

Lake County's Comprehensive Plan EAR – Conservation Element

Introduction

The Conservation Element provides the framework for the monitoring, management and wise use of the County's natural resources.

Chapter 163, Florida Statutes, and Chapter 9J-5, Florida Administrative Code, provides the requirements and general framework for the Lake County Comprehensive Plan. Section 9J-5.013 specifies the identification and analysis for that information included in the Conservation Element of the Comprehensive Plan. The Conservation Element addresses the natural resources of Lake County by category groups: air quality, surface water quality, groundwater resources, soil and mineral resources, natural communities and wildlife, and land management. Also incorporated in the Conservation Element are issues relative to public utilities and intergovernmental coordination. The original plan documented the conditions of these resources as in the following narrative.

I. Conditions at Time of Adoption (1991)

Baseline Data

This narrative information was taken from data relative to the conditions of the Conservation Element at the time of the Lake County Comprehensive Plan adoption (1991). The baseline information compiled within the Lake County Data Inventory and Analysis compared to current information will enable the County to ascertain any changes to the natural resources and associated environment. The comparison of these changes will allow for a coherent evaluation of element objectives thereby enabling a revision process as a precursor to updating the County Comprehensive Plan.

Air Quality

Lake County's air quality was considered "good" at the time of Element adoption, however, it was recognized that future air quality had the potential of becoming adversely impacted due to additional growth and development within Lake County. Although the potential impact to the air quality of Lake County was noted, there were no plans on behalf of the County or the State to implement any type of ambient air monitoring program for Lake County.

Surface Water

Lake County had an extensive amount of surface water consisting of lakes, streams, springs, rivers, sinks, herbaceous and forested wetlands. It was identified that many of the County's wetlands and water bodies had been adversely impacted by ditching, filling, dysfunctional septic tank systems, urban stormwater run-off, wastewater discharges, non-point source discharge of pollutants and agriculture related impacts such as run-off, irrigation, rim-ditching, filling, clear cutting of wetland forests, and muck farming. The loss of flood water storage, habitat value and wetland function, and water quality were all considered important issues to be addressed via policy implementation. A "no net loss" of wetlands policy was to be implemented by inclusion into the County's Wetland Ordinance. Also discussed was a plan for baseline studies to begin for the County's surface water bodies and drainage basins. Two areas within the County had been afforded special resource protection by State legislation: the Green Swamp, a designated Area of Critical State Concern, and the Wekiva River basin. The Lake County Comprehensive Plan provided for special performance measures to be placed on development within these geographical areas. One purpose of these performance measures was to protect and preserve surface water resources.

Lake County contained three river basins; the St. Johns, the Kissimmee and the Withlacoochee. The St. Johns basin included the Oklawaha and the Palatlahaha Chain of Lakes and drained 82 percent of the County.

Within the extent of these basins, located in Lake County, there were surface water bodies exhibiting some of the best and some of the worst water quality in the state. Most of the good quality water bodies were: associated with the Ocala National Forest;

were found in the Palatlakaha Chain of Lakes; or existed as isolated land-locked lakes. Most of the poor water quality water bodies were associated with the Oklawaha Chain of Lakes beginning with Lake Apopka.

Table 7-1 lists every reach monitored within Lake County, identifies its Water Quality Index (WQI) and WQI rank. The table also shows whether or not the water body met its intended use as a Class III or IV water body and the WQI trend based on data from the Environmental Protection Agency (EPA) STORET database. (For Table 7-1, the Oklawaha is treated as a separate basin and includes the Palatlakaha Chain of Lakes.)

Floodplains

Flooding occurred in areas of Lake County during periods of heavy rainfall, usually June through October. The potential for severe flooding was expected to occur during periods of extraordinary rainfall such as a hurricane. Lake County had a floodplain ordinance which required development within the 100 year flood plain to adhere to specific construction standards. The filling in of floodplains, urban development and other drainage alterations had tended to decrease the flood storage capacity within areas of Lake County. Since 1860, there had been a number of flood control structures constructed in the County. The impacts to flood control and stream flow were monitored by State and Federal agencies. The Burrell Dam, located on Haines Creek, was analyzed as required by the National Dam Safety Act. The result of this analysis predicted the dam to fail as it did not meet the design guidelines considered adequate. A flood emergency management plan was to be pursued by the County in cooperation with the State and the Oklawaha Basin Recreation and Water Conservation Control Authority (Lake County Water Authority).

Minerals

There were three commercially valuable minerals mined in Lake County: sand, clay and peat. A large amount of "dirt" for fill was also excavated. There were two limestone deposits along the western boundary and a phosphate deposit in the northeast region of the County. Neither limestone nor phosphates were mined at the time of adoption. Impacts of mining included soil erosion, loss of wetland and upland habitat and disruption of drainage patterns as well as impacts to groundwater quality and recharge capability.

Soil Properties & Associations

The main purpose of this section was to address soil erosion problems and describe soil limitations on development. Of the soils in Lake County, 43% of all soils outside the Ocala National Forest were considered hydric or unsuitable for development. The Lake County office of the Soil & Conservation Service did not consider soil erosion a significant issue in Lake County.

Table 7-1
Water Quality Indices of Water Bodies Monitored in Lake County

Basin Name	Basin Reach	Reach Name	WQI	WQI Rank	Meets Use	WQI Trend
Oklawaha River	16.00	Oklawaha River	53	Fair	Partial	Improving
	19.00	Lake Griffin	75	Poor	No	Degrading
	20.00	Lake Griffin	72	Poor	No	No Data
	21.00	Lake Griffin	68	Fair	No	No Data
	23.00	Yale-Griffin Canal	35	Good	Yes	No Data
	24.00	Lake Yale Canal	46	Good	Yes	No Trend
	26.00	Haines Creek	52	Fair	Partial	No Trend
	28.00	Lake Eustis		Unknown	No	No Trend
	29.00	Lake Eustis	66	Fair	No	No Trend
	30.00	Dead River	43	Good	Yes	No Data
	31.00	Lake Harris	56	Fair	Partial	Degrading
	31.20	Helena Run	28	Good	Yes	No Data
	32.00	Dora Canal	25	Good	Yes	No Trend
	33.00	Lake Dora	76	Poor	No	No Trend
	34.00	Apopka Canal	60	Poor	No	Degrading
	35.00	Lake Apopka	78	Poor	No	Improving
	36.00	Johns Lake	49	Good	Yes	No Data
	36.00	Lake Louisa	49	Good	Yes	No Trend
	36.10	Big Creek	38	Good	Yes	No Trend
	36.20	Lake Minnehaha	45	Fair	Yes	No Data
	37.00	Lake Minnehaha	43	Good	Yes	No Trend
	37.10	Palatlakaha River	29	Good	Yes	No Data
	38.00	Lake Minneola	37	Good	Yes	Degrading
38.10	Palatlakaha River	22	Good	Yes	No Trend	
Upper St. Johns River	3.00	Lake George	69	Fair	Partial	No Trend
	7.00	St. Johns River	45	Fair	Yes	No Trend
	9.00	Lake Woodruff	60	Fair	Partial	No Data
	10.00	Lake Woodruff	66	Fair	Partial	Degrading
	11.00	St. Johns River	49	Fair	Yes	No Trend
	12.00	Wekiva River	30	Good	Yes	No Data
	13.00	Blackwater Creek	36	Good	Yes	No Trend
	13.10	Seminole Creek	60	Poor	Unknown	No Data
	15.00	Lake Norris		Unknown	Yes	No Data
	16.00	Lake Norris		Unknown	Yes	No Data
	17.00	Alexander Springs	43	Good	Yes	No Trend
	18.00	Sellars Lake	21	Good	Yes	No Trend
	19.00	Wekiva River	25	Good	Yes	No Trend
	19.01	Little Wekiva River	53	Fair	No	No Data
	19.10	Wekiva River	43	Good	Yes	No Data
19.11	Rock Springs Run		Unknown	Yes	No Data	
20.00	St. Johns River	56	Fair	Yes	No Data	
Withlacoochee River	12.10	Jumper Creek	8	Good	Yes	No Trend
	13.00	Withlacoochee River	39	Good	Yes	No Trend
	14.00	Mattress Canal		Fair	Unknown	No Data
	15.00	Withlacoochee River	55	Fair	Yes	No Trend
	16.00	Little Withlacoochee R.	28	Good	Yes	Improving
	16.10	Big Gant Canal	50	Fair	Yes	No Trend
	16.50	Little Withlacoochee R.		Unknown	Yes	No Data
Kissimmee River	36.10	Davenport Creek	40	Good	Yes	No Trend
	36.20	Reedy Creek	45	Fair	Partial	No Data

Source: FDER 305(b) Report

Forests and Vegetation

The historical growth of Lake County was closely related to the production of wood products (silviculture), and agriculture (predominately citrus). Over one hundred thousand acres of forested uplands and wetlands were cleared for agriculture and urban development. The remaining forests were located in the Ocala National Forest, the Blackwater Creek Basin and the Green Swamp Area of Critical State Concern. These forests still supported timber harvesting as a commercial industry. The U.S. Forest Service indicated that during the period between 1982 and 1988, 89% of commercial forest lands in Lake County were removed from production, primarily, for residential development.

Major vegetative communities typical of central Florida were identified in the original plan as were areas designated managed or regulated by local, state or federal agencies for recreation and conservation purposes. Vegetative communities identified as being imperiled due to their rarity were described but not mapped. Loss of critical habitat was supposed to be addressed in the development regulations or through mitigation programs.

Wildlife

Animal species which were identified as endangered, threatened or of special concern were listed. The plan recognized that the best way to insure a continued richness of species diversity was to preserve natural habitat in the face of increasing development pressures. Preservation was to be accomplished by regulating development activities in uplands and wetlands through regulations requiring open space, management plans for listed species and preservation of habitat. The plan also recognized that the County should continue to cooperate with state and federal agencies to ensure the continued existence of these species and their critical habitat within the County.

Fifty-eight percent of fish species listed by the State of Florida were found in Lake County. Specific mention was made regarding developing protection guidelines for water dependent animals such as fishes, amphibians and invertebrates. However, no mention was made regarding the manatee, a federally listed water dependent mammal which inhabits the St. Johns River along the Lake - Volusia County border.

Groundwater Resources

The hydrogeological setting of Lake County was characterized by low to moderate relief with Karst topography and numerous sinkholes, lakes and swampy areas. Groundwater resources were derived from either the near-surface sand (surficial) aquifer or an underlying carbonate rock (Floridan) aquifer, which was in hydraulic connection with the overlying sand deposits. The aquifers were separated by a confining layer comprised of an interbedded mix of clayey sand and clay. This confining layer was extensive throughout the County although it varied in thickness and was discontinuous in sections. The highly permeable overlying soils and shallow water table made the surficial aquifer vulnerable to pollution from the surface. The susceptibility of the Floridan aquifer to

pollution from the surface depended on the degree of confinement of the limestone aquifer and the amount of recharge received from the more vulnerable surficial sand aquifer. Areas with the greatest potential for contamination included most of the Green Swamp, the marsh lands south of Okahumpka, a large portion of the Central Valley and the majority of the Wekiva River Protection Area.

Groundwater from the Floridan Aquifer was the primary source for potable, agricultural and industrial water use in Lake County and much of the rest of the state.

