Policy e: Streamlined development approvals. Martin County shall develop procedures that streamline the development approval process for those property owners who meet all conditions for rebuilding within coastal areas.
- O4 Policy f: Acquisition of lands. Martin County shall pursue acquisition of lands identified in Policy 8.4.A.3.d. in order to provide public access, protect natural resources or remove it from development.
- O4 Policy g: Rebuilt structures. If rebuilt, structures which suffer cumulative damages within any five-year period in excess of 50 percent of their appraised value shall be rebuilt to meet all current requirements, including those enacted since construction of the structure.
- O4 Policy h: Structures with repetitive damage. Structures which suffer repeated damage to pilings, foundations or loadbearing walls shall be required to rebuild landward of their current location or to modify the structure to delete the areas most prone to damage. Water-dependent uses shall be exempt from the requirement to rebuild landward of their current location if, when rebuilt, the structure is modified to minimize future damages.
- O4 Policy j: Coordination on hurricane technical report update. The County should coordinate with the Treasure Coast Regional Planning Council during updates of the hurricane technical report for inclusion in the unified local mitigation strategy to:
  - (1) Identify structures within the category 1, 2 and 3 hurricane surge areas as identified in the 1993 Florida Hurricane Surge Atlas;
  - (2) Inventory their assessed value;
  - (3) Judge the utility of the land for public access; and
  - (4) Make recommendations for acquisition when post-disaster opportunities arise.
- O4 Policy k: Hutchinson Island development order restrictions. Limit development both before and after a natural disaster on Hutchinson Island by enforcing the following Hutchinson Island development restrictions:
  - (1) Prior to a hurricane, or other declared natural disaster, Martin County shall limit development on Hutchinson Island by continuing to enforce the existing barrier island development restrictions.
  - (2) After a hurricane, or other declared natural disaster, any approved development order on Hutchinson Island must satisfy the following conditions or it shall be considered null and void:
    - (a) One-third or less of the physical improvements committed to in the development order are not completed;
    - (b) The development has not had any active construction for a period of six months; and

(c) The physical improvements on-site that have been constructed have sustained damage in excess of 50 percent of their appraised value.

If the development order is determined to be null and void, the applicant shall be required to submit a new petition for development approval that complies with current regulations and is consistent with the redevelopment plan developed by the Recovery Task Force.

O4 Policy l: Residential density reduction petition to St. Lucie County. The County shall petition St. Lucie County to reconsider the issue of reducing residential densities south of the FPL Power Plant, and adopt Policy 8.4.B.4.k. above.

O4 Policy m: Redevelopment of parcels. After a hurricane, or other declared natural disaster, parcels whose existing development has been damaged may be redeveloped, provided, the new development does not exceed the density and/or intensity of use of the previous development.

Objective 5. Coastal infrastructure. After plan adoption, Martin County shall maintain established levels of service and service areas, and shall phase and maintain infrastructure, in order to assure that adequate public facilities and services are available to existing and projected residents and visitors to the coastal area of Martin County.

O5 Policy b: Beach renourishment project standards. Beach renourishment projects shall meet the following level of service standards:  
 (1) Beach fill must include a protective berm high enough to prevent flooding by a ten-year storm event; and  
 (2) Beach renourishment projects shall have a design life of at least five years.

O5 Policy d: Infrastructure. The County shall ensure concurrency in the coastal zone as required in the Capital Improvements Element for all levels of service, including evacuation clearance time specified in Policy 8.4.B.4.a.

O5 Policy e: Road improvements. New road construction, or roadway improvement projects, shall include turn lanes, parking lanes or other paved areas which can be used to increase the number of traffic lanes for emergency evacuation.

O5 Policy f: Natural disaster. The Martin County Emergency Services Department and Emergency Management Agency shall review developments that occur in areas of potential natural and manmade disasters for such safety factors as adequacy of shelter for residents, ability of surrounding roads to accommodate emergency traffic and ability of internal roads to accommodate emergency traffic.

O5 Policy g: Wastewater treatment. Public and private wastewater treatment facilities which have a history of malfunctioning should be repaired immediately or replaced by the responsible governmental entity or private operator.

O5 Policy i: Storm or surface water runoff. Any new surface water or stormwater runoff discharge points into coastal water should be prohibited or restricted to areas of extremely good flushing potential.

Objective 6. Interjurisdictional resource management. To ensure that resources occurring in or affecting more than one governmental jurisdiction are effectively managed to preserve, protect and enhance coastal natural systems, wildlife, fisheries and habitat.

