

EVALUATION OF MAJOR ISSUES

2.5 LAND USE COMPATIBILITY, ENVIRONMENTAL RESOURCES AND HABITAT PROTECTION

Environmental Management Programs: The County will assess the degree of success its environmental management programs have had in protecting environmental resources and habitat areas.

Property Rights: The County will assess whether provisions of the Comprehensive Plan maintain a balance between public policy and property owner's rights.

Provision of Urban Services & Economic Development: The County will assess whether the Comprehensive Plan effectively addresses locational issues regarding economic development and ensuring the adequate and properly timed provision of urban services.

Agricultural protection: The County will assess whether provisions of the Comprehensive Plan have been successful in protecting agricultural resources.

INTRODUCTION

The Land Use Compatibility, Environmental Resources and Habitat Protection section is intended to address issues such as the protection and preservation of the environment and its habitats, and protection of agriculture, creating compatible land use patterns and maintaining property rights.

Environmental protection including habitat protection has always been a major goal associated with County policy. The creation of environmental minimum standards that are incorporated into the County Charter represents a firm commitment within this County for environmental protection. The County has also been a pioneer with regard to land acquisition to preserve natural areas. The first bond referendum for endangered lands acquisition was in 1986, and in 2000 the County passed another bond entitled Volusia 2000. County commitment to environmental protection is carried through in the Comprehensive Plan in the form of various provisions, including the establishment of the Natural Resource Management Area (NRMA) planning tool, established to protect environmental resources.

Agriculture within the County is viewed as not only an economic asset, but also as a method by which open space can be maintained. Agriculture has been the primary land use within the County for many years, but agriculture, at least some uses, appears to be waning as land prices climb and competition increases.

The County Future Land Use Map (FLUM) and the County Zoning Ordinance are the prime tools in which the County addresses land-use compatibility. The appropriate assignment of Future Land Use categories and Zoning classifications establish the basic compatibility structure. In addition, the County has adopted Policies within the Comprehensive Plan to provide compatibility protection. These Policies are used to review FLUM amendments, rezonings and development site plans.

Finally, property rights need to be included in the discussion of natural resources and land use compatibility. Property rights represent an important element with regard to the establishment of land use and land development oriented regulations.

BACKGROUND

Environmental Protection:

The County currently protects natural resources utilizing three techniques: 1) Directing growth and development away from resource areas by assigning appropriate Future Land Use categories and Zoning classifications; 2) Implementing various land development regulations that protect identified resources from development impacts; 3) Preserving land by purchasing land or development rights.

The County directs growth away from resources by designating vast areas associated with resource values with very low intensity Future Land Use categories on the County FLUM. The Future Land Use Map was adopted in 1990 and features low intensity land use designations such as the Environmental Systems Corridor (ESC) and the Forestry Resource (FR). The ESC has a one unit per 25-acre density allotment and has limits on land clearing. Agricultural uses within the ESC are limited to native pasture and silviculture consistent with State prescribed Best Management Practices (BMPs). The FR designation requires a 20-acre lot. While some agricultural uses may be allowed in the FR, intensive agriculture like industrial scale hog farms and poultry operations are not allowed. To help implement the FLUM, the County has rezoned all of unincorporated Volusia to be consistent with the County Land Use Map. The above-mentioned ESC and FR designations are sub-categories of the Natural Resource Management Area (NRMA) land use category. The NRMA not only embodies low intensity, natural resource oriented Future Land Use designations, but also establishes an area of the County where an enhanced level of environmental safeguard is required and implemented through land development regulations.

Land development regulations including, but not limited to the County Wetlands Ordinance, requirement of listed specie identification and tree protection are used to protect environmental resources. Natural resource protection thresholds are heightened for developments occurring within the NRMA. Clustering of development is required and wetlands are afforded a greater buffer than for wetlands that are located out of the NRMA. An Environmental Impact Assessment (EIA) is required for land development projects within the NRMA. An EIA requires inventory of natural resources, including wildlife and listed species habitat, on a property proposed for development. If applicable, a management plan for natural resources is the outcome of an EIA.

County environmental management programs, such as the Wetlands and Tree Ordinances, have been in place since the late 1980s and continue to be enforced by County staff. To help implement County environmental programs the County has an entire division (Environmental Management) that employs over 40 people. As part of reviews for FLUM changes, rezoning applications and land development review, Environmental Management staff is an active participant to ensure that resources are protected.

Currently, about 234,500 acres of Volusia County are preserved. The land is owned by various governmental entities such as the Federal and State governments, the St. Johns River Water Management District and the County. The County has participated in the purchase of well over 30,000 acres of the total land preserved in the County. As has been stated, the County has a long history with regard to land acquisition for natural resource preservation purposes, which started in 1986 when the voters agreed to tax themselves for land acquisition. Again in 2000, the citizens in Volusia County voted to increase taxes to reinitiate the preservation of environmentally significant land. The preserved land represents an ecological base within the County where natural resources, including wildlife resources, can be managed for future generations to enjoy.

Agriculture

Historically, the major economic activity within the County was agriculture. Citrus, fern, cattle, timber and row crops with various degrees of intensity have been, and still are, produced in the County. However, economic shifts and climatic events have resulted in changes in the County's agricultural industry. For example, the citrus industry within the County was a significant agricultural land use, accounting for over 20,000 acres, until the Christmas freezes of 1983 and a subsequent freeze of 1984. After the freeze events of the early 1980s, the citrus industry shifted to south Florida and also to foreign areas (e.g., Brazil). The result was a significant decrease in citrus acreage in the County. Some of the former citrus groves were converted to pasture or fern. Other citrus acreage was developed with residential and commercial uses. Presently there is only about 2,000 acres of citrus remaining in the County. The fern and cut foliage industry within the County may be waning as both foreign and domestic competition, along with the recent hurricanes, has made the fern industry less feasible. Some fern areas have been replaced with pasture or have been developed. The pace of urban and rural development has also led to a decrease in agricultural areas. Since the last EAR, over 8,000 acres of agricultural land has been lost to non-agricultural development.

