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## **INTRODUCTION**

The purpose of the Public Facilities Element is to ensure that public facilities are available to meet the needs of Lake County. The Public Facilities Element is broken down into five sub-elements: sanitary sewer, potable water, stormwater, solid waste, and aquifer recharge.

Lake County does not own, operate, or maintain any potable water systems or wastewater systems, nor does Lake County have any water or sewer serviced areas. Municipal governments provide sanitary sewer and wastewater treatment within their jurisdictions and in adjacent areas that may be annexed as development in the county continues. Where public services are not available, private companies provide them. Septic systems and private wastewater treatment plants (package plants) treat waste in unincorporated Lake County. Potable water is provided by municipalities, private entities, or private wells.

Lake County's development and quality of life is dependent on this network of public facilities and services. Each type of service has a unique set of constraints and must adapt to growth and change differently. This element contains goals, objectives, and policies that establish the framework for the provision of public facilities in the County to meet the demand created by existing and future development.

The Florida Natural Areas Inventory has prioritized several conservation areas partially or wholly within Lake County, including, but not limited to: the Green Swamp Area of Critical State Concern, and the Wekiva/Ocala Greenway. Select ecosystems of Lake County are thus fragile and closely linked with the ecological sustainability of communities within and beyond the county's boundaries. Issues of plant and animal biodiversity and water supply are among the most important environmental considerations for the County.

The county is faced with the challenge of balancing development pressures with the preservation of the natural environment. To this end, Lake County will comply with all legislation (Federal, State, Regional and Local) as it pertains to Lake County's environmental sensitive areas.

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## **GOAL AQUIFER 1**

To maintain an adequate quality and quantity of aquifer recharge to protect potable water supplies, and ensure the protection of natural systems.

### **OBJECTIVE 1.0 METHODOLOGY**

Lake County will coordinate with federal, state, and local agencies to study and describe aquifer recharge areas, and the vulnerability of ground water resources.

#### **1.1 Aquifer Recharge Maps**

Lake County shall utilize best available aquifer recharge maps created by local, regional, state, and federal agencies.

#### **1.2 Floridan Aquifer Vulnerability Assessment (FAVA) Map**

Lake County shall coordinate with the Florida Geological Survey, Water Management Districts and FDEP to prepare a Floridan Aquifer Vulnerability Assessment (FAVA) Map on a county-wide scale to determine areas within the county vulnerable to contamination of the Floridan aquifer, including primary, secondary and tertiary protection zones, karst features, springs and sinks.

Natural processes or human activities can introduce contaminants to ground water either through pollution of surface-water bodies or by infiltration through soils and sequences of sediments and rocks that overlay Florida's aquifer systems.

This map shall be prepared using technology developed by the Florida Geological Survey and designed to provide a detailed distribution of relative vulnerability based solely on natural properties of hydrogeology. The map shall not include anthropogenic factors such as land use and contaminant loading. An aquifer vulnerability model prepared using data specific to Lake County, will help determine which areas within the county are vulnerable and allow for establishment of appropriate development standards. The County will also utilize the report titled Florida Geological Survey Report on Investigation 104: Wekiva Aquifer Vulnerability Assessment (WAVA).

Some of the applications of the FAVA map include wellhead protection, source-water protection, recharge protection, vulnerability indices, contaminant-specific maps, land acquisition, total maximum daily loads (TMDLs), surface-water/ground-water interactions, water-quality management tool, resource planning strategies and policies, prioritization of areas of critical concern, design of monitoring plans, best management practices springshed protection, watershed and ecosystem comprehensive planning, land-use planning/zoning, land conservation and as a component of ground-water susceptibility models.

#### **1.3 Springshed Maps**

Lake County shall utilize best available springshed maps created by state, regional and federal agencies.

Lake County will contribute information and monitoring data to assist federal, state, and local agencies in studying the impacts of all land uses on hydrologic resources including but not limited to recharge areas, springs, wetlands and land surrounding Outstanding Florida Waters located in Lake County. The Lake County Comprehensive Plan shall be amended, and the Land

Development Regulations updated, as necessary based on these studies and best available information from these agencies.

The position of the springshed boundary is time dependent. That is, the boundary is representative of a “snapshot” in time, rather than a permanent condition. Thus, the boundaries of springsheds are dynamic and vary as a result of a changing potentiometric surface. Should a site-specific study be performed to meet the Land Development Regulation requirements of the development within a springshed, the most conservative USGS potentiometric map available shall be used.

