CHAPTER 10

NATURAL GROUNDWATER AND AQUIFER RECHARGE ELEMENT

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A. OVERVIEW

The overall purpose of this Element is to protect both the quantity and quality of the natural groundwater. This includes both the surficial and Floridan (particularly the Upper Floridan) aquifers. Groundwater levels and water quality are affected by many activities. Solid waste and hazardous waste facilities, underground storage tanks, and septic tanks all have the potential to contaminate groundwater quality, these issues are affected by the Land Use Element which regulates potential contaminate sources and wellfield locations; Transportation Element which determines need (gas stations) and affects location particularly of large public facilities; Intergovernmental Coordination determines effectiveness of a groundwater protection program; and the Capital Improvements Element determines funding. In addition, the Sanitary Sewer Sub-element (reuse or recharge of treated effluent), Potable Water Sub-element (adoption of a Water Supply Facilities Work Plan that identifies traditional and alternative sources necessary to meet the projected demand), Solid Waste Sub-element (potential contaminant sources, including hazardous and biological waste) and Drainage Sub-element (affects how much stormwater is available for recharge) impact groundwater. Those elements should be reviewed for additional restrictions as they relate to recharge and groundwater quality. Deficiencies in federal, state, regional and local rules meant to protect the aquifer from the above potential contaminant sources are addressed and additional aquifer protection measures are proposed. All of these issues are addressed more fully in the supporting documents. The goals, objectives and policies contained herein, provide guidelines and limitations regarding the above issues in order to protect the County's sole source aquifer for the next twenty years and beyond.

Natural groundwater recharge areas, because they are linked to the groundwater, are affected by the restrictions to protect groundwater quality and quantity listed above. Recharge areas must maintain their natural recharge functions if they are to continue to replenish the aquifer. However, other than stormwater regulations, there are very few rules protecting recharge areas. This Sub-element includes measures to protect these upland areas.

B. GOALS, OBJECTIVES AND POLICIES

GOAL:

10.1 Protect the quality and quantity of the surficial and Floridan aquifers, including the Volusia-Floridan sole source aquifer, and protect and enhance the capabilities of the groundwater recharge areas for the present and future water supply of the County.

OBJECTIVE:

10.1.1 Potable water resources shall be protected and conserved such that the recharge function of the aquifers shall be maintained. Dependence upon the Floridan aquifer for non-potable uses shall be reduced, and withdrawals from the surficial aquifer shall not cause damage to the resource.

POLICIES:

10.1.1.1 Volusia County shall utilize recharge maps from the St. Johns River Water Management District and/or the USGS to determine areas of recharge within the County.

10.1.1.2 Volusia County shall continue to monitor groundwater supply conditions in conjunction with the St. Johns River Water Management District. Furthermore, Volusia County shall periodically review the adequacy of groundwater supply monitoring procedures and, if necessary, formulate an appropriate alternative management strategy.

10.1.1.3 Volusia County shall continue to promote water wise irrigation practices under Chapter 50, Division 10, Volusia County Code of Ordinances. Land development permits in unincorporated Volusia County will be subject to those limitations.

10.1.1.4 A four level groundwater protection plan has been established. Volusia County shall determine when the Floridan aquifer reaches each level based on the following: water levels in wells, spring flows and rainfall. The County shall periodically review, revise and strengthen measures taken at each level to prevent reaching level IV. The levels are as follows:

A. Base Level - This Level is the Base Water Conservation and Use level and corresponds to Section 50-315(a) of the Volusia County Code of Ordinances.

B. Level II - Level II corresponds to the St. Johns River Water Management District's Phase II Severe Water Shortage Plan and all the provisions therein. Level II may be declared at any time based on the established need for additional water conservation and use provisions above and beyond the Base Level.

C. Level III - Level III corresponds to the St. Johns River Water Management District's Phase III Extreme Water Shortage Plan and all the provisions therein. Level III may be declared at any time based on the established need for additional water conservation and use provisions above and beyond Level II.

D. Level IV - Level IV corresponds to the St. Johns River Water Management District's phase IV Critical Water Shortage Plan and all the established need for additional water conservation and use provisions above and beyond Level III. No development permits will be issued until recovery.

10.1.1.5 Volusia County Utilities shall promote the efficient use of groundwater supplies as outlined in the Potable Water Sub-element of this Comprehensive Plan.

10.1.1.6 Volusia County shall implement the current well ordinance and remain consistent with the recommendations of the SJRWMD's Air/Water Heat Pump Model Ordinance.

10.1.1.7 Volusia County shall require the use of water conserving plumbing fixtures in all new development, subject to County regulations in effect.

10.1.1.8 The criteria for evaluating the condition of the aquifer for this and all policies in this Sub-element may include, but not be limited to: ongoing monitoring of wells, saltwater intrusion; changes in vegetation, springs and wetlands; increase occurrence of sinkholes; and evidence of potential groundwater contamination.

10.1.1.9 Volusia County shall require the use of recovered wastewater as required in the Sanitary Sewer Sub-element of this Comprehensive Plan.

10.1.1.10 Volusia County shall continue to collaborate with the St. Johns River Water Management District, U.S. Geological Survey, and U.S. Natural Resources Conservation Service both in studying the surficial and Floridan aquifers and in determining the most appropriate actions to take in order to protect the resource.

10.1.1.11 Prime (or high) aquifer recharge areas appropriate for development shall be developed so as to continue to maintain pre-development net retention and new stormwater management projects in existing developed areas should be designed in a fashion that enhances aquifer recharge.

10.1.1.12 Volusia County shall protect recharge lands through both fee simple or less than fee simple acquisition techniques, land use controls, or other methods deemed appropriate.