Compatibility

Land use compatibility has been an issue since the County started reviewing zoning for certain areas of the County (aligned along County Commissioner Districts) in the late 1940s. As population grew compatibility became more important, and in 1980 the County adopted the unified Zoning Ordinance. The 1980 Zoning Ordinance contained a nomenclature of zoning classifications that were applied in a manner that was intended to provide some level of land use compatibility within the entire County. When the present Comprehensive Plan was adopted one goal of the FLUM was to introduce a new level of land use compatibility that fostered compatibility within both natural and developed landscapes. The Comprehensive Plan also articulates policies and guidelines that require land use compatibility.

Property Rights

As part of the Comprehensive Planning process promulgated by the 1985 Growth Management Act and related Growth Management law, local governments are mandated to establish land uses in a manner that represents logical, well planned growth patterns that are linked to accepted population projections. In addition, environmental protection is a prime objective of the Growth Management Act. While the

protection of the environment and the curtailment of urban sprawl are fundamental objectives of the State Growth Management legislation and related rules, local governments are also mandated to protect private property rights. Currently, the County Comprehensive Plan is in compliance with State Growth Management regulations, and therefore, does provide the requisite property rights protection. For example, no matter how environmentally constrained a property in private ownership may be with wetlands that property does have land use options. The level of intensity and use may be up for debate with regard to property rights, but the end result is that there is some prospect that the property could be used in some manner.

CURRENT CONDITIONS

Environmental Protection

Wildlife Habitat/Listed Species:

With regard to the protection of listed species and related habitat the County has continued to employ a multi-tiered approach to listed species (and habitat) protection. Tools used to protect listed species and related habitat, include plans for individual species, regulatory measures and the preservation, management and creation of listed species habitat.

Within the County, sea turtles are managed by a plan codified in the County's Land Development Code (LDC) known as Article XII Sea Turtle Protection. The Sea Turtle Protection Article of the LDC regulates beachfront lighting and other activities within a conservation zone. The intent of regulating beachfront lighting is to avoid stray lights that illuminate the beach and could disorient sea turtle hatchlings. The conservation zone area is intended to protect the marine turtle-nesting zone from beach activities, including driving. The Sea Turtle Protection portion of the LDC is an implementing ordinance for the County's Habitat Conservation Plan that was approved pursuant to Section 10a of the Endangered Species Act in October of 1996.

The County continues to be under boat speed limits for manatee protection purposes, and in 2001 the Florida Fish and Wildlife Conservation Commission (FWC) approved Phase I of the County Manatee Protection Plan (MPP). Phase I addresses manatee habitat, activity, and other background information, as well as education, research, and intergovernmental cooperation. The County has, as of October 19, 2005 received approval by the FWC of Phase II of the MPP, which regulates the placement of marinas, proposes methods to minimize adverse impacts to manatees from various activities, increases on-the-water law enforcement, and establishes mechanisms to further protect manatee habitat protection.

The County also studied the feasibility of establishing a Habitat Conservation Plan (HCP) for scrub jays and related habitat. The intent was to purchase lands that were associated with scrub vegetation and then manage these areas for scrub jay habitat. Management would include burning and/or mechanical manipulation to allow for the regeneration of a low canopy xeric oak scrub vegetative community. Scrub jays have a very narrow habitat niche, and low canopy xeric oak scrub represents ideal habitat. Mitigation credits would then be sold to offset the impacts of jay habitat throughout the County. The project seemed feasible from a land management standpoint since County

land managers have amassed an impressive body of experience with scrub jay habitat gleaned from the Section 16 project. (The Section 16 project will be explained in detail later in this report.) The biggest challenge confronting the County was acquiring suitable, undeveloped property that had scrub habitat. Property not only had to be undeveloped, but the site had to be located in an area that allowed proper management, including possible prescribed burning, and be located within a migration radius (about 6 miles) of known scrub jay populations. Most of the suitable scrub areas are located on the DeLand Ridge, much of which is developed at urban densities. Management of these areas to maintain suitable habitat was very problematic due to the fact that most of the scrub areas are located in a developed context. The other problem the County encountered was the price of the remnant scrub habitat was at a level that made purchase, subsequent management and mitigation credit sale unfeasible. The price of scrub areas continued to climb, and the County decided that limited land acquisition resources could be allocated elsewhere to possibly buy larger blocks of land that would serve to preserve more significant habitat connections. Therefore in the late spring of 2005 the scrub jay HCP study was discontinued.

The County, through the development review process, reviews Future Land Use Map amendment proposals, rezoning applications and site plans for potential impacts to listed species and related habitat. If listed species or related habitat exists on a property the County may attempt to direct growth and development away from habitat by maintaining low intensity land uses. The FLUM amendment process is reviewed by numerous agencies including FDEP and FDCA for potential impacts to listed species. For a rezoning that may be consistent with the FLUM, listed species and habitats are reviewed on a case-by-case basis using field information gathered during County staff visits to a property. Finally, as part of the site plan review process, property slated to be developed has to be surveyed for listed species. During any of the above-referenced processes the County can, and will, require that applicable governmental agencies (FWC and/or USFWS) be engaged to help appropriately manage, and if deemed appropriate, permit/mitigate impacts to species and habitat.