O6 Policy a: Interjurisdictional plans coordination. The County shall continue to coordinate with the appropriate agencies to achieve the goals and policies of and to implement the Treasure Coast Regional Comprehensive Policy Plan, Lake Okeechobee and Okeechobee Waterway Shoreline Management Plan, North Fork of the St. Lucie River and Indian River Lagoon Aquatic Preserve Protection Plans, Hutchinson Island Resource Planning and Management Plan and other such plans and programs as require the involvement of the County. Appropriate agencies include, but are not limited to, the Treasure Coast Regional Planning Council, U.S. Army Corps of Engineers, South Florida Water Management District, Departments of Natural Resources, Environmental Regulation and Community Affairs.

O6 Policy b: Aquatic preserve feasibility study. The County will continue to study the feasibility of the designation of the south fork of the St. Lucie River as an aquatic preserve. A final position by way of a resolution to the TCRPC will be adopted should applicable regulations be received from the Department of Environmental Protection by the Board of County Commissioners.

O6 Policy c: St. Lucie River estuary. The County will coordinate with the Martin Soil and Water Conservation District and other related agencies in promoting awareness of new information concerning the St. Lucie River estuary system and the impacts of development on the functions and values of the estuary system.

O6 Policy d: Coordination with State and Federal level facilities. The County will continue to coordinate with, and assist, where appropriate, those agencies responsible for protection and management of Federal wildlife refuges, State parks, waterways and beaches. A complete listing of such facilities is contained in the Recreation Element and Conservation/Open Space Element.

O6 Policy e: Cooperate to enhance natural systems. The County will cooperate and coordinate with surrounding local governments, as well as State agencies, in an effort to enhance existing natural systems.

O6 Policy f: Beach renourishment. The County will coordinate all applications for beach renourishment with applicable Federal, State and regional agencies, and shall cooperate with other local sponsors in a review and comment function for beach renourishment proposals that may have an effect on the resources of Martin County.

O6 Policy g: Protection of local estuaries. Martin County shall cooperate and coordinate with other local governments in protecting local estuaries. This cooperation and coordination shall have as its purpose local governments assistance to those agencies responsible for protection and management of the local estuarine systems.

O6 Policy h: City/County coordination. Martin County shall cooperate and coordinate with the City of Stuart on marina siting criteria so that both the County and City have effective, consistent criteria in their development and site plan procedures for marina projects.

**Conservation Element**

**Goal 9.4.A.**

O3 Policy i: Floodplain/natural harbor protection. Floodplains and natural harbors (i.e., Manatee Pocket) in Martin County are recognized in the land development regulations (e.g., flood damage protection excavation and fill ordinances) as unique resources requiring protection and conservation. The County shall evaluate such factors as mangrove and endangered freshwater wetland habitat, seagrass bed resources, sedimentation and siltation deposition, turbidity and water quality in all future development regulations involving floodplain/natural harbor protection. All future revisions to development regulations shall recognize these resources. To that end, floodplains and natural harbor banks and shores shall be provided specific standards as to slope protection and erosion control/mitigation.

Objective 7. Natural systems. To protect and preserve the functions and values of wetland and upland natural systems. These systems serve a multitude of functions, including, but not limited to, flood control, groundwater aquifer recharge and wildlife habitat.

O7 Policy a: Protection of wetlands. All wetlands in Martin County shall be protected. No negative impacts shall be allowed in wetlands, within the wetland buffer, nor within the upland transition area surrounding the wetland. Wetland protection requirements are detailed in this objective and in objective 8.4.A.1. of the Coastal Management Element, and are also defined as performance standards in section 4.5. of the Future Land Use Element. All development must be consistent with the wetland protection requirements of the Comprehensive Growth Management Plan and F.A.C. 9J-5.013(3). The requirements include directing inconsistent and/or incompatible future land uses away from wetland areas. Compliance with all wetland protection requirements must be demonstrated prior to the issuance of a development approval or order.

O7 Policy b: Wetlands, general provisions. The following definitions, restrictions, violations, waivers and density transfer provisions shall apply: (CONTINUED)  
 (2) [Negative impacts.] No negative impacts shall be allowed in wetlands, or within the wetland buffer and upland transition area surrounding the wetland.



(3) [Illegal activity; wetland alteration.] Where illegal activities in violation of the Comprehensive Growth Management Plan or the Code of Ordinances of Martin County have altered any wetland area so that all or part of the original area no longer meets the definition of a wetland, or has negatively impacted a wetland, restoration shall be required at the site of the alteration. Restoration of buffers, habitat and hydrology of the original wetland area shall be required. The restored wetland shall be protected as a natural wetland.