II. Current Conditions at Time of EAR Submittal (1997)

The Conservation Element addresses the natural resources of Lake County by category groups: air quality, surface water quality, groundwater resources, soil and mineral resources, natural communities and wildlife, and land management. Also incorporated in the Conservation Element are issues related to public utilities and intergovernmental coordination. The current status of these groups are as follows:

Baseline Data Update

The baseline information compiled within the Lake County Data Inventory and Analysis compared to current information will enable the County to view changes to the natural resources and associated environment of the County. The comparison of these changes allows for an educated evaluation of element objectives thereby enabling a revision process as a precursor to updating the Comprehensive Plan.

Air Quality

There is currently not a Lake County air quality monitoring program. Such a program would require additional staff and equipment and is not planned. Ambient air quality standards, the legal limits of pollutant concentration levels, have been established by the EPA and the Florida Department of Environmental Protection for the following six pollutants: carbon monoxide, lead, nitrogen dioxide, ozone, sulfur dioxide, and particulate matter.

All facilities that produce potential air polluting emissions are monitored pursuant to their permitting criteria by the state. Facilities are required to adhere to "best available control technologies" to minimize pollution. New facilities would undoubtedly be subjected to close examination and review regarding their location and potential threats to air quality.

The federal and state governments (represented by the United States Environmental Protection Agency (EPA) and the Florida Department of Environmental Protection (FDEP)) are charged with the responsibility of ambient air quality monitoring state wide. There are currently no ambient air quality monitoring devices in Lake County. Discussion with FDEP staff indicates that Lake County is not considered problematic regarding ambient air quality due to the lack of heavy industry and the percentage of rural vs. urban developed areas. Lake County has not implemented an independent monitoring program as suggested in the Conservation Element.

The FDEP determines placement of ambient air quality monitoring equipment based on several criteria. Two of these criteria are high population density and areas with potential to generate air born pollutants (heavy industry, major traffic flow, coal fired power generation, etc.). Developed Lake County is not typical of areas experiencing air pollution and does not yet "rate" any type of permanent ambient monitoring but must rely on being "averaged in" with the surrounding regions that are being monitored.

Lake County is experiencing growth, especially in the residential housing market. Commensurate with this growth is the need for services provided by markets, schools, employment centers, etc. Construction activities such as land clearing, excavation, grading, dredging & filling, etc., can release airborne pollutants including dust, dirt and windblown debris. In 1981 the EPA and the FDEP established 10 micrometers or less in size as the class of suspended particulate matter for which to monitor. This size was chosen because it was determined that particles 10 micrometers or less in size can penetrate the human body's natural defenses and enter the lungs. The FDEP identifies that as much as 40% to 60% of suspended particulate matter falls within this size class.

Wetlands and Surface Waters

A generalized map of the wetlands in Lake County has been completed. The map separates the wetlands into six types of forested wetlands, three types of shrub wetlands and five types of herbaceous wetlands. The map delineates the wetlands as well as available technology allows. Periodic updates of information and technology are utilized to keep the map current.

Lake County does not have a Wetlands Protection Ordinance, however, there are wetland protection standards required for all development as provided for in the Land Development Regulations. These standards for wetland impacts, permitting and mitigation are those found within the Florida Administrative Code and are implemented in Lake County via the State of Florida Environmental Resource Permit (ERP) by the FDEP, Southwest Florida and St. Johns River Water Management Districts permitting programs. Lake County has no say in the types of conditions placed on the ERPs issued within the County. Wetland impacts are reviewed and permitted at a mitigation ratio or compensation standard as identified and approved by the agency issuing the ERP.

Mitigation may be accomplished by several methodologies including wetland creation, enhancement of degraded wetlands, purchase of additional suitable wetland property for preservation or a combination of these methodologies. Mitigation ratios are dependent on the degree/extent of the impacts expected and the type of mitigation proposed.

To protect the quality and quantity of surface waters and provide habitat for semi-aquatic and water-dependent species of wildlife, the County has adopted Land Development Regulations that require all developments to provide natural buffers adjacent to all wetlands. Uses allowed in buffers are limited to fishing piers, docks, walkways, passive recreation activities, and limited stormwater facilities. The minimum standards and more stringent provisions for variable buffers are as follows:

Standard Application	
<u>Wetland System</u>	<u>Minimum</u>
isolated	15 feet
non-isolated	25 feet
rivers and streams	50 feet

Variable Buffer Application

<u>Wetland System</u>	<u>Minimum Buffer</u>	<u>Average</u>
isolated	10 feet	25 feet
non-isolated	15 feet	50 feet
rivers and streams	35 feet	100 feet

Removal of aquatic vegetation requires a permit from the Bureau of Aquatic Plant Management (FDEP). Dredge and fill activities in Lake County are covered under the Environmental Resource Permits issued by the FDEP, SJRWMD and SWFWMD.

Overall surface water quality trends remain much the same as they did at adoption. Some of both the best and the worst water quality water bodies are contained within the river basins that exist within the County. Poorer water quality is generally associated with the Oklawaha Chain of lakes contained within the St Johns River basin. Also within the St Johns River basin is the Palatlakaha Chain of Lakes which includes several Outstanding Florida Waters in recognition of and for the protection of good water quality. Water quality in land-locked lakes and water bodies associated with the Ocala National Forest has tended to remain good.

On a smaller scale, some systems have shown improvement while others, unfortunately, have shown degrading water quality. Table 7-2 shows relatively current (1996) trends in water quality for some of the sampled water bodies in the basins located within Lake County. Water quality is showing improvement in two reaches of the St Johns River associated with the County (Table 7-2) and in Lake Beauclair (not shown) which is directly downstream from Lake Apopka. Water quality appears to be degrading in systems such as Johns Lake and the Palatlakaha River and continues to degrade in Lake Harris. Somewhat alarmingly, the water quality in the reach of the Wekiva River associated with the County is showing signs of degradation. This degradation is attributed to increased levels of coliform bacteria.

Floodplains

Approximately two thirds of all floodplains occur in conjunction wetlands and surface waters, leaving one third to be made up of low rural land areas vulnerable to development. Lake County continues to allow development in the 100 year floodplain with some limiting restrictions and building requirements. The County Land Development Regulations allow 5000 sq. ft of fill for single family residential construction without requiring compensating storage.

Table 7-2
Summary of Overall Use Support, Water Quality Index Support and Water Chemistry Trends.

Basin Name	Watershed ID	Watershed Name	Overall Use Support	Water Quality Index Support	Water Chemistry Trend
Oklawaha River	2	Big Creek Reach	Fully	Fully	Stable
	7	Palatlakaha Lake	Fully	Fully	No Data
	8	Lake Minnehaha	Fully	Fully	Stable
	9	Johns Lake Outlet	Fully	Fully	Degrading
	13	Lake Minneola	Fully	Fully	Stable
	19	Lake Apopka	Does Not	Does Not	Stable
	29	Lake Harris	Partial	Partial	Degrading
	34	Lake Dora	Partial	Does Not	Stable
	38	Lake Griffin	Partial	Does Not	Stable
	40	Lake Eustis	Partial	Does Not	Stable
	48	Lake Yale Canal	Partial	Fully	Degrading
	12	Palatlakaha River	Partial	Fully	Degrading
	25	Lake Apopka Outlet	Does Not	Does Not	Stable
	33	Helena Run	Partial	Partial	No Data
	36	Dead River	Partial	Partial	No Data
	43	Haines Creek	Does Not	Does Not	Stable
Upper St. Johns River	133	Sellars Lake	Fully	Fully	Stable
	135	Lake George	Fully	Partial	Stable
	101	Rock Springs Run	Does Not	Does Not	Stable
	128	Alexander Springs	Fully	Fully	No Data
	91	Little Wekiva River	Partial	Partial	Stable
	98	Wekiva River	Fully	Partial	Degrading
	106	Wekiva River	Fully	Fully	Stable
	112	Blackwater Creek	Partial	Partial	Stable
	121	St Johns River (Above Lk. Woodruff)	Fully	Fully	Improving
	123	St Johns River (Above Lk. George)	Partial	Partial	Improving
Withlacoochee River	38	Withlacoochee River	Fully	Fully	No Data
	6	Withlacoochee River	Fully	Fully	Degrading
	10	Lt. Withlacoochee	Fully	Fully	Stable
	14	Big Gant Canal	Partial	Partial	Stable
	23	Jumper Creek Can.	Fully	Fully	No Data
Kissimmee River	76	Reedy Creek	Fully	Fully	No Data

Source: FDEP 305(b) Report (1996)

While scientific evidence supports the long-term benefits of natural water level fluctuations and occasional drawdowns, there has been some opposition from citizens in Lake County to proposals for these activities. A major issue of contention appears to be the loss of boating access during periods of low lake and canal levels. State agencies, especially the SJRWMD, have been responsible for developing the plans for restoration of natural fluctuations. The County has neither formally supported nor rejected any proposals.

The Stormwater Division of the County Public Works Department is in the process of revising and updating a Stormwater Master Plan for Lake County.

Minerals

The County Mining Ordinance specifies criteria which must be met and permitted prior to any mining activity. To date, the County has not received any requests for permitting mining of minerals other than sand, clay or peat.

Soil Properties & Associations

The SCS soil survey has been incorporated into the County GIS system. At this point, the GIS system is not readily available to the development plan reviewers for determining site soil limitations. Site soil limitations are usually determined by reviewing the soils map delineations submitted by the applicant. Planned hardware for the GIS system should make it available for routine review.

The County requires Best Management Practices (BMPs), through several policies, for silviculture, agriculture and other activities. However, BMPs seem to address water quality concerns more than soil health. BMPs for agriculture have yet to be developed. The Soil and Water Conservation District prepares or approves a "conservation plan" which outlines a system of management practices for a specific parcel of property to control soil erosion, reduce sediment loss, protect the water quality and manage nutrient use. Silviculture BMPs have been required and enforced as much as is practical. The real problem seems to be determining whether or not BMPs are actually adhered to and what enforcement can be done if they are not.

Forests and Vegetation

In order to protect the function, viability and productivity of wetlands, silvicultural activities within wetlands are required by the County Land Development Regulations to be conducted in such a manner as to prevent violations of state water quality standards and to maintain wetland integrity. Silvicultural activities are not allowed to modify natural hydrology of any undisturbed wetland. In addition, silvicultural activities are required to be undertaken in such a manner as to ensure that sites with wetland hydrologic conditions are not converted to upland conditions through the manipulation of the natural drainage regime. The current Land Development Regulations require silviculture operations to comply with state Best Management Practices.

The County, in cooperation with the Agriculture Extension Office, has established and implemented a Pine Tree Program which provides incentive to establish a silviculture resource on former citrus lands. Forestry continues in the Ocala National Forest with County review and comment of the Forest Management Plan. Timber harvest, as a “bona fide” agricultural activity, is exempt from most environmental regulations within Lake County, however, logging within the Wekiva River Protection Area requires a Harvest and Forest Management Plan approved by the Board of County Commissioners.

Wildlife

Wildlife remains relatively plentiful and diverse in existing natural areas such as surface waters and their perimeters, wetlands, floodplains, and native uplands of Lake County. However, many of these areas are being fragmented by road construction and increased development. The Land Development Regulations require preservation of a percentage of environmentally sensitive habitat as part of the development review process. The Public Works Department represents Lake County on the Governor's Greenways Task Force but to date there are no established corridor preservation overlay districts or ordinances. The Land Development Regulations generally reference state and/or federal agencies to address wildlife issues.