The County continues to implement a proactive approach to land management geared toward the preservation of listed species and associated habitat. Land management activities were significantly increased in the year 2000 when Volusia Forever was established. In the past the County, through the 1986 referendum, received funding for the acquisition of endangered lands. However, no money was earmarked for the management of the property that was purchased. Management occurred only as needed on the land purchased through the 1986 program. Revenues to pay for management were derived from the income that such lands could generate via leases and/or timber sales. By the time the next endangered land acquisition program referendum was being prepared there was a realization that there needed to be a reliable funding source to manage land that was preserved. Therefore, when the year 2000 Volusia Forever program was passed as a referendum, there was a provision that set aside 10% of funds to be used for management.

The County is a leader in land management techniques intended to enhance natural communities. The following examples are ongoing County land management projects.

The Section 16 restoration area is a 400-acre tract located within an urban context. At the advent of the restoration project, the property could be generally described as a

dense, mature sand pine stand. Developed areas located within the City of Deltona surround the Section 16 project. Notwithstanding the developed nature of Deltona, the City has the highest scrub jay population in the County. Many of the jay colonies existed in marginal habitat that consisted of scrub on vacant lots in hedgerows of low canopy xeric oak or interface areas. Section 16 provided an avenue to create ideal scrub jay habitat out of a vast area that was not suitable jay habitat. To accomplish the restoration goal the overstory sand pines were first removed. Then the land was burned or "roller chopped." For the most part, these areas have seceded to a low canopy xeric oak state. The low canopy xeric oak condition is ideal scrub jay habitat, and this area is currently occupied by forty-four scrub jay families (approximately 174 individuals). The scrub areas continue to be maintained with fire or mechanical measures on a periodic basis intended to emulate natural conditions.

Also combined with the Section 16 restoration project, there is an upland habitat mitigation component for scrub jays and gopher tortoises. A roadway project, which impacted both scrub jay and gopher tortoise habitat, was mitigated on the Section 16 project. The Section 16 experience is currently being applied to other County lands. Management of County land for habitat restoration has numerous advantages for the County and resources intended for protection, including:

- a. Assurance of a long-term habitat maintenance and creation program, which in turn creates a condition of long-term, listed species population vitality. Conversely, on private land it is difficult to guarantee that a habitat will be maintained even if the property is not developed.
- b. Creation of an educational opportunity for the citizens of Volusia County to observe and study rare wildlife.
- c. Creation of a condition where the County does not have to rely wholly on a regulatory approach to listed species management.

A favorite tool for ecological restoration and management is prescribed fire. The County has been involved in burning land since the early 1990s. However, County prescribed fire activity has increased in the recent years. Reasons for more prescribed fire can be traced to an understanding of the ecological benefits of prescribed fire and the fuel load reduction benefits of periodic burning. The fuel load reduction benefits were learned after the wildfire events of 1998 when roughly 137,000 acres of the County burned catastrophically in an environment fueled by excessive fuel accumulation, high temperatures and dry conditions. Therefore, the County burns not only for safety reasons but to effectuate habitat restoration of natural areas. Since the creation of Land Acquisition & Management in 2000 the County has increased the number of burned acres per year from roughly 200 acres per year to roughly 700 acres per year.

There is anticipation that as more land is purchased for natural resource preservation purposes and the land is managed with the intent of maintaining a suitable natural state by controlled burns and other activities, wildlife, including game animals (deer, turkey, etc.) populations will increase. In the summer of 2005, the County started and completed a study to establish a game animal population baseline for three of the larger tracts under County management. The study consisted of both transect surveys and nocturnal spotlight counts of deer. The results of the study indicated that the 7,900 acre

Lake George site has a deer population density of about one deer for every 88 acres. The Vargal tract supports about one deer for every 85 acres of the 4,000-acre property. Finally, 1,347-acre Wiregrass Prairie Preserve has a deer population of about one deer for every 72 acres. Other wildlife inventoried during this study includes wild hog, black bear, alligator and various small mammals. The County is also seeking a grant to perform an electronic survey of wild turkey with a series of remote cameras.

Ecological Communities/Wetlands

Two general ecological community types exist within the County - wetlands and uplands. Nature is never static and ecological communities can and do change over time. For example a marsh can eventually succeed to a forested wetland swamp. In an upland context, xeric oak scrub can eventually grow into a xeric hammock featuring a mature overstory of mature oak trees. Natural events such as wildfire and hurricanes can have a large impact on the character of vegetative communities. Major natural events like the 1998 wildfires have changed the natural character of vast areas of the County. The three hurricanes of 2004 have also had a major impact by reducing canopy cover and reshaping coastal shorelines and wetlands. Even though nature changes sometimes as a result of pivotal natural events like the hurricanes or wildfire, native vegetation is very resilient. However, while the natural Volusia landscape will recover from isolated events like wildfire, anthropogenic modification of the landscape can be permanent. After land is developed the ecological values of a property are typically lost or severely compromised.

As has been indicated, there have been changes regarding the vegetative composition of the County from both manmade and natural activities. However, these changes have not been quantified. The County in the early 1990's created a large mapping database of vegetative communities and other land cover for unincorporated Volusia. The mapping, known as the County ground cover mapping project, was done at a very detailed scale of one-inch equals 400 feet scale. To cover the entire County there are over 200 maps, and the information depicted on the maps have been automated into the County's GIS system. The ground cover mapping project was updated in 1997 for the first EAR cycle, but time and logistical constraints would not allow another update of the data for this EAR. While the existing County ground cover data does establish a base line, the County at this time does not have the information needed to determine exact acreage figures illustrating vegetative changes and loss of natural acreage. The County can state with a high degree of confidence that there have been changes in vegetation composition including significant modification of the natural landscape as a result of development, but as has been mentioned, the quantitative data has not been captured. Therefore, the County should continue to work toward an update of the ground cover mapping project. An update will require the use of new, 2003 computer archived aerial photos and significant staff time to do aerial photo interpretation and ground truthing work.

