

**CHAPTER 9**  
**DRAINAGE SUB-ELEMENT**

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#### **A. OVERVIEW**

The purpose of the Drainage Sub-element of the Comprehensive Plan is to properly manage stormwater runoff, to protect ground and surface water quality, protect individuals and prevent property damage from flooding.

The relationship between land use management and stormwater management is inevitably linked. The coverage of land area by impervious surfaces allows pollutants to accumulate. The rain moves these accumulated pollutants into ground and surface waters which reduces water quality. The conveyance systems used to channel the stormwater can become clogged leading to flooding and property damage. It is when natural features are converted into urban land uses that development related problems occur. The process of development disrupts our natural drainage patterns and requires that controls be instituted to protect water quality and property from flooding.

In 1978, Volusia County passed a Stormwater Management Ordinance that established performance and design standards for the management of stormwater runoff. In 1986, the Volusia County Charter was amended to allow the County to enact minimum performance and design standards for the management of stormwater runoff that apply County-wide. All incorporated local governments in Volusia County are required to adopt ordinances that meet or exceed the County's minimum standards for the regulation of stormwater runoff. In addition, a Technical Steering Committee formed by Volusia County has identified many shortcomings pertaining to drainage patterns in the County. They have identified a need for the following information:

1. Watershed studies
2. Determination of the significance of Mosquito Control District facilities on the natural drainage pattern.
3. Coordination with the cities to determine jurisdictional responsibilities. While the Mosquito Control District is statutorily limited to mosquitoes, their ditches and canals are being used to accommodate urban stormwater. This poses a serious jurisdictional problem when a development permit is issued by a municipality on the stormwater capacity of a canal maintained for mosquito control.

This Plan is intended to study and provide direction to solve these problems. The watershed studies are the building blocks needed to determine the appropriate level of service, design capacity and service area. Intergovernmental Coordination is essential to solve the jurisdictional problems of Mosquito Control District facilities being used for the management of stormwater runoff.

A stormwater utility has been established to give the County a permanent source of funding for stormwater management.

These recommendations are designed to meet the requirements of Section 163.3177(6)(c), Florida Statutes, which contain minimum standards for the content of the Drainage Sub-element.

The adopted components of the Drainage Sub-element include the Overview, the Goals, Objectives and Policies and the Implementation Strategies.

A draft report of Phase I and II of the Stormwater Control and Aquifer Recharge Program (SCARP) was completed in February and October 1991. The purpose of the Stormwater Needs Assessment was to identify and prioritize water quantity (flooding), water quality (non-point water source pollution), water conservation and aquifer recharge needs as well as a funding mechanism (stormwater utility) to cover costs and maintain levels of service. The Comprehensive Plan along with the support documents provide direction for the proper management of drainage through the year 2025.

## B. GOALS, OBJECTIVES AND POLICIES

### GOAL:

- 9.1 Ensure the protection of the surface waters and groundwater for the residents of Volusia County.

### OBJECTIVE:

- 9.1.1 Volusia County shall fund and complete comprehensive watershed studies for all areas currently developed, or developing with essentially urban land uses, and areas where the Future Land Use Map has designated essentially urban land uses within the unincorporated County, as part of an overall Stormwater Master Plan. The County shall continue to assess other watersheds for flooding and pollution problems and for changes in land use.

### POLICIES:

- 9.1.1.1 Volusia County shall develop a comprehensive surface and groundwater watershed management plan within six months after completion and adoption of the comprehensive drainage watershed studies.
- 9.1.1.2 All land use and development approval decisions which impact water resources in Volusia County shall conform to the comprehensive surface and groundwater watershed management plan. As each watershed study is completed and adopted by Volusia County, its recommendations will be used for all land use and development approval decisions which impact water resources until the comprehensive watershed management plan is implemented. In watersheds in which there are no comprehensive studies, the County shall adopt the following minimum service level standards for Class A facilities (concurrency) for storm drainage in the unincorporated county.

#### Level of Service for Storm Water Quantity and Quality:

- a. Volusia County shall require that all developments meet the minimum volume of retention equivalent to one-half inch of depth over the entire project area and the discharge hydrograph produced for the developed or redeveloped site shall not exceed, in terms of peak flow and total volume, the hydrograph produced by

conditions existing before development or redevelopment for 24-hour, 25-year frequency storm and the applicable water quality rules under the St. Johns River Water Management District, which includes the Florida Administrative Code 40C-4, 40C-40, 40C-41, 40C-42, 40C-44, and 40C-400.