The Green Swamp Area of Critical State Concern and the Wekiva River Protection Area

Zoning in these areas provides for low density rural development while preserving environmentally sensitive areas. The GSACSC has a rural conservation category and a core conservation category. The rural area is limited to 1 dwelling unit per 10 acres, while the core area is limited to 1 dwelling unit per 20 acres. The Wekiva River Protection Area delineates areas as A-1-20 and A-1-40, which restricts development to one dwelling unit per 20 and one unit per 40 acres, respectively. Although building is allowed, impacts to some of the natural resources may be minimized providing for maintenance of native habitat.

Habitat Management for Wildlife Issues

Lake County has continued support and coordination with other agencies having jurisdiction over natural resources in Lake County. These agencies include the Florida Game and Fresh Water Fish Commission (FGFWFC), St. Johns River Water Management District (SJRWMD), Southwest Florida Water Management District (SWFWMD), and the Florida Department of Environmental Protection (FDEP). Lake County's attitude may be considered even more than cooperative, since the County defers to the state agencies for most matters involving designated species, wildlife corridors and wetlands.

Lake County has five (5) Ecosystem Management Areas (EMA) and several; smaller sub-EMAs within it's borders as established and identified by the State of Florida. The concepts behind ecosystem management are to establish a cooperative effort between all agencies and other parties involved within the EMA, and to establish guidelines,

incentives, working plans and management policies to allow for the continuation of anthropogenic influences while assuring the preservation and conservation of the environmental integrity of the EMA. Lake County is involved with these EMA's via meeting attendance by County staff and information gathering and dissemination. To date, there is no incorporation of the EMA's within guiding policy documents for Lake County.

Ecosystem Management Areas

- 1) Oklawaha River
- 2) Waccasassa - Withlacoochee
- 3) Upper St. Johns
- 4) Lake Wales Ridge
- 5) South Florida

The Oklawaha Basin Lakeshore Restoration program involves numerous projects with representatives from interested agencies and organizations. The Oklawaha Chain of Lakes Restoration Committee produced the Interagency Management Plan. Further activity involves proposals to drawdown the lakes and restore the natural lake level fluctuations to enhance aquatic vegetation and fisheries. SJRWMD and FGFWFC are the agencies spearheading these efforts.

Acquisition of lands for the Ocala-Wekiva Connector (now referred to as the Ocala-Wekiva Greenway) is a combined effort through state funding programs including CARL, Save Our Rivers and Preservation 2000. Thousands of acres have been acquired and preserved while the acquisition of thousands more is currently being negotiated. The Lake County Board of County Commissioners has passed resolutions supporting these acquisitions. Acquisition activities continue for the eastern, middle and western connector corridors.

The Wekiva River Working Group includes representatives from a number of agencies as well as businesses and private citizen groups. The group has produced a Wekiva Basin Management Report for the management of the Wekiva River Basin within Lake, Orange and Seminole counties.

The Florida Natural Areas Inventory (FNAI) survey and report for Lake County was completed in March 1995. The report, which lists and ranks areas of habitat and species occurrences (flora and fauna), is consulted during the development review process. The information is available for future land acquisition programs.

While Lake County technically does not contain Bays or Estuarine Marshes, it is important to recognize that pursuant to 9J-5.013(1)(a)(1), Lake County does contain rivers, lakes and wetlands. In addition, estuarine species, including the Florida manatee, use the waters of Lake County. The endangered Florida manatee is an aquatic mammal protected under the Marine Mammal Protection Act of 1912. Lake County is directed in this issue to cooperate with other state and federal agencies in conducting a habitat analysis and development of a management plan for the

continuation of this species. Neighboring Volusia County is developing a manatee protection plan (MPP) for the St. John's River System, which includes waters adjacent to Lake County. A draft of the Volusia Plan has been received and reviewed by County staff but has not been reviewed or accepted by the Board of County Commissioners.

In 1989 the Governor and Cabinet instructed Volusia and twelve other key manatee counties to develop MPPs in cooperation with the Florida Department of Environmental Protection (FDEP). Lake County was not identified as one of these thirteen key counties. The FDEP had, subsequently, recognized that the entire St. Johns River ecosystem was important to MPP development and implementation, not just the Volusia County portion. Consequently, when providing funding to Volusia County, the FDEP directed that MPP recommendations for the entire St. John's River ecosystem, including Lake County, be developed. This is a cooperative effort between the FDEP and Lake, Seminole, Volusia and Putnam counties to provide long range protection of manatees and their habitat. The MPP is required to include habitat analysis, analysis and mapping of boating facilities, boat traffic patterns, public education efforts, land acquisition efforts, water quality, aquatic plant control and other issues.

The FDEP is the final approving authority for MPPs and recognizes the importance of developing MPPs as a cooperative effort with local governments.

Groundwater Resources

Lake County has not adopted any formal regulatory action relative to conservation of groundwater (the County is, however, cooperating with the SJRWMD in developing a formal water use plan through "Water 2020") and the LDRs do not contain many references to water conservation. The County does not have a groundwater monitoring program other than that necessitated by the state permit for the County landfill. The County defers to the Water Management Districts for implementation of protection methods meant to preserve groundwater quality and quantity. The Board of County Commissioners has requested the St. Johns River Water Management District for technical assistance in delineating the "cones of influence" for public potable water wellfields.

The Wekiva River Protection Area allows some incentive for water reuse (via a point system), and native vegetation is encouraged, but water conservation is mostly a voluntary action. Information on xeriscaping is available, however, there are no requirements for xeriscaping within the current landscape ordinance. Except during periods of water shortage, the WMDs depend on voluntary participation to conserve water. The Districts continue with their education efforts to inform the public about the need to conserve water and the various ways to do so.

Chapter 373.175 and 373.246, Florida Statutes, empowers the governing board of the SJRWMD to declare water shortages and issue warnings or emergency orders. Compliance with mandates by the water management district are not based on interlocal agreements with local government, but rather are mandatory over all the district or portions of the district or on one or more users of a water resource.

There are no County requirements to utilize non-potable water to meet non-potable water demands. There is a point system used to determine urban area residential densities that awards 5 points for water reuse for irrigation purposes as compared to 2 points for potable water. There is a similar point system for the Wekiva River Protection Area, where 10 points are awarded for a greywater reuse irrigation supply as compared to 0 points for a potable water system. The state regulations use terms like "promote", "encourage", and "urge" when discussing development of greywater and reuse systems. The SJRWMD encourages a similar order of preference for non-potable water usage. The District does allow the use of surface water for irrigation, but can order that any withdrawals cease if surface water levels fall below a certain level. Surface water irrigation would also be subject to the water caution restrictions. Most reuse programs seem to address the problem of disposing of effluent rather than conservation of potable water, although there can be a direct connection. The application process for a wastewater treatment plant operating permit requires a "reuse feasibility study" for areas identified by the Water Management Districts as 'areas of concern'.

The LDRs have specific conditions that must be followed for the treatment and disposal of wastewater. Water quality reports for the wastewater treatment plants are submitted monthly to the County from certified labs. The plants themselves are inspected on a rotating basis that equates to a 4 to 5 week inspection cycle. The state (FDEP) also has specific criteria for treated effluents and discharges. All wastewater treatment plants in Lake County utilize chlorine as a disinfectant, either liquid, gas or granular.

The majority of effluent is disposed of through perc ponds or spray fields. A single percolation pond is considered to be disposal by the FDEP, whereas a dual perc pond system is considered reuse. Sprayfields involve the reuse of reclaimed water that has received secondary treatment and basic disinfection and is applied to areas with restricted public access. Reclaimed water used for irrigation of areas accessible to the public must be tertiary treated (filtered) and undergo high level disinfection. In addition, monitoring and operating protocols are required along with Class I reliability. The FDEP requires that a treatment facility must have an average daily flow of 100,000 gallons in order to reuse water in areas of public access. Only Mt. Dora and Orange Blossom Gardens use tertiary treated water for irrigation of areas with public access. These areas include golf courses, schools and a cemetery. Spruce Creek, in the Lady Lake area, is currently preparing to go to a public access irrigation system. In order to supply water for residential reuse, a facility is required to have a daily flow of 500,000 gpd.

According to the Data Inventory and Analysis, (July 1991), a 1 mgd WWTP is the minimum size treatment plant necessary to be cost effective in a reuse program. At that time, only 8 percent or 2.99 mgd of the 37.44 mgd of treated Lake County wastewater was being reused. Some recent figures of the available wastewater available are as follows: Leesburg.-2.8 mgd, Eustis.-1.5 mgd, and Mt. Dora.-.700,000 gpd.

Lake County Water Resources Management ensures that County and state standards for effluent water quality are met by monitoring and inspections. Current programs are addressing the issue of wastewater reuse and disposal methods, therefore these programs should continue status quo.

The State Department of Health issues permits for septic tanks and separate greywater tanks and drainfields. Rule 10D-6, F.A.C., lists the estimated sewage flows and required septic tank capacity. The rule estimates that 50 percent of the volume of wastewater is considered to be greywater. Greywater systems must meet specified criteria regarding size and flow. The utilization of a greywater system allows for a reduction in the size of the blackwater system by as much as 25 percent. There are no requirements for a greywater system. Some people have installed them to reduce the volume going into the septic system, particularly from the laundry.

F.A.C. 10D-6 covers the use and requirements of residential greywater systems. The County does not have any specific guidelines for their use. There are not any specific educational materials available at this time, however there may not be a demand for them either. Based on these facts, it appears that the state is adequately covering this policy and further development of a program is not necessary by Lake County.

Hazardous Materials, Industrial Development, Groundwater Protection

Land use policies guide the location of facilities using or generating hazardous materials in order to reduce exposure of groundwater to contaminants. The strict state regulations provide some incentive to businesses to reduce their wastes, recycle hazardous materials within their manufacturing process, and change their production methods to reduce their use of hazardous materials, if possible. Most businesses would probably not use or generate (as byproducts) hazardous materials if there were some alternative. The increased paperwork and costs associated with the state regulations are, sometimes, incentive enough to reduce the use of hazardous materials.

All site plans must be approved by the County via the development review process, which includes representatives from all the departments. A site proposed for industrial development would require the proper zoning, either commercial or industrial. Industrial areas, especially heavy industrial, are located to minimize inconvenience to the general public, and maximize the distance from schools, hospitals and residential areas. Typically, these areas are convenient to major roads to minimize transportation impacts on sensitive areas. Any industrial use which emits smoke, dust, vapors, fumes or odors, or which causes vibration of the ground, burning of waste products (or debris) or causes waste products to be placed upon the ground, is required to conduct such operations a minimum of two hundred (200) feet from the nearest right-of-way line of any public road, County road, state or federal highway, or the adjacent boundary of any property which is owned by others and zoned non-industrial.

New industrial development in the Wekiva River Protection Area is prohibited. Additionally, facilities for the bulk storage, handling or processing of the following substances: agricultural chemicals, pesticides, petroleum products, hazardous or toxic wastes or materials, industrial chemicals, medical or biohazardous wastes, etc., are prohibited within the wellfield protection area of any well in a potable water wellfield. The applicant proposing industrial development would be required to submit whatever documentation necessary to assure County staff that any hazardous materials used or produced would not pose potential threats to the natural resources and the community.