Upland and wetland communities within the County receive different levels of protection. Wetlands tend to be more environmentally sensitive than uplands and wetland acreage is certainly much less suitable than uplands to support land development activities. While the Comprehensive Plan FLUM is intended to direct growth and development away from areas that are associated with significant wetland acreage, the County Comprehensive Plan has numerous provisions that are intended to afford protection to wetland resources. The Plan provisions are implemented by the County Wetland

Ordinance, and the basic intent of the Wetland Ordinance is a no net loss of wetland function and acreage. In addition to wetlands being regulated, wetland buffers are also required in an effort to minimize impacts to wetlands and to protect wetland functions.

Since the goal of no net loss is intended to be a milestone of the County's wetland protection program, avoidance of wetland impacts is the primary policy when proposed development projects are reviewed. If impacts are determined to be unavoidable, the applicant must first minimize impacts to the greatest extent possible and then provide mitigation to offset those impacts.

Mitigation is intended to compensate for unavoidable adverse impacts by replacing or providing substitute resources or habitats through the creation of new wetlands, enhancement of existing wetlands, or reestablishment of wetlands that have been hydrologically compromised due to significant alteration in the past. Typically, on-site mitigation is preferable to mitigation provided elsewhere, but wetland creation and/or restoration and enhancement on-site are not always appropriate and may have long-term maintenance. In addition the maintenance and monitoring requirements can be considered a burden to some.

If on-site mitigation is not practical or appropriate, off-site mitigation can be considered. In this case, the applicant may choose to pay into the County's Environmental Improvement Trust Fund or purchase credits in a permitted mitigation bank. Since these options are less labor-intensive and do not include any long-term components, they may be considered an easier alternative to providing on-site mitigation for wetland impacts.

The concept of mitigation banking has now become mainstream. People can purchase credits from these facilities to enhance, restore, preserve, or create wetlands in a larger-scale environment, which feature management in perpetuity and may have greater success long-term. Volusia County actually owns and manages a mitigation bank - a 1,443-acre bank known as the Barberville Conservation Area. The County Environmental Improvement Trust Fund funds the Barberville Conservation Area mitigation bank. Other mitigation banks permitted within the County include the Colbert-Cameron, Farmton North, and Port Orange mitigation banks.

All of the mitigation banks in Volusia County, and most of the banks throughout the central Florida area, are associated with freshwater wetland systems. There are no permitted mitigation banks in Volusia County that sell credits for saltwater systems. Therefore, the mitigation of like kind habitat (i.e., saltwater system for a salt water system) is very difficult, and there is a need to establish a saltwater mitigation bank within the County.

A Unified Mitigation Assessment Method, known as UMAM, is now in effect and is required to be used statewide for the mitigation of wetland impacts. The method does not actually specify what type of impacts will require mitigation, but does state that mitigation for all wetland impacts will be determined using this new method. Essentially, the method includes an assessment of the pre-development condition of the wetland, and then estimates what the loss of function would be if the proposed development were to be permitted. The method then provides formulas to determine the amount of mitigation that would likely be necessary to overcome the functional loss. County wetland policies and regulations address wetland function with regard to mitigation but

those policies and regulations may need to be updated to incorporate the UMAM approach to mitigation.

Wetlands represent significantly regulated acreage and development projects that impact wetlands may require multiple permits from a number of different agencies. In some cases, a project may require a permit from Volusia County, the Florida Department of Environmental Protection (DEP), the St. Johns River Water Management District (SJRWMD), and the U.S. Army Corps of Engineers. The overlapping nature of past wetland regulations created some confusion within the regulated community and questions were raised regarding the purpose of duplicative wetland protection measures. The solution was to streamline the wetlands permitting process. At this time, the DEP typically reviews residential wetland projects while the SJRWMD generally reviews commercial and agricultural wetland projects. In an attempt to help streamline what could be considered a complex process involving multiple agencies, the County has begun to explore the possibility of taking over the responsibility of wetland permitting from the state and water management districts through delegation.

However, compared to other agencies that regulate wetlands the Volusia County Wetland Ordinance is more progressive and restrictive in that upland buffers, generally 25 or 50 feet wide, are required. The state and water management agencies may use buffers to assess secondary impacts to wetlands, but do not specifically require permitting for impacts to buffers. This difference in wetland management strategies is a prime reason why the County Wetland Ordinance offers a higher level of protection than district/state regulations. Therefore, any streamlining or efforts to take over wetland permitting responsibility from other agencies should not result in a relaxation of existing County wetland regulations.

Upland ecological communities, while not subject to the stringent level of protection afforded to wetlands in the County, also continue to be protected through land use controls, land development regulations and preservation through land acquisition.

Habitat fragmentation is the process in which large, uninterrupted natural areas are broken up into smaller, more isolated areas by development. Habitat fragmentation limits the movement of wildlife and creates isolated pockets of wildlife populations that can eventually become genetically inferior. In addition, fragmentation can interfere with migration patterns and limit the home range of certain species like bear that require large areas in which to roam. The County NRMA land use concept, highlighted by the Environmental Systems Corridor (ESC) land use designation, is designed to link public conservation lands and other natural acreage as an uninterrupted system of interconnected landscapes. The NRMA/ESC concepts have been in place since 1990 and have continued to afford protection to natural resources by regulating the use of land as a single managed unit.