#### **1.4 Aquifer Monitoring Programs**

Lake County will cooperate with federal, state, regional water management, local agencies, local governments, and interest groups in the implementation of on-going aquifer-monitoring programs.

#### **1.5 Development of Local Regulations**

Lake County shall develop local regulations for inclusion into the Land Development Regulations, including a Lake County-specific scale version of the FGS FAVA map, to augment state and federal regulations pertaining to the protection of the surficial and Floridan aquifers.

#### **1.6 Intergovernmental Coordination**

Lake County shall collaborate with federal, state, regional, and local agencies, including the Water Management Districts and local agencies in studying the surficial and Floridan aquifers, springs, karst areas and surface waters as they apply, and in determining the most appropriate actions to take in order to protect these resources. Approaches and measures to accomplish this shall be developed consistent with the intergovernmental coordination element of the comprehensive plan.

### **OBJECTIVE 2.0 CONSERVATION OF THE AQUIFER RESOURCE**

The County shall safeguard the quality and quantity of ground water in the surficial and Floridan aquifers, to protect and enhance the capabilities of Aquifer Protection Zones for the present and future water supply of Lake County and ensure protection of natural resources. The following policies shall apply generally within Lake County.

#### **2.1 Water Conserving Plumbing Fixtures**

The County shall require the use of water conserving plumbing fixtures in all new development.

#### **2.2 Irrigation Rain Sensors or Soil Moisture Sensors**

The County shall require irrigation rain sensors or soil moisture sensors with automatic cut-offs on all new irrigation systems in accordance with the Florida Standard Building Code and/or Water Management District rules.

#### **2.3 Golf Course Ordinance**

Lake County shall comply with the adopted golf course ordinance as it applies to, water conservation, reuse and drought management in order to limit the impact of golf courses on ground water resources.

#### **2.4 Surface and Subsurface Hydrology**

Lake County shall discourage any land use that would significantly alter surface and ground water levels, surface and ground water quality, recharge; or have an adverse effect on the environment.

#### **2.5 Best Management Practices**

Lake County shall require the use of best management practices and performance standards to maximize open space, limit impervious surfaces, promote protection of natural vegetation, buffer karst areas, maximize recharge volumes, minimize the use of potable water for non-potable uses, encourage reuse of water, and treat recharge stormwater to protect ground water quality. Such practices and standards shall be included in the Land Development Regulations.

#### **2.6 Recharge Projects**

Lake County will continue to work with federal, state, and regional agencies to evaluate potential projects that would allow for increased recharge to occur. The County shall seek to partner with federal, state, regional, and local agencies and jurisdictions for funding, technical assistance, and implementation of recharge projects. Based upon the results of analysis, the County may implement additional recharge projects in suitable locations. The County shall focus recharge enhancement projects in areas most susceptible to harm from insufficient groundwater volume, such as the Wekiva Study Area.

#### **2.7 Minimizing Impact to Floodplains**

The County shall maintain or improve the quality and function of drainage systems, ground and surface waterways, recharge areas and associated natural resources through an emphasis on non-structural approaches to floodplain management. Compensating storage shall be required for development in floodplains.

#### **2.8 Educational Enhancement**

Lake County, through the Public Outreach Program of Environmental Services, shall participate in enhancing the function and quality of the education of its citizens about: 1) the current water conservation policies, 2) fragility of the aquifer, 3) methods to reuse and conserve water, 4) well-abandonment problems and rules, 5) benefits of drought resistant plants, and 6) methods of reducing pollution and nutrient loads to waterways and aquifers through an education program that consists of, at a minimum, brochures, a speakers bureau, and slide show. The County shall also maintain, update, enhance and promote the Web-based "Lake County Water Resource Atlas."

### **OBJECTIVE 3.0 PROTECTION OF RECHARGE AREAS, AREAS OF AQUIFER VULNERABILITY, AND SPRINGSHEDS**

Lake County recognizes the need to provide special protection of recharge areas defined as protected recharge areas, most effective recharge areas, areas vulnerable to aquifer

contamination, and springsheds in order to safeguard natural systems and water supplies. The following policies pertain to these areas.