(4) Identification of wetlands on-site. Martin County shall continue to require that all applications for development approval include an identification of all wetland areas on-site, as defined in this element. This requirement shall be included in the land development regulations to be adopted by July 1, 1990. All preserve areas and buffers designated on site plans shall be maintained free of exotic plants, trash and debris.

(5) Preserve Area Management Plan (PAMP) provisions. Any application for development plan approval must contain a preserve area management plan to protect all wetland areas located on-site and off-site. The PAMP is subject to the review and approval of Martin County Growth Management Department. No development approval will be issued until the PAMP is approved by the Martin County Growth Management Department. The PAMP must contain a statement that indicates that the County has authority to enforce all provisions of the PAMP. In accordance with the PAMP, the wetland areas on-site must be maintained.

(8) Density transfer. All property owners shall have the right to transfer density to the upland area on any site which contains wetlands pursuant to the following stipulations:

O7 Policy d:

Buffer zones and performance criteria for wetlands. The following buffer zone provisions and performance criteria for wetland areas identified in Policies 9.4.A.7.b. and c. must be met. These provisions and criteria shall be incorporated into Martin County's land development regulations by July 1, 1990.

(2) Performance criteria for wetland areas.

(a) The following restrictions shall apply to the direct removal of natural vegetation from the wetlands or the buffer zone surrounding the wetlands:

1) Clearing or direct removal of vegetation shall not occur, except in compliance with a preserve area management plan approved by the Martin County Growth Management Department, or in compliance with those minimal activities permitted for riparian usage (e.g., docks and walkways).

2) All materials that are cleared from the wetland or buffer zone shall be removed from the site and not piled or stored within the wetland or designated upland preserve areas.

(c) Construction within or adjacent to the wetlands and/or wetlands buffer zone.

1) No construction shall be permitted within the wetlands or wetland buffer zones, except to provide access to the site where no reasonable upland access exists. In such circumstances, a plan shall be submitted to the Growth Management Department demonstrating that no reasonable upland access exists, and

specifying the proposed alternative access, and must be approved in writing. Such access must be designed and located in such a manner that the least amount of damage to the wetland and/or wetland buffer zone is assured.

- O7 Policy q: Wetland buffer zones, or any other designated upland preserve area, shall be protected from encroachment due to construction and/or building maintenance activities, as follows:
- (1) New construction proposed to be adjacent to these areas shall be set back a minimum of ten feet (or greater, if warranted by specific site conditions) for primary structures. Minimum preserve area setbacks for accessory structures (pool decks, screen enclosures, driveways, etc.) shall be five feet.

Objective 8. Marine natural systems. These systems serve a multitude of functions, including, but not limited to, wildlife habitat, flood control and erosion control.

- O8 Policy a: Enforce shoreline performance standards in review of estuarine development proposals, including docks (defined as a fixed or floating structure providing access to submerged lands). Martin County shall protect the estuarine shoreline protection zone and the upland transition zones in order to protect the stability of the estuary, enhance water quality and preserve shoreline mangrove communities.
- (1) Shoreline protection zone. The shoreline protection zone shall include all estuarine waters within Martin County, including those lands contiguous to said waters where fringe mangrove communities or wetland vegetation occur, and where estuarine and freshwater wetlands abut the section of the northwest fork of the Loxahatchee River which lies within the jurisdiction of the adopted management plan for the Loxahatchee National Wild and Scenic River.
  - (2) Upland transition zone of the shoreline protection zone. In order to maintain the functional integrity of the estuarine shoreline zone, including the mangrove communities, the interior boundary of the upland transition zone of the shoreline protection zone is established at a line extending 50 feet laterally upland from the mean high water (MHW) and/or 50 feet laterally upland from the landward limit of the shoreline mangroves or other wetland vegetation, whichever is greater. This 50-foot upland area is a sub area of the shoreline protection zone, and is known as the "upland transition zone."
  - (3) Mangroves. The shoreline mangroves shall include communities which contain red (*Rhizophora mangle*) and black (*Avicennia germinans*) mangroves. White (*Laguncularia recemosa*) and buttonwood mangroves may be included in the shoreline protection zone if they are associated with wetland characteristics and integrally tied to the estuarine environmental system.
  - (4) Performance standards.
  - (d) Shoreline uses. No structure, other than docks and bridges in public rights-of-way (waterward of the mangrove line) and elevated walkways, limited to those necessary for the use and enjoyment of the shoreline property owner, and County approved

public utilities, shall be permitted within the shoreline protection zone.