From a land development regulation standpoint, upland areas are protected in a strategic manner to further safeguard wetlands and trees. For example, the County's Wetland Ordinance requires an upland buffer of intact understory and overstory vegetation. In addition, the County's Tree Ordinance preserves forested areas. However, the ecological functions of a forest, in which the trees are a part, are not necessarily protected by the Tree Ordinance.

Upland ecological communities within Volusia County continue to be best protected by public land acquisition and the subsequent management of the land to restore and enhance ecological communities. Management accomplishments include the restoration of a low canopy xeric oak scrub community on Section 16 in Deltona and restoration of pine flatwood areas on the County's Lake George property. Restoration of native upland ecological communities on public land will continue. Also, it is envisioned that the County could assume some management role on SJRWMD holdings within Volusia County. However, at this time the idea of incorporating Water Management District lands within the County management function is in the initial stages of consideration.

Agricultural Protection

Since the last EAR roughly 8,000 acres of agricultural land has been converted to other land uses within Volusia County. As previously mentioned, the combined effect of inflated real estate prices, the 2004 hurricane events, and the cost of labor have contributed to acceleration in the conversion of agricultural land to urban land and residential oriented development. In addition to those issues, municipal annexation further compromises the integrity of agriculturally designated lands by creating opportunities for subdividing large holdings.

The County's Future Land Use nomenclature allows agricultural uses of varying intensity. The Agricultural Resource (AR) category is considered the prime agricultural land use designation and allows a full range of agricultural uses including intense uses such as large-scale hog farms. (While large and intense agriculture can be allowed within the AR, intensive agriculture is not really part of the Volusia rural landscape.) In order to protect the agricultural industry, it is important that uses incompatible with agriculture, such as urban/suburban development density, are not allowed. However, the encouragement of certain land uses within agricultural areas could be studied by the County to facilitate some level of diversification. An emerging trend commonly referred to as agri-tourism has some potential to serve as economic diversification within agricultural areas. However, the County needs to ensure that any diversification of use associated with an agricultural property is ancillary to the prime agricultural use of the property, does not create compatibility problems and can be served by rural level of infrastructure.

Compatibility

Land use compatibility has always been an important factor with regard to the assignment of land use designations and zoning classifications. The current Comprehensive Plan contains Policies and guidelines that are intended to foster land use compatibility by protecting residential areas from non-residential uses. However, as market conditions and sociological values change, the definition of compatibility can be blurred. For example, living in a residential neighborhood with an interconnected street system on small lots with different house sizes and designs was once considered an acceptable development standard. Residential development trends as of the last 30 years have resulted in a homogenization of home types and sizes within neighborhoods that featured limited road access. True urban density is atypical in the County and the County is mostly developed at a suburban scale. As growth continues to occur within the County, development at the suburban scales will result in the loss of open space and environmental impacts much faster than if land were used in a more efficient manner.

Therefore, the County needs to further encourage increases in density within established urban areas and be willing to consider mixed use developments as alternatives to the traditional separation of land uses. Finally, the basic perception of the public is that high density is not a preferred land use type. The County needs to continue to educate that density and quality of life are not mutually exclusive concepts. In addition, enacting appropriate standards, such as landscaping and other development design requirements (building location and mass), can create a denser, land efficient development pattern that features uses that are generally compatible.

Property Rights

The FLUM was established with the adoption of the Comprehensive Plan in 1990 after which there was rezoning of the entire County in order to ensure that the zoning was consistent with the FLUM. The rezoning activity during the early 1990's created a feeling among some that there was an erosion of rights as a result of the Comprehensive Plan. This sentiment was not unique to Volusia County and Florida. The result from the Growth Management laws and related regulations was the passage and enactment of the Bert J. Harris Private Property Act. The Harris Act essentially put a freeze on new regulations that changed land use entitlements, and the result was a chilling of the enthusiasm for new regulations. The County has always worked with property owners to obtain the most appropriate use of their property when it came time for the development to commence. However, the fact that property rights are important is a message that needs to be kept in mind. The challenge to balance the needs of individuals and the community at large remains a goal of the County.

POTENTIAL SOCIAL IMPACTS

The social impacts of protecting the environment are typically measured with a quality of life index. Most in the County agree that protecting the environment is important and the community desire within Volusia County for environmental protection is evidenced by the willingness of citizens to tax themselves for the preservation of environmentally sensitive lands. The 2000 Volusia Forever referendum that established the current County Land Acquisition and Management fund was passed by a 63% margin.

According to the United States Department of Agriculture 2002 State and County profiles data, in the Volusia County Census, the market value for crop sales accounted for roughly 99 million dollars of the County's economic activity. Agricultural areas may be declining but agriculture is still an important asset. From a social standpoint agriculture provides goods that are needed. In addition, agriculture provides open space areas that can serve as a respite to the urban pattern of malls, tract housing, and impervious surfaces.

Compatibility can lead to emotional debates concerning land use. The key to understanding compatibility seems to be education. However, negative perceptions to uses like high-density residential development may be difficult to overcome and will require time and endurance to modify.

Property rights issues can also lead to emotional debates over the appropriateness of the governmental regulation. However, for government to create workable communities that feature compact development patterns, ensure land use compatibility, and protect

the environment, there needs to be an allocation of land use entitlements. There is no effective way to allow the urban development of property at any density while still affording protection to environmental resources, or implementing other growth management objectives. However, the goal is to balance the interests of the public with those of the individual.