10.1.1.13 Because of its importance as a recharge area and its mostly natural ecosystem, suitable undeveloped portions of Rima Ridge shall be included in the Environmental Systems Corridors.

10.1.1.14 Volusia County shall maintain a comprehensive program responsible for educating businesses and residents of: the County's current water conservation policies, the fragility of the aquifer, methods to reuse and conserve water, well abandonment problems and rules, and benefits of water efficient landscaping.

10.1.1.15 Volusia County shall continue to maintain membership within the Water Authority of Volusia.

10.1.1.16 The County shall encourage the continued metering of agricultural wells in the County to help accurately determine water usage within the County.

10.1.1.17 The County shall encourage reuse of wastewater for both agricultural and urban irrigation/freeze protection purposes.

10.1.1.18 Activities in the unincorporated area shall not result in the lowering of the potentiometric surface of the Floridan aquifer below the lowest 1981 (May, June or July) levels, which would cause damage to the resource.

10.1.1.19 The County shall implement water conservation strategies and related policies in the Potable Water Sub-Element.

OBJECTIVE:

10.1.2 Volusia County shall not allow the degradation of the Floridan and surficial aquifers' water quality.

POLICIES:

10.1.2.1 The County shall continue to rely on FDEP to monitor the County's groundwater system to determine the extent of any future groundwater contamination and FDEP's information will serve as a database to assess ambient groundwater quality.

10.1.2.2 Volusia County shall maintain policies, within its jurisdiction, using information collected in the FDEP groundwater quality studies, to protect the aquifer.

These shall include policies which address:

1. public wellfield siting

2. siting of industrial land uses which use hazardous materials or generate hazardous waste

3. siting of additional hazardous waste collection facilities, as needed

4. if necessary, expansion of the Hazardous Material Emergency Response Team

5. if necessary, additional protection of the aquifer from saltwater intrusion

6. if necessary, restrictions to agricultural activities regarding the use of pesticides or fertilizers.

10.1.2.3 The County shall continue to enforce local and State regulations pertaining to the protection of the surficial and Floridan aquifers from such contaminants as hazardous wastes through the wellfield protection ordinance and small quantity generator program and petroleum products through the petroleum storage tank compliance and petroleum clean-up programs. If state funds become unavailable, Volusia County shall determine the feasibility of continuing these programs.

10.1.2.4 Volusia County shall maintain a wellhead/wellfield protection ordinance for the unincorporated area. The wellhead/wellfield protection ordinance shall, at minimum

1. establish the zones of influence and/or areas for protection for each public wellfield,

2. restrict the handling and storage of hazardous substances in order to protect potable water wells,

3. permit regional wellfields to serve a multi-purpose function, such as conservation and passive public recreational facilities.

10.1.2.5 Volusia County Environmental Management Division shall assist with enforcement of FDEP's petroleum storage tank compliance rules by performing installation, closure, and routine annual facility inspection of petroleum storage systems.

10.1.2.6 Underground petroleum storage tanks shall be prohibited within the primary zone of influence, or area for protection, as determined by Policy 10.1.2.4, of all existing and designated future public wellfields in the unincorporated area, (includes those regulated by the Public Utilities Commission) and shall be prohibited in future development in the Environmental System Corridors as designated by the Conservation and Future Land Use elements in this Comprehensive Plan.

10.1.2.7 Volusia County Environmental Management Division shall continue to contract with FDEP to manage the clean up of petroleum contamination resulting from petroleum storage tank sites contingent on available State/Federal funds. If funds become unavailable Volusia County shall determine the feasibility of continuing this program.

10.1.2.8 Bio-medical wastes within the County shall continue to be managed by the Volusia County Health Department.

10.1.2.9 The County shall continue following state regulations at all County solid waste disposal facilities to protect the water quality of the Floridan and surficial aquifers.

10.1.2.10 The County shall continue the present well monitoring program at the County's landfills to determine groundwater and surface water pollutant levels and shall expand the number of monitoring wells concurrent with expansion of the landfill and any future landfills.

10.1.2.11 Existing monitoring equipment at the County landfill shall be properly maintained and upgraded in connection with technological advances.

10.1.2.12 Future landfills shall not be located within prime (or high) aquifer recharge areas or karst areas prone to sinkhole activity.

10.1.2.13 The County shall monitor closed landfills owned and operated by the County for possible groundwater contamination.

10.1.2.14 Volusia County shall coordinate with all municipalities in the selection of future landfill sites.

OBJECTIVE:

10.1.3 Volusia County shall develop a program for its potable water facilities to protect future sources and minimize detrimental environmental effects which may be caused by developing excessive groundwater supplies.

POLICIES:

10.1.3.1 Volusia County shall continue to monitor groundwater supply conditions in conjunction with the St. John's River Water Management District (SJRWMD). The Volusia County groundwater supply database shall include information using a

network of monitoring wells. Furthermore, Volusia County shall periodically review the adequacy of groundwater supply monitoring procedures and, if necessary, formulate an appropriate alternative management strategy.

10.1.3.2 Volusia County, working with the SJRWMD, partnering water supply entities and the Water Authority of Volusia, shall:

a. Restrict additional groundwater development within those portions of coastal Volusia County which are known to contain groundwater of subpotable quality at a depth of less than 100 feet.

b. Permit regional wellfields under their jurisdiction to serve a multipurpose function, such as conservation and passive public recreational facilities.

c. Monitor that the natural aquifer levels are maintained.

d. Encourage water use efficiency through low flow plumbing, water efficient landscaping, etc.

e. Explore, and if deemed necessary, develop alternative sources of potable water as addressed in the Potable Water Sub-Element.

C. Floridan Aquifer Recharge Areas Map

The Floridan Aquifer Recharge Area Map, Figure 10-1 is as referenced herein is contained in Appendix 1, Maps and Figures.