### **3.1 Protection Strategies**

The County will actively pursue the following to enhance the protection of groundwater resources:

- Institute BMPs for stormwater management and use of low impact design options through design, retrofit and maintenance of stormwater management facilities;
- Heighten public education targeted to homeowners regarding proper lawn and landscaped area fertilization and irrigation and maintenance of stormwater systems;
- Emphasize use of "right plant-right place" and Florida Friendly landscaping approaches to lawn and landscape design;
- Encourage the collection of lawn and landscaping debris to reduce nutrient loading to the aquifer;
- Establish water conservation programs;
- Foster local stewardship "adopt a springs" type programs and other incentive and volunteer springshed awareness and protection programs;
- Adopt state criteria, best management practices or equivalent for the design and construction of stormwater management systems in Aquifer Protection Zones and karst areas; and
- Provide pre-treatment, in the form of swales, berms, ponds, or dry basins, to runoff that currently discharges directly into wetlands, and in Aquifer Protection Zones and karst areas.

### **3.2 Emphasis on Low Intensity Use**

Within Aquifer Protection Zones and karst areas, existing low intensity land uses shall be maintained as the best option for protecting the quality and quantity and groundwater resources.

### **3.3 Protection of Recharge Volume**

In addition to requiring minimum level of service standards established by the Comprehensive Plan Stormwater Sub-Element, the County shall ensure that post-development recharge volume conditions approximate pre-development recharge volume conditions within Aquifer Protection Zones. This shall be accomplished through implementation of Land Development Regulations by requiring that the first three inches of stormwater be retained on site. As an alternative the applicant may conduct a hydrologic survey and site analysis to demonstrate that post-development recharge is equal to or greater than pre-development recharge. The County shall require compliance with all state and water management district rules pertaining to the design of stormwater management systems in most effective recharge areas located wholly or partially within the WSA.

### **3.4 Design Strategies for Aquifer Recharge Protection**

Development within an Aquifer Protection Zones shall be required to maintain pre-development net retention in a manner that protects ground and surface water quality. Exemptions may be given for agricultural activities utilizing Best Management Practices adopted by federal, state, and regional that protect ground and surface water quality. The use of stormwater capture, swales, dry wells, grass parking, porous pavement, pervious concrete, turf blocks and other innovative technologies shall be encouraged as a method of protecting aquifer recharge. Porous pavement, pervious concrete and turf blocks however shall not be used to completely fulfill this requirement because these materials tend to become impervious over time.

### **3.5 Secure Lands for Aquifer Protection**

Where feasible, Lake County shall purchase or secure conservation easements on lands that contains Aquifer Protection Zones and property that contains unique or sensitive karst features.

### **3.6 Site Specific Review**

The Land Development Regulations shall include the requirement of a hydrogeologic report for all Aquifer Protection Zones as part of site evaluation prior to development.

In the event that the applicant disputes a determination by the county that a site is located within an Aquifer Protection Zone, the applicant may, at their expense, prepare a site-specific study performed by a qualified Florida Professional Geologist or Engineer to determine if the site lies within an Aquifer Protection Zone. This report will be provided to the appropriate agency for review and consideration. Should a site-specific study be performed within a springshed, the most conservative USGS potentiometric map available shall be used.

### **3.7 Land Development Regulations**

The County shall adopt Land Development Regulations for protected recharge areas, most effective recharge areas, areas vulnerable to aquifer contamination, and springsheds. The County shall utilize the DEP/DCA publication "Protecting Florida Springs: Land Use Planning Strategies and Best Management Practices" to develop these land development regulations to the greatest extent possible. These land development regulations shall include but not be limited to the following:

- Requirements to minimize impervious surfaces (including foot pads) considering open space incentives, pervious parking areas, and maintenance of existing native vegetation and/or use of native or water wise plant materials suitable for on-site ecological and soil conditions;
- Requirements to utilize on-site retention of rain and storm water for active and passive irrigation where feasible and effective;
- Requirements to implement "right plant – right place" and water wise landscaping standards;
- Minimum open space standards;
- Design standards for natural water retention areas;
- Standards to ensure water quality;
- Protection of the aquifer from saltwater intrusion;
- Regulations regarding the use of pesticides and fertilizers;

- Regulations that protect sensitive karst features such as springs and sinks as undeveloped open space with ample buffering and native vegetation; and
- Regulations regarding the use and maintenance of onsite sewage treatment and disposal systems (OSTDS).