POTENTIAL ECONOMIC IMPACTS

Economic impacts associated with environmental protection can be difficult to assess monetarily. However, eco-tourism and other natural resource oriented sectors of the economy, such as sport fishing, can be determined with a dollar and cents yardstick. In addition, property values tend to be higher for homes that are located on clear, clean water bodies or next to nature preserves. Undoubtedly, environmental protection has a positive economic impact. For example, communities that are associated with rampant pollution problems typically are less desirable areas in which to live. Maintaining environmental quality and facilitating growth are actually compatible goals.

The County has numerous provisions that are intended to protect agricultural activities within the County, and the County does consider the agricultural community a valuable economic asset. In addition, allowing the ability to appropriately diversify has the potential to increase profits associated with agricultural uses, and at the same time maintains agriculture as a viable part of the County economy.

Compatibility problems can have an impact on property values, and in some cases could impact the economic resources of an entire community. The mismanagement of land use allocation can create economic impacts. For example, the introduction of non-residential uses into/near neighborhoods that create large volumes of traffic, or are associated with impacts such as elevated noise levels, can cause a disinvestment in such neighborhoods. A disinvestment scenario as a result of land use incompatibility could be a reduction of maintenance of the homes and yards in the neighborhood, and as the populace within the neighborhood transitions to a more transient base resulting from absentee ownership. Also, the introduction of residential uses next to industrial developments can create conflicts that can result in the loss of employment due to an industrial use being forced to relocate as residents complain of noise, dust, odors, etc., associated with the industrial use.

Individual property rights are a basic tenet of capitalism. However, property rights without appropriate regulation can result in externalities that end up costing the public-at-large in the long run. Urban sprawl is an example of an externality of unregulated growth that creates service problems and ends up costing the public more to serve. The effective allocation of land uses is intended to help shape a community in an efficient cost effective manner. The allocation of land use density and intensity is not intended to solely facilitate the investment-backed expectations of individuals.

POTENTIAL ENVIRONMENTAL IMPACTS

Environmental programs, the appropriate allocation of Future Land Uses and land preservation/management are essential to furthering environmental protection within the County. The lack of environmental programs and the inappropriate allocation of land uses can include, but are not limited to, the following problems:

- Habitat fragmentation as result of sprawl development patterns.
- The invasion of exotic plant and animal species. For example, plants like Brazilian pepper and Australian pine are so invasive that these plants can wipe out entire native vegetative communities.
- Increased pollution from point and non-point sources.
- Flood potential can increase because there are more impervious surfaces, such as pavement and concrete.
- Impacts to groundwater levels, as impervious surfaces can limit the amount of water that seeps into the ground.
- There is a greater risk to life and property from wildfires due to the increased amount of urban/wildland interface.

In some cases agricultural operations can be very intense and can create significant environmental problems. However, in many cases land used for agriculture is very closely associated with environmental resources. Pasture and planted pine, while representing managed landscapes, are often associated with large natural areas and do serve as habitat for wildlife such as deer and turkey. Animals that have large ranges such as black bear often use planted pine areas for cover and foraging areas. Agriculture can also enhance natural systems by the use of fire to manage timber and native forage lands. In addition, cattle grazing in a non-improved, native pasture landscape can actually result in a greater diversity of plants in natural areas. Therefore, agriculture, especially low intensity agriculture, as a land use can help foster environmental protection.

Development needs to be compatible with natural resources. The intent is to protect natural functions of environmentally sensitive areas by appropriately buffering and locating uses. Wetland buffers are a prime example of a tool that the County uses to protect wetland resources from development. Buffers up to 50 feet are required and buffers help maintain some level of interaction between wetlands and uplands. Also, buffers help protect the developed landscape by serving as extra floodwater storage as wetlands ebb and flow during flood events. Density should be limited within, or next to, environmentally sensitive areas to ensure that development is compatible with natural resources, and the County currently accomplishes this goal by appropriately designating large natural areas with low intensity uses on the FLUM.

As part of the property rights debate there is a perception that environmental protection initiatives tend to be at variance with the rights of individuals. However, the rights of an individual can impact other property owners who may be very protective of their own rights. An individual waterfront property owner may claim a right to not have the water body they live on polluted by another owner. Therefore, real estate regulation intended to protect environmental resources could actually protect the rights of one owner while limiting the use of another property owner.

OBJECTIVE ANALYSIS

The Objective analysis is provided in following table.

Table 2.5: Objective Analysis

OBJECTIVE	TARGET	CONDITIONS AT THE 1998 EAR	CURRENT CONDITIONS	COMMENTS / ACTIONS
1.1.1 Growth management criteria will be established to ensure that future land use patterns will maintain vital natural functions and in conjunction with the availability of public facilities and services to support that development at the appropriate level of service.	Compatibility of land use with natural environment and urban services.	An Undeveloped Land Suitability Analysis methodology was completed and incorporated into the County's GIS. The County rezoned unincorporated Volusia to be consistent with the FLUM to ensure a standard by which land use decisions could be made.	Suitability analysis is still used to review FLUM amendment and Land Development proposals.	No change.
1.1.3 Volusia County shall limit urban sprawl by directing urban growth to those areas where public facilities and services are available inside designated service areas.	Discourage urban sprawl.	The FLUM had not been amended to establish significant new urban areas. There were some minor adjustments to expand urban areas, but nothing considered urban sprawl. Some amendments were made to re-designate existing urban future land uses to other urban uses. In some cases the amendments served to maintain developments as conforming uses.	Urban expansion has happened as a result of municipal annexation and subsequent changes to city land uses.	Establish interlocal agreements with municipalities on future city service areas/boundaries.
1.3.1 Volusia County shall provide for adequate and appropriate lands for the location of all land use types (residential, commercial, industrial, agricultural, recreational, conservation and public facility) to support the anticipated population and maximize compatibility with existing uses.	Land use allocation.	County continues to implement the Future Land Use Map.	The Future Land Use Map contains adequate land to facilitate an appropriate mix of land uses, plus additional land to prevent artificial increases in land prices.	Discourage the conversion of industrial land to commercial/retail uses.