Lake County has an annual contract with FDEP to fund 2 1/2 staff positions within the County for a Storage Tank System Compliance Verification Program. The program requires inspections of non-exempted storage tanks (both above and below ground), to assure that the state regulations are followed. The County oversees tank removal and installation, but does not get directly involved with the cleanup of contamination. County personnel review closure assessment reports and forward them to the FDEP. Enforcement, at the County level, is currently Level II, which allows County personnel to support FDEP in the enforcement process.

Secondary containment of storage tanks and line systems is required for all new installations. Double walled tanks and pipes or an impervious concrete floor and wall that holds 110% of the volume of the largest tank is required.

A hazardous waste generator cannot utilize an on site sewage disposal system (OSSD) to dispose of hazardous wastes. Home occupation conditions specify that no chemicals except those which are normally used for purely domestic, household purposes can be stored and disposed of in an OSSD system. The Lake County office of the Florida Department of Health (DOH) reviews all OSSD permit applications for lands zoned industrial or manufacturing. The DOH periodically reviews and evaluates the continued use of onsite sewage treatment and disposal systems in areas zoned or used for industrial or manufacturing purposes and may require the collection and analysis of samples within and around such systems. The Department will pursue enforcement actions if any toxic or hazardous chemicals are being or have been disposed of in an OSSD system.

The County maintains five oil-recycling locations; Sorrento, Umatilla, Lady Lake, Astatula and Groveland. Each site has a 300 gallon tank for storage of the used oil until it is picked up by a reprocessing company from Astor. In addition to the public sites, several auto parts stores and garages offer recycling at their locations. The Department of Solid Waste Management has brochures that they make available explaining the need to recycle oil. These brochures are based on literature developed for the state and modified for Lake County's use.

Lake County offers the curbside pickup of batteries and there are receptacles in the County buildings that allow drop-off of consumer household batteries. The private sector is also involved in the recycling effort by allowing the County to place receptacles in selected stores, such as hardware stores. The batteries collected at the private locations are picked up by County personnel on a regular schedule.

Marketing of the recycled batteries can be difficult. The different types of batteries (NiCad, alkaline, etc.), are processed differently. Currently, the County has a contract with a broker in Texas who is paid to haul the batteries away. Only car batteries offer a monetary return to the County for recycling.

Lake County is offering it's citizens increasing ways and opportunities to dispose of their used waste oil and other hazardous substances properly. Educational materials

informing the public of the merits of recycling batteries are distributed by the Department of Solid Waste Management along with other educational materials.

Two different state agencies actually control biohazardous wastes. HRS regulates generators of biohazardous waste, while the FDEP regulates transport and disposal of biohazardous waste. All medical facilities are required to separate biohazardous waste products, which may include recyclable items that are recycled, or wastes which are usually incinerated. These wastes are placed in specially marked red biohazardous waste bags and picked up by a permitted transporter. The Lake County waste incinerator does burn biohazardous waste, some of which may be generated outside of the County.

Generators of biohazardous waste are regulated by these two agencies with little involvement with each other or the County. There do not appear to be problems with biohazardous waste in Lake County.

Actual cleanup of hazardous waste sites is not done by Lake County. Once a site is identified, other agencies take control of the cleanup process. For example, the Tower Chemical site was on the EPA list for cleanup. The Agency took over all aspects of the cleanup with virtually no notification to the County. The cleanup methodology consists of continued, periodic sampling until the results indicate that there is no longer any contamination.

The majority of cleanup takes place on locations with leaking petroleum tanks. Again, Lake County does not get directly involved in the site cleanup. The County tanks inspectors monitor the tank removal and ensure that state regulations are followed. Cleanup can involve large sums of money and tremendous liability. Lake County acts as the liaison for the FDEP, but leaves the actual enforcement of the cleanup between the site owner and the Department.

III. Unanticipated and Unforeseen Problems and Opportunities

Problems

Prime Recharge

The Water Management Districts have yet to define and delineate “prime” aquifer recharge areas as required by Florida Statutes. While the statute stipulates no time frame to accomplish these tasks, Lake County and other local governments have specifically referenced “prime” recharge areas in Comprehensive Plans and Land Development Regulations. These references are apparently premature or are in error.

Implications to Lake County and the Lake County Comprehensive Plan are numerous. There are policies in this Conservation Element which reference “prime” recharge and which prohibit the siting of mines and hazardous waste generators within these areas. There is a policy requiring secondary containment for underground storage tanks located in these recharge areas. There are policies related to requirements for siting of development in “prime” recharge areas. Policies in the Comprehensive Plan cannot be supported without the definition and delineation of these areas by the Water Management Districts. It is possible that development and activities are being allowed to occur in areas that someday may be within the bounds of such “prime” recharge areas.

Unanticipated Residential Growth

Since Comprehensive Plan adoption, there has been unprecedented residential growth and development in the south Lake County area generally defined by a corridor along U.S. Hwy. 27. This development is occurring on ridge land that was, until the freezes of the late 1980's, agricultural (primarily citrus) lands. These ridge lands represent some of the greatest aquifer recharge potential in the County as well as vestiges of significant habitat (e.g. sandhill and scrub ecosystems). Even with requirements for open space, habitat preservation, impervious surface ratios, etc., there exists the potential for both recharge and habitat degradation on a scale not previously anticipated.

In order to forestall such degradation, it will, probably, be necessary for the County to identify these areas and incorporate additional performance measures and/or development standards for any development in these areas. These additional measures and standards would be for the purposes of allowing for continued recharge potential and habitat maintenance. Examples of such measures or standards could include decreased densities and impervious surface ratios, increased open space, clustering away from such areas (as with wetlands), etc. Another possibility is for the County to acquire such areas in order to maintain them into perpetuity.

Opportunities

PEAR Project

A 260 acre parcel of land in the west-central portion of the County south of Leesburg has been used for agricultural research (watermelon and grapes, predominately) for a number of years by the University of Florida's Institute of Food and Agricultural Sciences. It has been decided to move the research efforts to a site in the Apopka, Florida area in Orange County.

The parcel is unique in that it's west and north boundaries are formed by over a mile of an unchannelized, relatively pristine, reach of the Palatlahaha River. There is, however, extensive residential development on the river adjacent to this reach.

The parcel and several adjoining parcels became a project dubbed PEAR for Palatlahaha Environmental and Agricultural Reserve. A group was formed comprised of citizens and personnel from a number of agencies to develop and promote the project. The project was (and is) proposed to include nature and multi-user trails, community gardens, multi-use open space, environmental and agricultural education opportunities, canoeing and fishing and "working farm" space to be utilized by groups such as 4-H and Future Farmers of America. The project also proposed to restore impacted wetlands and uplands on the site and preserve the riparian zone associated with the river.

Efforts to have the parcel deeded to the County are on-going. A grant proposal for P2000 funds has been submitted to the Florida Communities Trust for funds to acquire the additional parcels.

It is believed that this project will become a reality in the near future. Not only will this project more than double the existing County recreation acreage, it will provide for the conservation of an undeveloped reach of the Palatlahaha River and allow for a multi-agency restoration effort of historic upland and wetlands.

IV. Impact of Development, Physical Deterioration, and the Location of Land Uses

Residential development is occurring at a rapid pace in several areas of the County. Since plan adoption, the location of most development has occurred on former agricultural lands. Generally, these lands are historic sandhill uplands that were converted to citrus groves, subsequently, destroyed by the freezes of the 1980s. These lands generally comprise some of the areas of greatest aquifer recharge in the County.

Individual-lot residential development is occurring in close proximity to environmentally sensitive lands in the Green Swamp, primarily in subdivisions created prior to plan adoption. A re-examination of plan objectives related to the development and vesting of these lots may be appropriate. The lack of infrastructure dictates that individual potable water wells and septic tanks will continue to be needed in this area recognized as both the potentiometric high for the Floridan aquifer and the source of several major river systems. In addition, socio-economic effects of this cumulative development include difficulty in the cost-effective provision of public services such as school transportation and waste collection due to the general remoteness of the area.

In the Wekiva River Protection Area, the state has made substantial progress in the purchase of lands for wildlife habitat and corridors. However, increased traffic from areas outside the protection area through the Wekiva basin to Seminole and Volusia counties is seen as negatively affecting safe wildlife movement. Bear kills, for example, have increased almost three-fold since 1991. An evaluation of plan objectives and related policies that deal with coordination with the Florida Department of Transportation on wildlife corridors in the protection area should be conducted and incorporated into the analysis that is currently ongoing with the Wekiva River Basin Ecosystem Working Group.

While land use designations such as the Green Swamp and Wekiva River land use categories reflect to a degree environmentally-sensitive areas on the future land use map, an environmentally-sensitive overlay such as the Florida Natural Areas Inventory (FNAI) study needs to be incorporated to address smaller fragments of the landscape that should be considered for enhanced protection and/or acquisition. Sensitive upland areas representing habitat and areas of aquifer recharge exist, for example, on the Lake Wales Ridge that have a rural land use category designation. Since plan adoption, this ridge has experienced more development than anticipated. The incorporation on the future land use map of an overlay such as the FNAI study could enable better protection of these smaller areas.

V. Effect of Statutory, Rule, State Comprehensive Plan and Strategic Regional Policy Plan Changes

Revisions have been made to Rule 9J-5, F.A.C., since Comprehensive Plan adoption. These changes will need to be addressed through revisions to a number of objectives and policies as well as the addition of several new policies.

The following summary of the revisions includes a brief analysis of the changes required to ensure that the Conservation Element is consistent with the revised rule requirements.

Locations of Areas of Recreationally and Commercially Important Fish

Rule 9J-5.013(1)(a)(5) requirements for the data and analysis section of the Conservation Element have been revised to require the identification and analysis of areas of recreationally and commercially important fish or shellfish.

Several fisheries and two fish management areas were identified in the Data Inventory and Analysis (DIA) prepared for the currently adopted Comprehensive Plan. Considering the fact that the County has over 1,000 named water bodies, the number of areas identified was small in relation to the total number that appear to exist (granted, not all water bodies are accessible to the general public). The DIA includes a brief explanation of sampling methods and sampling results, however, it fails to provide an analysis of the results based on accepted scientific standards or criteria.

In order to comply with the rule change, it will be necessary to identify all areas in the County which are locations of recreationally and commercially important fish. In addition, a description of the habitat and population structure of the communities present at each location should be given. Finally, an analysis should be done to determine the biodiversity and viability of each community and to offer suggestions to maintain or improve each of these attributes.

Protection of Natural Groundwater Recharge Areas; Wellhead Protection Areas; Protection of Surface Waters Used as a Source of Public Water Supply.

A revision to Rule 9J-5.013(2)(c)(1) requires that the goals, objectives and policies section of the Comprehensive Plan address protecting the quantity and quality of groundwater sources by restricting land uses and activities which adversely affect natural groundwater recharge areas, wellhead protection areas and surface waters used as public water supply.

Objectives 7-2 and 7-3 of the Conservation Element address protection of the quality and quantity of groundwater and surface water, respectively. There are several policies in support of these objectives which have direct application in meeting the requirements

of the revised Rule. Specifically, these Policies include 7-2.2, 7-2.18, 7-2.19, 7-3.2 and 7-3.12, which reference the Rule, as well as Policy 7-2.9 which does not reference the Rule, but which prohibits land uses and land use practices which pose a threat to groundwater quality and quantity.