- 9.1.1.3 The County shall develop, in conjunction with other local governments within and adjacent to Volusia County, a permit tracking system. This system shall require that each jurisdiction provide on a timely basis, information that will be used to determine whether an area-wide level of service is being maintained for the County Drainage System.
- 9.1.1.4 Volusia County shall use the watershed studies to determine level of service, capacity analysis, demand level and geographic service area for stormwater management areas and shall include mosquito control facilities which function as stormwater facilities.
- 9.1.1.5 Volusia County shall establish joint working groups composed of the County and its municipalities for the purposes of coordinating stormwater management programs County-wide. The committee should be charged with avoiding duplication and overlap of drainage facilities and participate in the implementation of a county-wide stormwater master plan and individual drainage basin studies. Adjacent municipalities in other counties and other county governments may be represented on the committee to address problems that cross political boundaries or where siting of regional drainage facilities may be cost-effective.
- 9.1.1.6 Volusia County will establish a Level of Service design standard in closed drainage basins as follows: All developments shall meet the minimum volume of retention equivalent to one-half inch of depth over the entire project area and the discharge hydrograph produced for the developed or redeveloped site shall not exceed, in terms of peak flow and total volume, the hydrograph produced by conditions existing before development or redevelopment for 24-hour, 100-year frequency storm and the applicable water quality rules under the St. Johns River Water Management District, which includes the Florida Administrative Code 40C-4, 40C-40, 40C-41, 40C-42, 40C 44, and 40C-400.

The purpose of these higher LOS design standards is to ensure greater protection of the public from flooding and pollution from stormwater runoff. This policy is to be interpreted as permitting stricter stormwater LOS standards than the minimum standards of the Comprehensive Plan based on the characteristics of the stormwater basin. This is consistent with Policy 9.1.1.4, which allows stricter stormwater standards in areas where watershed or drainage basin studies have been completed.

**OBJECTIVE:**

- 9.1.2 Volusia County shall at a minimum maintain current standards regulating the design, construction, and management of drainage systems used for stormwater management.

POLICIES:

- 9.1.2.1 Volusia County shall identify and prioritize urban drainage systems in need of retrofitting and upgrade these systems as funding becomes available. Watershed studies will be used to identify and prioritize systems in need of retrofitting. Volusia County will apply for any grants available from Swim Program and loans available from the DER Revolving Loan Fund.
- 9.1.2.2 Volusia County implemented a stormwater utility to fund stormwater improvements.
- 9.1.2.3 Volusia County shall coordinate with its municipalities and the East Volusia Mosquito Control District in determining jurisdictional responsibilities of mosquito control facilities used for stormwater management.
- 9.1.2.4 Volusia County shall encourage proper maintenance of stormwater management systems.
- 9.1.2.5 New or redesigned stormwater management systems which use wet detention facilities, including isolated wetland facilities, shall provide diversion of the "first flush" (The initial volume of stormwater runoff generated following the onset of rainfall which contains the majority of stormwater pollutants. First flush is usually defined as the runoff generated by the first inch of rainfall, or the first half inch of runoff) of stormwater to separate retention facilities in order to protect the water quality in the detention system from the adverse effects of direct discharge of stormwater pollutants.
- 9.1.2.6 Best Management Practices (BMPs) for control of erosion and sedimentation shall be employed for all construction, urban development, and agricultural activities in order to protect natural waterbodies, water courses and wetlands from siltation. BMPs are acceptable for erosion and sediment control include those published by the Natural Resources Conservation Service (NRCS), Florida Department of Transportation (FDOT), Florida Department of Environmental Protection (FDEP), Florida Department of Agriculture and Conservation Service (FDACS), and the Institute of Food and Agricultural Sciences. Other BMPs may be accepted provided that they control erosion and sedimentation and protects the function of stormwater management systems as well as any of the BMP's published by the above referenced agencies.

OBJECTIVE:

- 9.1.3 Volusia County shall develop minimum standards to regulate stormwater discharge into surface waters and primary sinkholes in karst terrain through the use of percolation ponds and other appropriate methods.

POLICIES:

- 9.1.3.1 Volusia County shall maintain an effluent reuse and disposal program to recharge wetlands and groundwater supplies and providing irrigation water thereby conserving potable water resource and improving surface water quality of the County.

9.1.3.2 Volusia County shall develop standards to preserve native vegetation or in cases where it is not possible use other species with equivalent drought resistant properties to aid water conservation. Native or drought resistance plants include but are not limited to those in Florida Native Plant Society's publication, "Native Plants for Landscaping in Florida", or comparable guides prepared by the Florida Department of Agriculture and Conservation Services (FDACS), Florida Fish and Wildlife Conservation Commission, Florida Department of Environmental Protection (FDEP), the East Central Florida Regional Planning Council, and the St. Johns River Water Management District.