OBJECTIVE	TARGET	CONDITIONS AT THE 1998 EAR	CURRENT CONDITIONS	COMMENTS / ACTIONS
<p>1.4.1 Consistent with Section 163.3202(1) F.S., the County will review its Land Development Regulations and determine if it is necessary to adopt standards that protect agricultural and silvicultural resource areas.</p>	<p>Land Development Regulations and the protection of agricultural and silvicultural resource areas.</p>	<p>The County had adopted a FLUM that contains categories resulting in the designation of over 187,450 acres (23% of total County) of land that permit agriculture and allow a density of 1-du/10 acres or less. The County also utilized reduced assessment procedures for land containing agricultural activities.</p>	<p>Currently the County has 433,905 (ESC – 131,484, FR – 96,833, AR – 67,027, C – 138,561) acres designated with low intensity use that allows agriculture and silviculture. (Note: The Conservation category does allow very limited agricultural production. For example, FDOF lands do produce timber resources and are designated as Conservation on the FLUM.)</p>	<p>No change.</p>
<p>11.1.1 Maintain management programs to ensure the long-term protection and enhancement of wetland habitats, water quality, and selected natural upland habitats. The primary means of accomplishing this objective will be through the retention of interconnected hydroecological systems where the wetlands and uplands function as a productive unit resembling the original landscape.</p>	<p>Maintain environmental management programs and environmental oriented land uses.</p>	<p>The County implemented the land uses of the NRMA. The County was also implementing the Wetlands Ordinance and the County was in the business of purchasing environmentally sensitive lands. In addition, Charter oriented minimum standards for environmental protection to establish the foundation for many of the County's environmental programs such as wetlands and tree protection.</p>	<p>The County still implements environmental standards and related environmental management regulations and Policies that were in place at the time of the last EAR.</p>	<p>No change.</p>

OBJECTIVE	TARGET	CONDITIONS AT THE 1998 EAR	CURRENT CONDITIONS	COMMENTS / ACTIONS
<p>11.7.1 <u>General.</u> The land development regulations shall ensure that the provision of roads, potable water, sanitary sewer, drainage, recreation, mass transit, and solid waste facilities and services required to maintain the adopted Level of Service standards shall be consistent and phased with the level of development proposed in the Future Land Use Element.</p>	<p>Provision of urban services consistent with Future Land Use Element.</p>	<p>The County reviewed all land use map amendments and land development proposals to ensure that an appropriate Level of Service can be maintained.</p>	<p>Current conditions reflect conditions at the time of the 1998 EAR.</p>	<p>No change.</p>
<p>11.8.1 <u>Coastal Resources.</u> Continue to utilize development standards for appropriate densities, intensities, buffer zones, resource protection, and location for development adjacent to aquatic and natural preserves, wildlife refuges, and environmental systems corridors that are consistent on an area-wide basis.</p>	<p>Development adjacent to environmental coastal resources.</p>	<p>The Objective is implemented through the FLUM allocation of densities. In addition, the County implements the SWIM overlay regulations that set standards for septic tank usage and open space requirements.</p>	<p>The County currently is implementing the same programs and regulations.</p>	<p>No change.</p>
<p>11.8.11 <u>Public Facilities.</u> Ensure through interlocal cooperation, adequate public facilities are available to accommodate existing and new growth and development in the Coastal Management Planning Area.</p>	<p>Public facilities in the Coastal Management Planning Area.</p>	<p>The Objective is implemented through the land development review process. Leisure Services and the Port Authority plan and develop access in conjunction with municipalities.</p>	<p>The County currently implements the same programs.</p>	<p>No change.</p>

OBJECTIVE	TARGET	CONDITIONS AT THE 1998 EAR	CURRENT CONDITIONS	COMMENTS / ACTIONS
<p>12.1.2 To protect and enhance the natural hydrologic functions and wildlife habitat attributes of surface water resources, including estuarine and oceanic waters, as well as waters which flow into estuarine and oceanic water, and the floodplains associated with these waters.</p>	<p>Protect and enhance water resources.</p>	<p>See current conditions.</p>	<p>The Indian River Lagoon Overlay District requires a higher treatment threshold for water that is discharged into the Mosquito Lagoon/Indian River north (Estuary of southeast Volusia County). In addition, water quality is further protected through a reduction of runoff by the retention of native plant species and a limitation on lot coverage. The County Wetland Ordinance ensures the retention of wetland buffers. The Wetland Ordinance, as well as the Beaches and Dunes Ordinance, address and restrict vertical sea walls.</p>	<p>No change.</p>