Policy 7-2.18 establishes an interim wellfield protection zone and zone of exclusion of 400 feet and 200 feet (radius from the public potable water well), respectively. The wellfield protection zone prohibits certain land uses such as landfills and mines while all development activities are prohibited within the zone of exclusion. However, these zones were “artificially” delineated and meant for interim use only. In order to achieve compliance with the revised Rule 9J-5.013(2)(c)(1), Policy 7-2.18 will need to be amended to establish a time frame for the County, in coordination with the Water Management Districts and municipalities, to establish Designated Municipal Wellhead Protection Areas and establish inter-local agreements for their administration.

Comprehensive Planning for Wetland Conservation and Protection

The addition of Rules 9J-5.013(3)(a) & (b) requires the addition and/or revision of policies in the goals, objectives and policies section of the Conservation Element. Specifically, Rule 9J-5.013(3)(a) requires that wetland protection and conservation be accomplished through a comprehensive planning process which takes into account the types, values, functions, sizes, conditions and locations of wetlands and which is based on supporting data and analysis. Rule 9J-5.013(3)(b) requires that future land uses which are incompatible with wetland conservation and protection will be directed away from the wetlands. Directing incompatible land uses away from wetlands needs to occur in combination with other goals, objectives and policies in the Comprehensive Plan. This Rule also allows for mitigation to be considered as a means to compensate for loss of wetlands functions.

While the Conservation and other elements of the Comprehensive Plan provide the “language” to address protection of wetlands, in actuality, aside from establishing setback and buffer requirements, the County has little control over or say in what ultimately happens to these areas. Since the County currently lacks a wetlands ordinance, jurisdiction over wetlands and water bodies is, generally, the purview of the Water Management Districts, the Florida Department of Environmental Protection and, in some cases, the Army Corps. of Engineers. In order to provide a higher lever of wetland protection, County-adopted wetlands regulations may be appropriate.

In order to comply with the Rule change, the current language stating protection (“no net loss”) of wetlands based on function and extent needs to be expanded to include the criteria of types, conditions and locations. Quantitative methodologies need to be established and/or adopted to develop standards for the function, value and condition criteria. In addition, attention needs to be directed toward maintaining consistency (in the Comprehensive Plan language) with currently accepted terminology and definitions in use by the scientific community. Finally, an additional objective and/or additional policies need(s) to be adopted identifying incompatible future land uses and directing these land uses away from wetlands.

There have been no changes to the state comprehensive plan which affect the Conservation Element. The Conservation Element is in accord with the recently (June 1998) adopted Strategic Regional Policy Plan. Changes to Chapter 163 Part II, Florida Statutes, do not affect the requirements of the County's conservation element.

VI. Objective Reports

Objective	OBJECTIVE 7-1: COMPLETE ENVIRONMENTAL RESOURCE MANAGEMENT PLAN. Lake County Shall Continue to Plan for the Conservation, Protection, Restoration and Appropriate Management of its Natural Resources and Environmental Amenities.
Conditions At Adoption	The "Lake County Natural Resources Advisory Committee" (NRAC) was formed by resolution (#1991-23) in 1991. The purpose of the NRAC was to "advise and assist the County with activities involved in developing and implementing the County Environmental Resources Management Plan and Program," as well as, the Policies contained in the Conservation Element.
Current Conditions	The NRAC has completed analysis of objectives, policies and programs related to development of the Environmental Resources Management Plan. County staff is in process of writing the Plan.
Objective Measure	Completion and phased implementation of the Environmental Resource Management Plan.
Objective Achieved?	Objective 7-1 has been partially achieved. The County was required to complete an analysis of all programs and costs necessary to develop, administer and implement the County Environmental Resource Management Plan (ERMP). The analysis was also to be conducted to determine if there was any duplication between County-sponsored programs and other agencies on the local, regional, state or federal levels. The analysis was to be a cooperative effort between local agencies with assistance provided by a citizen advisory group; the Natural Resource Advisory Committee (NRAC). Implementation of the Plan was to be in phases with program implementation to occur prior to the submittal date for the Evaluation and Appraisal Report. The Natural Resource Advisory Committee and staff from the County's Department of Growth Management have completed the analysis of objectives, policies and programs related to the development of the Environmental Resource Management Plan. A draft outline for the Plan has been completed, however, program implementation has, generally, not occurred. It has been proposed, given the time frame available for EAR submittal, that the final ERMP work-

product will be used within the EAR process to recommend policy amendments.

Objective

OBJECTIVE 7-2: PROTECT AND CONSERVE GROUNDWATER QUANTITY AND QUALITY . In Coordination with Federal, State, Regional and Local Governments, Conserve, Protect and Restore the County's Groundwaters by Significantly Reducing the Levels of Pollutant Intrusion, Restoring Damaged Natural Functions, and Avoiding Excessive Drawdowns of Groundwater Levels through Wise Use of this Resource throughout the Five Year and Fifteen Year Planning Time Frames.

Conditions At Adoption

High recharge areas of the County were not protected by specific land development regulations outside of stormwater management guidelines. Septic tanks had been allowed to proliferate without adequate means of monitoring them for proper functioning. Solid wastes had been disposed of improperly in landfills resulting in the potential for groundwater contamination via leachate. Salt water intrusion in the eastern portion of the County may have been exacerbated by groundwater withdrawals in the Wekiva/St. Johns River basin. A variety of localized groundwater contamination problems involving EDBs, nitrates and volatile organic compounds (VOCs) had occurred. Approximately one-half of all private WWTPs were frequently non-compliant. It was determined that the County was vulnerable to experiencing a drawdown of its groundwater because of increased water demands from adjacent counties.

Current Conditions

Recharge areas have been identified and mapped by SJRWMD. Although the term "Prime Recharge" has not and is not scheduled to be defined. The SJRWMD recharge map is used in all development applications going through the permit review process. EDB contamination has been addressed and is monitored by FDEP and the Water Management District. EDB delineated areas have been defined, mapped and are updated by the District and special well construction methods have been instituted for those delineated areas. All utilities in the unincorporated areas are still under State and Federal regulation. Currently the County has no control over utilities. The Environmental Health Department in conjunction with the County has instituted a well permitting program covering all wells not permitted by SJRWMD, (i.e. less than 6"). The County has submitted all public supply wells with a capacity greater than 100,000 gal/day to the SJRWMD for hydrogeologic modeling to determine cones of influence. A wellhead protection is in

place and enforced through the LDR's. This will be revised upon completion of District modeling program.

Objective Measure

The County is working closely with the District through the Water Supply Program (2020) to maintain ground water sources in both quantity and quality.

Objective Achieved?

The Water 2020 supply plan has been approved and is included in the District wide Water Management Plan and will dictate how future water supplies are managed. The majority of the County has been designated by the District as a water resource caution area. All permits are given closer review to determine any possible impacts.

Objective

OBJECTIVE 7-3: PROTECT AND CONSERVE SURFACE WATER QUALITY AND SURFACE WATER QUANTITY. In Cooperation with Federal, State, Regional and Local Governments Conserve, Protect and Restore the County's Surface Waters by Significantly Reducing the Levels of Pollutant Intrusion, Restoring Damaged Hydrological Processes to Their Natural Functioning, and Avoiding Excessive Drawdowns of Groundwater Levels through Wise Use of this Resource Throughout the Five Year and Fifteen Year Planning Time Frames.

Conditions At Adoption

History of water quality problems attributable to past wastewater and stormwater management practices. Nutrient loading from muck farms, controlled lake levels and improper stormwater management were problems especially on Oklawaha Chain of lakes. Muck farms and dairy farms were main non-urban sources of non-point source discharges into surface waters. Increased nutrient loading led to accelerated eutrophication marked by decreases in overall water quality and fishery biodiversity. Lake Apopka S.W.I.M plan (marsh flow-way) had begun which, along with on-going rough fish harvesting project, was meant to improve water quality through nutrient removal. Water quantity issues were purview of Water Management Districts through Consumptive Use Permits. Unfortunately, the WMDs jurisdiction did not extend to wells six inches or less in diameter precluding regulation over most permitted domestic wells. Use of septic tanks proliferated without sufficient monitoring network in place save for the GSACSC.

Current Conditions

Water quality continues to be poor in the Oklawaha chain of lakes, however, some improvement has become apparent in Lake Beauclair. SWIM projects continue for the Lake Apopka Marsh flow way and Upper Oklawaha River Basin restoration. Water quality is degrading in the Wekiva River due to increased levels of total coliform. Much of the County declared "water resource caution area" by the SJRWMD. The District is continuing work on establishing "Minimum Flows and Levels" in an attempt to safeguard against over withdrawal of groundwater. At present, Lake County does not have a wetlands ordinance. The County defers to the appropriate state (FDEP, WMDs) and/or federal (ACOE) agencies on most issues related to surface water and wetlands. The County Land Development Regulations stipulate stormwater performance, design and maintenance standards meant to protect the quality of surface and ground

waters. The LDRs also require and specify setbacks and buffers meant to protect wetlands and surface water bodies from development encroachment. Lake Apopka marsh flow-way project utilizing 1800 acres of marshes (preparatory to 5000 total acres, when completed) to filter nutrients, etc. from water column. Marsh flow-way and muck farm purchases meant to restore hydrological functions and reduce nutrient loading to Lake Apopka in an attempt to improve water quality in Lake Apopka and downstream Oklawaha chain of lakes. The County contributed \$750,000 towards this effort. Septic tank use increasing commensurate with residential development.

Objective Measure

The Number of surface water bodies in the County that meet full support of use classification under FDEP 305B Assessment Report (water quality for the State of Florida).

Objective Achieved?

No. Water quality degradation in several systems is allowing for no or partial support of the use classification (see Table 7-2). However, pollutant intrusion from two non-point sources, agriculture and stormwater, is generally on the wane due to purchases of muck farms and improved standards, respectively. Unfortunately, stormwater will continue to be an issue as many older facilities are inadequate. The continued proliferation of septic tanks is bound to increase the risk of contamination of water bodies associated with them. The success of the two SWIM projects and other restoration efforts will not be apparent for some time. Groundwater levels are relatively stable with current levels of withdrawal, however, much of the County has been declared a Water Resource Caution Area by the St Johns River Water Management District.

Objective

OBJECTIVE 7-4: PROTECT FLOODPLAINS AND FLOODWAYS. Lake County Shall Protect the 100 Year Floodplain So That its Natural Functions are Protected and Maintained.