(f) Filling in transition zone. By July 1, 1990, the Land Development Code shall specify procedures under which fill may be allowed in the upland transition zone of the shoreline protection zone. Where filling or other alterations is allowed under the Land Development Regulations, or in compliance with a preserve area management plan approved by Martin County Growth Management Department, standards shall assure:

- 1) No wetlands are filled;
- 2) There is no adverse impact to the estuary, mangrove and/or other wetland communities;
- 3) Preservation and/or revegetation of native indigenous vegetation is maximized; and
- 4) Fill is the minimum necessary to assure that the owner is not denied reasonable use of his property

(g) Where the 50-foot upland transition zone is infested with exotic vegetation, or where fill is permitted as allowed above, a management plan shall be required and implemented to provide stable slopes and to revegetate with and maintain appropriate native vegetation.

O8 Policy b: Location of construction activity near estuarine systems and appropriate vegetation and landscaping requirements. No new construction shall be permitted to threaten the stability of the estuary system. The County shall coordinate with the [sic] all Federal, State and regional agencies in managing development and conservation decisions in a way which protects the values and functions of wetlands, spoil islands and submerged lands. The circumstances under which shoreline protection measures shall be permitted shall be established by the County Engineer and the Director of the Growth Management Department, and approved by the Board of County Commissioners. Any criteria and standards must incorporate the following:  
 (1) Shoreline stabilization shall be accomplished by the establishment of appropriate native wetland and/or transitional upland vegetation.

O8 Policy i: Mangrove protection. The County shall continue to actively enforce existing regulations to protect mangroves. Any modification to existing regulations must effectively address minimum criteria, standards and any adverse environmental impacts.

**Drainage and Natural Groundwater Aquifer Recharge Element**

Objective 3. The County will maintain and improve existing drainage facilities that are located within the urban service district, have capacity deficiencies and a history of flood complaints, while using generally accepted design criteria for current and future projects. The design criteria shall assure that those projects provide for their outfall needs without creating future deficits.

O3 Policy c: Based on improved drainage and floodplain data, the County shall formulate and adopt a County-wide master drainage

ordinance which emphasizes cost-effective and environmentally sensitive solutions in 1993. The drainage ordinance shall be revised, as appropriate, based upon the analysis and recommendations of the master plan.

- O3 Policy f: Martin County will prioritize the need for drainage improvement projects using the following types of criteria:
- (1) Level of flood damage in terms of property losses.
  - (2) Location in the urban service district.
  - (3) Public ownership of the facility.
  - (4) Frequency of flooding.
  - (5) Total area involved in flooding.
  - (6) Duration of flooding based on past storm events.
  - (7) Causes of flooding.
  - (8) Impediment to public transportation.
  - (9) Environmental impact.
  - (10) Cost of corrective measures.
  - (11) Evaluation of costs and benefits.
  - (12) Needs of maintenance vs. new construction.
  - (13) Impact on upstream and downstream areas.

Objective 4. Maintain desirable surface water levels, discharge rates and discharge volumes to reduce adverse environmental impacts, while providing for adequate levels of flood protection.

Objective 5. Reduce adverse environmental impacts of over drainage and restore presently impacted areas.

- O5 Policy a: In 1992, Martin County shall adopt a wetlands protection ordinance that requires that upland buffers be maintained around protected wetlands.

Objective 7. To ensure that surface and groundwater resources occurring in or affecting more than one governmental jurisdiction are effectively managed to preserve, protect and enhance those resources through continued active County coordination with adjacent governments and appropriate agencies.

- O7 Policy d: Martin County shall coordinate and cooperate with the South Florida Water Management District, Soil Conservation Service and other relevant agencies in developing an upgraded information program for assessing flood damage prevention issues.

- O7 Policy i: The County shall promote awareness of floodplain characteristics and drainage problems, identification of needed structural improvements, application of improved structural and nonstructural techniques and practices of water resource management, and appropriate intergovernmental coordination

**Capital Improvements Element**

Objective 6. The County shall protect the coastline and avoid loss of life and property in coastal areas by minimizing land development and public facilities in coastal high hazard areas.

O6 Policy a:                   The County shall not construct, finance, acquire, accept contributions of, repair or replace any public facilities in coastal high hazard areas, except public facilities expressly permitted in the Coastal Management Element of this Comprehensive Growth Management Plan.