OBJECTIVE	TARGET	CONDITIONS AT THE 1998 EAR	CURRENT CONDITIONS	COMMENTS / ACTIONS
<p>12.1.3 To protect and appropriately utilize the physical and ecological functions of natural drainageways and drainage patterns.</p>	<p>Natural drainageways and patterns.</p>	<p>See current conditions.</p>	<p>The Objective will remain as currently worded. The County continues to target priority lands for acquisition and works with large landowners and public agencies to protect connected ecosystems. The County Wetlands Ordinance allows for integration of wetlands into stormwater management systems, provided that the natural hydrology of wetland systems is retained. The implementation of the Land Use Map directs growth and development away from such areas.</p>	<p>No change.</p>
<p>12.2.2 To minimize, and eliminate where reasonably achievable, impacts to ecological communities which degrade their natural physical and biological function as a result of land development activities.</p>	<p>Minimize environmental impacts from development.</p>	<p>The County has a Policy regarding clustering of dwelling units and/or open space for land development projects that contain environmentally sensitive lands and critical habitats within its project boundaries in order to preserve these resources. The County has been involved in the acquisition and management of environmentally sensitive land.</p>	<p>The Tree Ordinance, Indian River Lagoon Overlay District and the Water Wise Ordinance address the retention of native vegetation.</p> <p>A 7,000-acre cluster development, known as Plum Creek, has been approved. This development preserves 4,500 acres of environmentally sensitive lands that are also in the flood plain.</p>	<p>Recommendations of the "Smart Growth" Committee addresses the encouragement and use of the cluster subdivision technique, including a density bonus to incentivize the use of a cluster. Therefore, this Objective and related Policies may need to be modified to incorporate the use of cluster subdivisions as per "Smart Growth" Committee recommendations.</p>

OBJECTIVE	TARGET	CONDITIONS AT THE 1998 EAR	CURRENT CONDITIONS	COMMENTS / ACTIONS
12.2.3 To eliminate any net loss of wetlands and prevent the functional values of such wetlands to be degraded as a result of land development decisions.	Wetland protection.	The purpose and intent of the County Wetland Ordinance is a no net loss of wetland function acreage.	The County, in the year 2000 passed another bond referendum for the purchase and preservation of environmentally sensitive lands. A new unified wetland mitigation assessment method has been implemented to accomplish the objective of a no net loss.	No change.
12.2.4 To protect habitats of wildlife species occurring in the County, particularly those which are threatened, endangered, or of special concern, to maintain, and enhance where necessary, existing species population numbers and distributions.	Habitat Protection.	The County was in the initial stages of completing the HCP for marine turtles. In addition, the County was starting to actively manage public land to restore, enhance, and maintain habitat for listed species.	The County reviews projects that are proposed in various sensitive areas, and requires an ecological assessment to demonstrate compliance with all state and federal regulations for the protection of listed species on all new developments. The County operates the following programs: scrub habitat conservation, manatee conservation program, habitat conservation plan, pollution prevention, estuarine protection and restoration, Northern Coastal Basin, Indian River Lagoon National Estuary, and others.	No change.
15.1.3 Public facilities shall be limited in conservation and environmentally sensitive areas.	Limit public facilities in conservation and environmentally sensitive areas.	Intensive public facilities have been directed away from conservation and environmentally sensitive lands.	The County still buys and maintains environmentally sensitive lands. The current conditions reflect conditions at the time of the 1998 EAR.	The Objective may need to be modified to draw a distinction between intensive public facilities and non-intensive public facilities.

OBJECTIVE	TARGET	CONDITIONS AT THE 1998 EAR	CURRENT CONDITIONS	COMMENTS / ACTIONS
15.1.5 The County will coordinate land use decisions and fiscal resources with a schedule of capital improvements, which maintains adopted level of service standards and meets the existing and future facility needs.	Coordinate land use and capital improvements plan.	The County, through its concurrency management system, maintained Levels of Service for its capital facilities. Justification for projects in the Capital Improvements Program is related to LOS requirements for non-concurrency facilities.	Current conditions reflect conditions at the time of the 1998 EAR.	No change.

RECOMMENDATION

Volusia County maintains environmental management programs to ensure the long-term protection and enhancement of wetland habitats, water quality, and selected natural upland habitats. The primary means of accomplishing this objective is to work toward the protection of interconnected hydroecological systems where wetlands and uplands function as a productive, interconnected unit. The following is a summary of actions that have been identified in this section and in other sections of the EAR.

1. Maintain low intensity land uses in areas of the County not suitable for development and continue to direct growth and development away from areas that are associated with prime wildlife and listed species habitat.
2. Continue to place emphasis on developing outside of the 100-year flood plain and flood prone areas.
3. Maintain and improve wetlands protection and maintain upland buffer standards.
4. Analyze the UMAM mitigation standards for incorporation into County wetland protection regulations.
5. Continue to study wetland delegation that does not result in a lowering of environmental safeguard.
6. Continue to pursue land acquisition of environmentally sensitive lands.
7. Continue to identify and prioritize environmentally sensitive land and update the County ground cover mapping data.
8. Continue the County's land management approach to maintain viable populations of listed and unlisted wildlife.

The County needs to continue to foster an environment that is conducive to the protection of agriculture. Therefore, the County needs to continue to direct growth and development away from agricultural areas. However, land use diversification within agricultural areas should be explored. Any new use allowance should be ancillary to the existing agricultural use of a parcel and should be compatible with the agricultural character of the general area.

Compatibility will continue to be an important component to the County Future Land Use program and Zoning function. However, in order to encourage denser development patterns the County needs to explore the development of compatibility standards to help offset some of the negative impacts of density. In addition, public education with regard to gaining some acceptance of the benefits that dense development patterns can offer, instead of sprawling land uses, would be appropriate.

Striking a balance between property rights and the regulation of land uses will continue to be a challenge. However, fostering efficient land use patterns and appropriate environmental protection represent laudable community goals but at the same time an equitable system of property and use rights should be maintained.