### **3.8 Sinkholes and Karst Features**

The County shall require a site-specific scientific study to evaluate the risks of development in or adjacent to sinkholes and karst features. Additionally, the type, density and intensity of land uses established adjacent to a sinkhole or karst features shall be limited to activities that will not result in further expansion of the hole or that would negatively impact ground water quality. When development in the vicinity of a sinkhole is proposed, appropriate setbacks and buffering shall be required. Recommendations for development shall be based on a site specific study by a qualified licensed professional, either a State licensed professional engineer or professional geologist paid for by the developer. Specific setbacks and buffering proposed shall require approval by qualified county staff.

Stormwater management systems shall be designed to assure adequate treatment of the stormwater before it can enter a sinkhole or karst features, and to preclude the formation of solution pipe sinkholes or subsidence. Should a sinkhole or karst features be determined to be a sensitive karst feature, any diversion of surface water or stormwater directly or indirectly to this karst feature shall be prohibited.

### **3.9 Protocol for Determining Suitability**

The County shall develop protocols for review in determining the suitability of a site, with respect to Aquifer Protection Zones and karst features for a proposed change in future land use, zoning, or conditional use.

### **3.10 Homeowner Literature**

As a condition of development approval, the County shall require that when development occurs within or adjacent to environmentally sensitive areas including aquifer protection zones, a best management practices document shall be developed for the education of homeowners or property owners. This document shall include guidelines that reduce the risk of contamination or harm to groundwater resources. The developer shall prepare and provide for distribution, brochures to enhance public awareness of these resources.

### **3.11 Evaluation of Future Land Use and Zoning**

The County shall require that a report by a licensed professional geologist be submitted with a future land use amendment or rezoning application to provide an analysis of the site for the presence of protected recharge areas, most effective recharge areas, areas more vulnerable to contamination, springsheds, karst features, and sinkholes.

## **OBJECTIVE 4.0 PREVENTION OF CONTAMINATION OF AQUIFER SYSTEMS**

The County shall evaluate commercial, industrial, business and residential land use, as well as proposed land use amendments and rezonings, to protect the County's ground water resources and prevent contamination of the aquifer.

### **4.1 Land Development Regulation Updates**

Lake County shall amend its Comprehensive Plan and update its Land Development Regulations, using information collected by federal, state, regional water management, and local agencies during future ground water quality studies. These updates shall address but are not limited to:

- Public well field siting, per the adopted Wellhead Protection Ordinance;
- Siting of industrial land uses which use regulated substances or generate hazardous waste;
- Siting of additional household hazardous waste collection facilities for households and conditionally exempt small quantity generators of hazardous waste;
- Protection of the aquifer from saltwater intrusion;
- Activities regarding the use of regulated substances, including but not limited to pesticides and fertilizers.

#### **4.2 Continued Enforcement of Regulations**

Lake County shall cooperate with federal, state, and local agencies in enforcing regulations pertaining to the protection of the surficial and Floridan aquifers from regulated materials and wastes including those material governed by and/or equal but receiving special exemption under, the Resource Conservation and Recovery Act (RCRA), the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), and/or other Federal, State, regional water management, and Local codes requiring the management of materials that may be harmful or dangerous to the environment.

#### **4.3 Regulated and/ or Hazardous Waste Disposal**

Lake County shall cooperate with all state and federal authorities in the regulation and disposal of regulated and/or hazardous wastes as defined in 9J5.003 (38) F.A.C..

#### **4.4 Regulation of Hazardous Wastes in Protected Aquifer Recharge Areas and in an Area More vulnerable to Contamination**

Lake County shall coordinate with FDEP to regulate the disposal of hazardous wastes in all areas of the County. Small quantity generator (<1000 kg per month) businesses that use regulated materials or generate hazardous waste shall be regulated so as to ensure that proper handling and disposal practices are adhered to. The location of new businesses that use regulated materials or generate hazardous waste shall be restricted within Aquifer Protection Zones. Large quantity generators (>1000 kg per month) may be prohibited in Aquifer Protection Zones.

#### **4.5 Coordinate Facilities producing, using, handling and storing regulated materials with Land Use**

The County shall utilize the information provided by the inventory of facilities producing, using, handling and storing regulated materials in making land use decisions to avoid incompatible development in Aquifer Protection Zones.