Conditions At Adoption

County floodplain ordinance required strict construction standards and site plan guidelines for development within 100 year floodplain. This same ordinance did not, however, provide for protection of vegetation within the floodplain or require compensating storage of displaced flood waters. Land alteration was allowed to occur within the floodplain without the need for compensating storage. The Burrell dam (on Haines Creek between Lakes Griffin and Eustis) was considered unsafe. Land uses in floodplains as follows:

Land Use	Acreage	Percent
Residential	11,330.6	2.95
All Other Urban	2,212.0	0.58
Recreation	1,044.7	0.27
Agriculture	56,309.6	14.67
Rangelands	23,484.7	6.12
Forested Uplands	36,451.5	9.50
Surface Water	110,507.5	28.80
Wetlands	141,728.4	36.93
Extractive	1,210.7	0.32
Vacant-Barren or Altered	1,461.0	0.38
All Floodplain Lands	383,753.2	100.00

Source: ECFRPC Special Floodplain Study for Lake County, 1990

Current Conditions

County Land Development Regulations require strict construction standards and site plan guidelines for development within the 100 year floodplain. House pads are required to be at least 18" above flood elevation and compensating storage must be provided if filled areas exceed 5000 square feet in area. Policy 7-4.4, under this Objective, requires buffer zones to protect floodplain vegetation in riverine systems. One hundred year floodplains have been mapped within the County's GIS system. A siren has been installed at the Burrell lock and dam to alert those downstream of a dam breach.

Objective Measure

Acreage of floodplains and floodways that have been protected through development review process.

Objective Achieved?

Unknown as this acreage is not accurately tracked. There exists an apparent discrepancy between this Comprehensive Plan and the LDRs. The LDRs allow for fill of up to 5000 sq. ft. in areal extent within the floodplain, for single family home construction, without supplying compensating storage. This regulation appears to be allowing for floodplain loss in both areal extent and function and should be amended consistent with this objective.

Objective OBJECTIVE 7-5: PROTECT AND PRESERVE WETLAND VALUES AND FUNCTIONS. There Shall Be No Net Loss of Wetlands Whether By Functional Value or Extent Within Lake County. The Wetlands of Lake County Shall be Conserved and Protected to Ensure That the Natural Structure and Functional Values are Maintained.

Conditions At Adoption Approximately 22% of total surface acreage in the County was wetland of one type or another. Wetlands had been substantially altered or destroyed (primarily by dewatering for agricultural operations) in such areas as the Little Everglades, Emeraldal Marsh and Lake Apopka. Excavation activities had resulted in altered biological functions of wetlands (peat mining) or in creation of, essentially, non-functioning man-made lakes (sand and clay mining). Wetland ordinance in effect allowed for destruction of up to 10% of wetlands by each property owner.

Current Conditions Regulations regarding wetlands are very stringent. These regulations are, primarily, made and enforced at the state level as the County no longer has a wetlands ordinance and defers jurisdiction to the state and federal governments. County Land Development Regulations (LDRs) stipulate setbacks and buffers to protect wetlands from development. LDRs also list reclamation standards for mining operations which create or alter wetlands in an attempt to ensure that functioning wetlands are the result. Historic wetlands being restored as part of Lake Apopka SWIM project, Emeraldal Marsh restoration project and others.

Objective Measure Actual acreage and/or functional value equivalent of acreage of wetlands protected through development review and agency permitting/mitigation criteria.

Objective Achieved? Achievement of objective will be determined in the “long term”. The determination of functional values of wetlands and mitigation criteria based on functional values are relatively “new”. It may take many years of monitoring to determine whether criteria are correct and adequate enough to allow for “no net loss” of wetlands.

Objective	OBJECTIVE 7-5A: SILVICULTURE ACTIVITIES. Silviculture Activities Are to be Conducted in a Manner Compatible with the Need to Protect, Conserve and Appropriately Use Natural Resources Associated with Wetlands and Surface Waters.
Conditions At Adoption	Lake County did not require the use of Best Management Practices (BMPs) for harvesting of timber (primarily cypress) within wetland areas. Many harvested cypress strands had demonstrated very poor regenerative capacity and these areas had been succeeded by hardwood species.
Current Conditions	Lake County Land Development Regulations require silvicultural (and agricultural) operations to follow BMPs of the Florida Department of Agriculture and Consumer Services, Division of Forestry, and the requirements of F.S. 373 and 403. BMPs are difficult to enforce given current staff and remote nature of some parts of the County. A Letter of Intent and Board of County Commissioner approved harvest plan required for silviculture activities within the Wekiva River Protection Area.
Objective Measure	How many code enforcement violations for silviculture activities associated with wetlands and surface water bodies have occurred compared to the actual number of such activities?
Objective Achieved?	Difficult to assess as there is no mechanism in place to monitor silviculture activities outside of Wekiva River Protection Area (WRPA). Non-adherence to BMPs, outside WRPA, is a code enforcement issue promulgated by citizen complaint.

Objective

OBJECTIVE 7-6: CONSERVE NATURAL UPLAND COMMUNITIES. To Preserve Sufficient Natural Upland Habitat of Each Community Type throughout the County, to Maintain Viable Populations of All Native Plant and Animal Species.

Conditions At Adoption

Five rather broad categories of upland plant communities were identified as representing the natural upland communities within the County. These plant communities were pine flatwoods, longleaf pine/xeric oak, sand pine, upland mixed coniferous hardwood and mesic flatwoods/dry prairie. Each of these communities had been impacted through anthropogenic activities. Briefly, the activities/impacts were as follows: pine flatwoods-extensively used for timber production; longleaf pine/xeric oak-degraded by/or converted to agricultural, silvicultural and urban uses; sand pine-lost to development as was "high dry" (buildable) ground and not always considered aesthetically pleasing; upland mixed coniferous hardwood-bulk of these communities lost to silviculture, agriculture and urban developments; mesic flatwoods/dry prairie-most of these communities converted to farm fields and citrus groves.

Current Conditions

The Florida Natural Areas Inventory (FNAI) completed an inventory of natural communities and floral and faunal species within the County. The report was published in 1995 and has been consulted on a regular basis as part of development review. The Lake County Land Development Regulations (LDRs) stipulate requirements for preservation of natural upland communities. Such requirements are based on type of development and ranking of the community by FNAI methodologies. Exemptions to the preservation requirements exist for public-interest road projects and for agriculture and silviculture activities following best management practices (BMPs). The LDRs stipulate percentages of development projects to be maintained as open space. This open space is to include, primarily, the upland community and the percentage to be maintained is based on the type of development (e.g. PUD) and the (FNAI) ranking of the community. The open space is required to be recorded as a conservation easement. The LDRs require that a survey of the natural upland communities occurring on a site be submitted to the County prior to any site clearing. The survey must be based on the Florida Land Use, Cover and Forms Classification System (FDOT, 1986). The LDRs require that developers of sites inhabited by listed species submit a management plan for that/those species. The

management plan must be in accordance with Florida Game and Fresh Water Fish Commission guidelines. Policies in support of this objective, in conjunction with the LDRs, specify preservation methodologies such as: clustering of development away from natural communities/listed species; economic considerations for landowners to preserve natural communities; restoration of degraded communities; public agency cooperation in land management; and mitigation procedures and ratios.

Objective Measure

How many instances of local extinctions of species from the County have been documented.

Objective Achieved?

Level of achievement of objective difficult to assess with current data. The only way to quantify the objective, as stated, would be to record instances of extirpation of plant and animal species. In other words, to say that representatives of a particular species exists within the County does not necessarily imply that a viable population exists, however, the "lack" of representatives of a particular species (over time) probably indicates that insufficient habitat was preserved to maintain a viable population. Studies/inventories have not been conducted to the extent of the FNAI study, published in 1995. That study should be used as a baseline for subsequent studies to determine community/habitat degradation and/or species loss. The, aforementioned, preservation methodologies (i.e. clustering, restoration, etc.) are rarely, if ever, implemented. An effort should be made to explore these methodologies further and implement them when appropriate.

Objective OBJECTIVE 7-7: CONSERVE WILDLIFE POPULATIONS AND HABITATS. Lake County Shall Conserve, Appropriately Use, and Protect Fisheries, Wildlife, Wildlife Habitat and the Freshwater Habitat Resources of the County.

Conditions At Adoption With the exception of the Wekiva River Protection Area (WRPA), regionally significant environmental areas (e.g. the Oklawaha chain of lakes) lacked adequate protection measures from development. Native upland vegetation within the 100 year floodplain had limited protection from removal (the WRPA was the exception). Upland vegetative communities (and the habitats they provided) such as pine flatwoods and sand pine scrub were afforded minimal protection from development. Development was threatening to encroach upon wildlife corridors such as the Palatlakaha River. There was limited regulation of surface water quality standards in habitats utilized by listed fish species. Fishery standards had decreased from historical standards in the Oklawaha chain of lakes. Recurrent citrus freezes threatened to open up areas of the Lake Wales Ridge for development.

Current Conditions Some regionally significant environmental areas have been purchased by public and private agencies affording these areas extra levels of protection and management. There are overlay areas and specific regulations for the Wekiva River Protection Area and the Green Swamp Area of Critical State Concern which limit land uses and development within these areas. Fill within and removal of vegetation from the 100 year floodplain is regulated, somewhat, at the County level via this Comprehensive Plan and the Land Development Regulations (LDRs). The LDRs also contain open space and buffer requirements for development in an effort to protect vegetated upland communities and wildlife habitat. Densities and impervious surface ratios are controlled through zoning and the LDRs. Since the County, at this time, lacks a wetlands ordinance, most issues pertaining to wetlands and open water bodies are deferred to the appropriate state and/or federal agencies. County staff actively coordinates with other agencies in environmental protection and wildlife issues.

Objective Measure Total acreage of lands acquired through dedication or purchase which has been designated as conservation lands.

Objective Achieved?

This objective has been partially achieved. While the acreages have not been adequately tracked, conservation easements have been dedicated to the County in fulfillment of the County's Land Development Regulations. However, the County does not acquire land for conservation nor is dedication by private land owners actively sought.

Objective OBJECTIVE 7-8: CRITICAL HABITAT AND DESIGNATED SPECIES PRESERVATION. It is the Objective of Lake County to Maintain Critical Habitat and/or Designated Species Populations During the Five and Fifteen Year Planning Time Frames. Mitigation and/or Management of Species, Including Relocations, Shall be Consistent with All Applicable Regulations and Recommendations of the FGFWFC or Other Appropriate State or Federal Agencies.

Conditions At Adoption It was generally acknowledged that habitat and habitat value were on the wane due to the lack of adequate protection measures and land use policies. A specific example referred to the marked decrease in acreage of scrub ecosystem (a critical habitat). This ecosystem had been cleared and/or developed to the point that approximately 5% of historic acreage remained.

Current Conditions Designated floral and faunal species are protected at the state and/or federal levels. The presence of designated species on a site to be developed requires that the developer submit a management plan(s), for the species, to the County. The management plan requires coordination with the appropriate state and/or federal agency. Critical habitat on a site is required to be included within the open space requirement and placed in a conservation easement. Agricultural and silvicultural activities are required to follow Best Management Practices (not readily enforceable) as well as federal and state laws pertaining to designated species (again, not readily enforceable.)

Objective Measure Acreage of critical habitat (defined below) protected through development review process.
Critical Habitat – The viable areas of habitation including feeding, breeding, and nesting areas for species of Special Concern as well as Endangered and Threatened species as confirmed by appropriate jurisdictional agency documentation, or by reports which may be submitted by an applicant requesting a development order on a site containing an area of such habitation by the above noted species. The extent of these areas shall have a definitive boundary which may vary in extent based on the individual species.

Objective Achieved? Unknown, as this acreage is not accurately tracked. However, developers of land upon which listed species occur are required to submit a management plan to the County. Management of the listed species is subject to the

approval of the appropriate state and/or federal agencies through permitting. However, various avenues may be available to a developer in managing a listed species. Options may include clustering for avoidance, relocation, incidental take, etc. All these options may allow for the destruction of, at least, portions of the critical habitat on any given site and may or may not require mitigation for the habitat destroyed. Species population levels, within the County, are likely to be impacted by relocations as individuals and local populations are relocated outside the County. Incidental takes impact population levels simply through elimination of individuals/local populations. Also, the issue and definition of "critical habitat" has the potential to become "blurred". Species once thought to be severely restricted to a particular habitat are being discovered in "substitute" or less than optimal conditions. Such "discoveries" have the potential to raise issues over land use in the future.

Objective	OBJECTIVE 7-9: NATURAL SYSTEMS AND RECREATION LANDS . The County Shall Assure that Public Land Management, Use, and Acquisition is Compatible with the Maintenance of Wildlife and Natural Systems and Sufficient to Meet Future Conservation Needs.
Conditions At Adoption	The County had no active land acquisition program or master parks plan. Land management of County owned property consisted of general maintenance (e.g. mowing, facilities maintenance, etc.) or, essentially, none.
Current Conditions	The County still does not have an active land acquisition program. Land management generally consists of maintenance duties, however, proposed improvements at one site (Palatlahaha River Park) have brought forward the need to actively manage and conserve the scrub ecosystem which comprises a portion of the site.
Objective Measure	Acreage of land acquired and managed as conservation lands.
Objective Achieved?	No. Only one County-owned property (Palatlahaha River Park) takes issue with maintenance of wildlife and natural areas. A management plan for this site is in development. The County does not acquire land for the purposes of preservation and/or conservation. "Future conservation needs" are undefined and, as yet, there is no provision for stipulating a level of service for resource-based recreation lands.

Objective OBJECTIVE 7-10: PROTECT AIR QUALITY . Lake County Shall Maintain its Good Air Quality and Shall Utilize the Monitoring Program Established for the Waste to Energy Facility in Addition to the New County-wide Air Quality Monitoring Program Established by the Lake County Pollution Control Board to Ensure that its Ambient Air Quality Does Not Exceed the Minimum Standards Established by the Florida Department of Environmental Regulation and the U.S. Environmental Protection Agency.

Conditions At Adoption Lake County's air quality was considered "good" at time of plan adoption according to a base line study performed in 1987. As stated in the objective, the County was to establish a County-wide monitoring program to ensure that ambient air quality did not exceed minimum standards.

Current Conditions County wide air monitoring program was never established. Waste to energy facility monitored per permit requirements. Ambient air quality has not been monitored since 1987. The Florida Department of Environmental Protection is responsible for air quality monitoring state-wide. Lake County, currently, has neither the population size nor concentrated industrial, etc. areas necessary to be included in the FDEP monitoring network.

Objective Measure Attainment of ambient air quality levels as specified by the Florida Department of Environmental Protection and the Environmental Protection Agency.

Objective Achieved? With the exception of waste to energy and other regulated facility emissions and considering the lack of a Countywide air quality monitoring program, the County success in achieving this objective is impossible to determine.

Objective	OBJECTIVE 7-11: REDUCE CONSUMPTION OF NON-RENEWABLE ENERGIES. Lake County Will Initiate Energy Consumption Studies Leading to Implementation Strategies That Will Reduce Per Capita Consumption of Non-Renewable Energies through Wise Use, Efficient Production and Distribution, and the Promotion of Renewable Sources of Energy.
Conditions At Adoption	The Department of Community Affairs (DCA) was responsible for data collection and coordination with the Florida Public Service Commission in formulating an Energy Emergency Preparedness Plan. Florida Thermal Efficiency Code had been incorporated into County Building code(s). County did not, "actively", promote solar energy applications, did not develop methane production facilities (in conjunction with a sewer utility) and did not have regulations requiring co-generation. Surplus energy from the waste to energy facility was sold to Florida Power Corp.
Current Conditions	Very much as at adoption. A sewer utility is not proposed for the County thereby removing a potential, renewable, source of energy (methane).
Objective Measure	The reduction in the per capita consumption of non-renewable energies within the County.
Objective Achieved?	Partially, with incorporation of Florida Thermal Energy Code in the building codes.

Objective	OBJECTIVE 7-12: PROTECT SOIL RESOURCES. Lake County Shall Conserve, Appropriately Use and Protect its Soils through Wise Land Management Practices Consistent with the Physical Properties and Ecological Capabilities of Each Soil Type.
Conditions At Adoption	Geographic Information System (GIS) was in development stage. Best Management Practices (BMPs) adherence required for silviculture operations (though difficult to enforce). Construction/excavation activities require techniques (e.g. hay bales, silt screens, sodding, etc.) to reduce/prevent soil migration. Septic tank placement regulated with respect to soil type (e.g. mounding in severe soil types).
Current Conditions	GIS system in place, but not readily accessible. BMPs for agriculture/silviculture operations difficult to track and enforce (except in Wekiva River Protection Area where a letter of intent is required prior to engaging in either of these activities). Land Development Regulations (LDRs) address slope and soil migration prevention techniques for construction/excavation activities. LDRs also stipulate residential lands maintenance through zoning and landscape requirements.
Objective Measure	Estimates of the actual amount of soil conserved as a result of the development review process and/or the number of times that soil migration prevention techniques are employed.
Objective Achieved?	Not able to accurately assess. Provisions are in place in the LDRs to account for almost any activity which involves the movement/migration and use of soils. Unfortunately, these provisions are not strictly enforced and are not tracked unless it becomes a code enforcement issue.

Objective OBJECTIVE 7-13: CONSERVE MINERAL RESOURCES. The County Shall Regulate Extraction Activities to Minimize any Adverse Impacts to the Quality of the Air, Surface Waters, Groundwaters, Land and Wildlife.

Conditions At Adoption Mining operation standards were minimal. Mineral extraction (sand, clay and peat) was performed under guidelines of a Conditional Use Permit (CUP) or vesting. A CUP may have stipulated conditions for operation and reclamation (usually) while vesting allowed existing operations to continue as they had prior to adoption. Standards for vested operations were practically nonexistent resulting in abandoned, unreclaimed "pits", damage to wetlands, etc.

Current Conditions Mining Ordinance was adopted in 1992 and continues to be "upgraded" as warranted. Mineral extraction is permitted through a Mining Site Plan process which requires a thorough Development Review Staff technical review and public hearings.

Objective Measure Measure of objective is multi-part: 1) Consistent and continued attainment of National Ambient Air Quality Standards within vicinity of mining activity. 2) Consistent and continued attainment of Florida Department of Environmental Protection surface water and ground water quality standards within vicinity of mining activities. 3) Acreage of habitat protected and/or mitigated for pursuant to the mining site plan review process.

Objective Achieved? Objective achievement is difficult to assess at this point in time. While the "up front" requirements, technical reviews and permitting process are relatively stringent, long term and cumulative effects of extraction activities have not been studied/documentated to any degree in the County.

Objective OBJECTIVE 7-14: PROPER TREATMENT AND DISPOSAL OF SOLID WASTES. The County Shall Protect and Enhance the Quality and Safety of the Environment by Requiring the Proper Facility Design and Location For All Solid Waste Disposal Systems. Solid Waste Disposal Systems Shall Be Properly Operated and Monitored. The County Shall Develop Educational, Monitoring, and Enforcement Programs Which Promote the Reduction of Solid Wastes Generated and Ensure that All Solid Wastes are Properly Disposed or Recycled.

Conditions At Adoption Most issues related to solid waste handling were regulated on the state level including design and operation of solid waste facilities. Most solid waste was landfilled. State legislation mandated a 30% reduction in the solid waste stream. Waste to energy facility had just begun operation.

Current Conditions County has achieved a 90% reduction in the solid waste stream with the aid of waste to energy facility and an active recycling program. The Department of Solid Waste Management has produced a number of educational brochures, as have other agencies, and has created a Public Education Specialist position. The County has yet to establish mandatory refuse pick up for all residences, however, certain allowances have been made to allow citizens to drop off refuse locally.

Objective Measure Measure for this objective is two part: 1) Actual reduction of the waste stream. 2) Number of code enforcement violations for illegal dumping.

Objective Achieved? This objective has been partially achieved. Achievement of the reduction of the waste stream by mandated (30%) amount has occurred and there are excellent educational materials available. However, given the rural nature and size of the County, illegal dumping, although reduced since plan adoption, is still considered a problem.

Objective

OBJECTIVE 7-15: PROPERLY MANAGE ALL HAZARDOUS MATERIALS. The County Shall Protect and Enhance the Quality and Safety of the Environment by Requiring the Proper Facility Design and Location, and Proper Material Handling, Storage, Transport, of All Hazardous Materials. The County Shall Develop Educational, Monitoring and Enforcement Programs Which Promote the Reduction Recycling, and Proper Disposal of Hazardous Wastes Generated and Ensure that All Hazardous Materials are Accounted and Disposed/Treated Properly.

Conditions At Adoption

Permanent household hazardous waste facility established at Astatula landfill. A mobile unit and Amnesty Day program were also available to residents. A hazardous materials response team and fire pre-plan for businesses were established through the Emergency Services Department. County had state-funded positions for storage tank inspections. Battery and used oil collection/recycling programs were in place. Facility design, operation and materials handling regulated/enforced at state and federal levels. Board of County Commissioners approved a program to monitor small quantity generators (SQGs). A minimum of 25% of SQGs inspected on yearly basis.

Current Conditions

Many aspects as at adoption. In addition, Public education is on-going via printed materials, assistance visits, load checking and through a Public Education Specialist (position created in 1996). A hazardous waste verification program to determine the quantities and diversity of hazardous waste produced in the County has been completed. An identification and tracking system (SIC codes) that accounts for the type and management of generated hazardous waste materials is in use. Biannual inventory and hazards analyses for facilities utilizing extremely hazardous materials are conducted. Annual assistance visits to businesses that generate small quantities of hazardous materials are made. Biohazardous materials generation and transportation disposition monitored/regulated by the Florida Department of Health and FDEP, respectively. Biohazardous materials are permitted to be incinerated at the County waste-to-energy facility. Land Development Regulations stipulate distances to be maintained from potable water wellheads by hazardous materials generators.

Objective Measure

Unit measures of hazardous materials properly disposed (versus estimates of unit measures improperly disposed).

Objective Achieved?

This objective has been, essentially, achieved as far as commercial/industrial generators are concerned. Individual residences, however, are almost impossible to track. Enforcement by FDEP for underground storage tank non-compliance has been slow.

Objective OBJECTIVE 7-16: PROTECT PROPERTY RIGHTS. Lake County Shall Protect Property Rights In its Regulation and Acquisition Programs Regarding Preservation and Conservation.

Conditions At Adoption The main preservation/conservation regulatory issue at the County level had to do with wetland setbacks. Maintaining a 50' distance from a jurisdictional wetland line was the regulation, however, property owners could have applied for a variance to the setback distance. There was also a stipulation, based on lot size, that if the proposed construction was as far landward as possible, the wetland setback could be less than 50'. In cases where listed species were present, development/construction could probably still occur provided an agency (e.g. USFWS and/or FGFWFC) approved management plan was developed. Such management plans may have involved relocation of the listed species off-site, mitigation or various other avenues. Virtually all acquisition and, subsequent, preservation/conservation efforts occurred at the state and federal levels. These efforts were concerned with the issues of listed species, corridors, habitat preservation, etc. If, after all options were exhausted, a property owner was denied reasonable use of the property, state law required that the property owner be compensated for the loss. The County would, of course, abide by state law. The County had no active acquisition program.

Current Conditions Variance process and management plan requirements exist much as at adoption. In areas designated as ecologically/environmentally important (i.e. the Green Swamp Area of Critical State Concern (GSACSC) and the Wekiva River Protection Area (WRPA)), property owners may increase densities, etc. through the purchase of development rights (GSACSC), transfer of development rights (WRPA) or a point system (WRPA). The County still sponsors no formal acquisition program.

Objective Measure Number of "takings" as a result of County practices regarding preservation and conservation.

Objective Achieved? This objective has been achieved. There have been no instances of "takings" because of preservation or conservation regulations since plan adoption.

Objective	OBJECTIVE 7-17: LAND MANAGEMENT AND USE. Lake County Shall Develop the Land Use Regulations Which Are Most Appropriate and Capable of Accommodating Growth Without Significant Adverse Impact the County's Natural Resources.
Conditions At Adoption	Land Development Regulations based on adopted Comprehensive Plan had yet to be written.
Current Conditions	Land Development Regulations (LDRs) have been adopted and are amended, as necessary. The LDRs stipulate development procedures and measures meant to protect the County's natural resources. The LDRs will be amended to reflect amendments to the Comprehensive Plan, AC-3.
Objective Measure	Considering the environmental controls of the Comp Plan and LDRs, is adequate developable acreage available to accommodate growth?
Objective Achieved?	Achievement of this objective, as stated, must be considered an ongoing process. Current models suggest acreage available exceeds that which is required even given the layers of protection.

Objective

OBJECTIVE 7-18: REVENUE SOURCES FOR FUNDING CONSERVATION PROGRAM. Lake County Shall Research and Establish Financial Mechanisms for the Purpose of Equitably Funding the Conservation Goals, Objectives and Policies Within This Plan Element; Via Sales, General Revenue and Other Broadly Based Sources Unless Otherwise Specified Within This Element. Lake County Shall at All Times Require That Any Incidence of Taxation or Other Revenue Source Be Equitably Administered So That Those Who Benefit From Government Programs Pay For the costs Incurred By These Programs, and Those Who Cause the Need For Government Intervention Pay For the Cost of Regulation, Monitoring, Restoration and Enforcement.

Conditions At Adoption

A concerted, focused conservation "program" did not exist at time of plan adoption. Funding, as such, for the achievement of the goals, objectives and policies of the plan was through state and other funds (e.g. storage tanks inspectors, grant monies, etc.), permit fees (e.g. Mining Site Plan fees, wildlife/wetland fees, etc.) and taxes. An Environmental Management Division existed within the Department of Growth Management.

Current Conditions

The Environmental Management Division was reorganized as the Water Resource Management Section. Fees, for various services, are assessed and charged for wildlife review, wetlands/uplands review, etc. The NRAC Committee was established to assist the County in developing an Environmental Resources Management Plan (ERMP). A summary report of the Committee's recommendations was prepared by staff and will be used as a guideline by the newly-formed Environmental Protection Advisory Board (EPAB) for developing specific mechanisms to implement conservation programs in the County. Funding issues will be addressed pending EPAB review and recommendations.

Objective Measure

Two part measure: 1) Establishment of a "conservation program" with an appropriate budget. 2) Procurement of funds adequate to sustain the budget.

Objective Achieved?

This objective has been partially achieved. While no "overall" conservation plan exists, the following programs exist and rely on a variety of funding sources. Apart from programs associated with solid/hazardous waste management, tanks inspections, mine inspections, wastewater/industrial waste inspections and surface and groundwater monitoring.

VII. Anticipated Amendments

The following are the anticipated amendments and future actions for this Element. Lake County anticipates being able to process three (3) amendment cycles during the designated time frame for EAR based amendments. The Schedule for Submittal identifies the anticipated cycle for the amendments: AC-1 - Amendment Cycle 1, AC-2 - Amendment Cycle 2, and Amendment Cycle 3 to be scheduled later.

Objective, Policy, Exhibit Number	Nature of Amendment	Schedule for Submittal
Objective 7-1	Revise Objective and supporting policies to indicate that implementation of programs comprising or in support of the Environmental Resources Management Plan will be the purview of the Environmental Protection Advisory Board and the Board of County Commissioners. Revise to include measurability factor(s).	AC-2
Tables And Figures	Each of the tables and figures contained within the Conservation Element must be updated to reflect current conditions.	AC-3
Objective 7-2	Incorporate standards by which the objective can be measured.	AC-2
Policy 7-2.15	Change date from 1992 to 2002. Include a reference to "reclaimed" water.	AC-1
Policy 7-2.18	Revise to include need to establish designated wellhead protection areas and to establish inter-local agreements for their administration.	AC-3
Policy 7-2.20	Amend policy to reflect creation of utility standards for new construction.	AC-1
Objective 7-3	Remove references to departments that no longer exist and incorporate standards by which the objective can be measured.	AC-1
New Policy under Objective 7-3	New policy which identifies and directs incompatible land uses away from wetlands and water bodies.	AC-3
Policy 7-3.4	Change Division of Pollution Control to Department of Growth Management.	AC-1
Policy 7-3.8	Include language regarding retro-fitting existing systems, as necessary.	AC-3
Policy 7-3.9	Include language regarding retro-fitting existing systems, as necessary.	AC-3
Policy 7-3.10	Include language regarding retro-fitting existing systems, as necessary.	AC-3
Policy 7-3.11	Include language regarding retro-fitting existing systems, as necessary	AC-3
Objective 7-4	Incorporate standards by which the objective can be measured (e.g. "no net loss").	AC-1
Policy 7-4.2	Establish consistency between Comprehensive Plan and Land Development Regulations	AC-1
Objective 7-5	Revise to include additional parameters of "types", "functions", "conditions" and "locations" as required by 9J-5.013, F.A.C. Revise to include a level of measurability.	AC-1
New Policy Under Objective 7-5	Add new policy to adopt consistent methodology to ascertain functional value of wetlands.	AC-2

Objective, Policy, Exhibit Number	Nature of Amendment	Schedule for Submittal
Objective 7-5 A	Incorporate standards to make objective measurable. Expand requirement to include silviculture not associated with wetlands and surface waters.	AC-3
Policy 7-5.7	Include cooperation with a joint agency research body and aquifer-monitoring program.	AC-3
Policy 7-5A.1	Require logging operations to file letter of intent with the County.	AC-3
Objective 7-6	Incorporate standards to make objective measurable.	AC-2
Policy 7-6.2A	Based upon research of best available data (e.g. FNAI Maps), decrease acreage requirement for providing an environmental/wildlife survey. Revise to reflect elimination of 100 acre threshold requirement. Review on case by case basis based on preliminary environmental assessment.	AC-3
Policy 7-6.2B	Revise to include coordination with State and Federal Agencies to ensure that agricultural and silviculture activities are complying with BMP's.	AC-2
Objective 7-7	Incorporate standards to make objective measurable.	AC-2
Objective 7-8	Incorporate standards to make objective measurable. Revise to include the County taking a proactive stance to preserve remaining habitat/vegetative corridors, including manatee habitat, (e.g. mapping corridors and: developing incentives).	AC-2
Policy 7-8.1	Add reference to additional data sources (e.g. FDEP, USFWS, etc.)	AC-1
Policy 7-8.6	Add tax incentives for landowners to leave lands in a native state.	AC-3
Policy 7-8.8	Replace "encouraged" with "required".	AC-2
Policy 7-8.16	Include a reference to manatee protection.	AC-2
Objective 7-9	Incorporate standards to make objective measurable.	
New Policy Under Objective 7-9	Add a new policy to include references for management practices (e.g. prescribed fire).	AC-1
Objective 7-10	Revise to: remove reference to County-sponsored monitoring program; to include coordination with FDEP for new study to determine ambient air quality. Incorporate standards to make the objective measurable.	AC-2
Policy 7-10.7	Revise to reflect current LDR's.	AC-3
Objective 7-11	Incorporate standards to make the objective measurable.	AC-2
Objective 7-11	Revise to include language to require coordination with DCA rather than the County undertaking consumption studies.	AC-1
Objective 7-12	Incorporate standards to make objective measurable.	AC-3
Policy 7-12.3	Revise to include enforcement of BMPs.	AC-2
Objective 7-13	Incorporate standards to make objective measurable. Revise to include that the County should consider establishing a reclamation monitoring program to determine cumulative and long term effects if any of extraction activities.	AC-3
Policy 7-13.1	Strike reference to very high and prime recharge areas and replace with "significant" when officially adopted by SJRWMD.	AC-1
Policy 7-13.3	Amend to strike the references to prime and very high recharge areas; replace with "significant" recharge areas.	AC-1

Objective, Policy, Exhibit Number	Nature of Amendment	Schedule for Submittal
Policy 7-13.5	Delete Policy.	AC-1
Policy 7-13.6	Reword to delete "unless" and replace "retrievable" with "viable". Add the word "residential" after "urban"	AC-1
Policy 7-13.8	Revise to <u>require</u> (not just when feasible) preservation of hydrologic integrity.	AC-1
Policy 7-13.11	Delete policy referencing adoption of mining ordinance as this task has been completed.	AC-1
Objective 7-14	Revise to incorporate standards to make objective measurable, include reference to FDEP design standards. Make recommendation for alternatives to solid waste collection in communities where non-county maintained roads still exist.	AC-1
Policy 7-14.2	Revise to include increased enforcement measures aimed at preventing illegal dumping.	AC-2
Objective 7-15	Revise to incorporate standards to make objective measurable, include reference to FDEP design standards.	AC-1
Policy 7-15.1	Revise to modify date as appropriate.	AC-1
Policy 7-15.2	Revise to indicate maintenance of established facility.	AC-1
Objective 7-16	Revise to make objective measurable.	AC-1
Objective 7-17	Incorporate standards to make objective measurable.	AC-2
Policy 7-17.1	Revise to include the criterion "contingent on the availability of water" within the policy.	AC-3
Policy 7-17.3	Delete policy as the intent of this policy is addressed elsewhere in the Plan.	AC-1
Objective 7-18	Incorporate standards to make the objective measurable and revise objective to reflect current conditions.	AC-1
Policy 7-18.2	Policy not feasible, delete.	AC-1
Policy 7-18.3	Policy not feasible, delete.	AC-1
Policy 7-18.4	Revise from set date (1993) to a recurring cycle (e.g. every five years) and deleting reference to potable water utility.	AC-2
Policy 7-18.5	Revise to include language relating to the need for the County to investigate sources of funding for a stormwater utility and include grant solicitation in addition to the special assessment for funding stormwater utilities.	AC-3
Policy 7-18.6	Revise to include the need to coordinate with FDEP to acquire baseline data as a benchmark for measuring future impacts/trends.	AC-2
Policy 7-18.6	Change FDER to FDEP	AC-1
Policy 7-18.7	Policy is not feasible, delete.	AC-1
Element Wide Amendment	Revise the element to include all applicable changes to 9J-5 F.A.C. and all other applicable statutory and rule changes and amend Plan as necessary.	AC-1