DRAINAGE ELEMENT INTRODUCTION

Section 163.3177(6)(c), Florida Statutes, requires that each Comprehensive Plan contain a general sanitary sewer, solid waste, drainage, potable water, and natural groundwater aquifer recharge element. As part of meeting this requirement, Seminole County has prepared and adopted a standalone Drainage Element

The Drainage Element assesses current and anticipated needs associated with stormwater management, defines the County philosophy and policy direction with regards to addressing these issues and outlines a long-range implementation plan to solve the identified problems. The focus of the County's Stormwater Program concerns both the quantity aspects of drainage relating to capacity and flood control and, also, the quality of runoff into receiving waters.

The County's major stormwater conveyance system was initially comprised largely of a system of private, inadequately maintained agricultural ditches and canals connected to natural streams, which fed into the major lakes and rivers. This conveyance system, while once adequate to serve a predominantly agricultural community, has been increasingly strained by the needs of a growing, urbanized County. Standards have been established for correction of deficiencies and are intended to ensure that improvements are made to key structures within all basins in a comprehensive fashion. Eleven master basin evaluations, of the sixteen identified basins, have been completed. Three more are in progress. A number of additional deficiencies that have been identified by the studies so far.

County stormwater standards contained within the Land Development Code addresses peak rate discharge and volumetrically-controlled closed drainage basins. As a result of the drainage basin evaluations, a "rolling" five-year program strategy has been established to systematically identify and improve existing deficiencies. The Stormwater Capital Improvements Program annually updates the five-year list of planned deficiency corrections which is then adopted into the Capital Improvements Element of the Comprehensive Plan. The ability to fund ongoing stormwater needs is key to accomplishing the identified program within a reasonable time period. To this end, the County has annually allotted funds towards the program and continues to consider additional sources of income that could expand the program's efforts.

An additional issue of increasing concern is the water quality impacts of storm runoff to receiving water bodies. Currently, Seminole County is monitoring over 87 locations in many natural water bodies. The current status of the lakes and rivers with regards to water quality has been assessed and several programs are being implemented improving water quality. Further, regulations promulgated by the US Environmental Protection Agency known as the National Pollutant Discharge Elimination System have had significant impacts on the County's level of monitoring outfalls to waters of the State. Additionally, the Florida Department of Environmental Protection is working with Seminole County for the implementation of Total Maximum Daily Loads on many of the County's receiving water bodies.

Lastly, one of the most significant projects completed by the Watershed Management Division has been the development of a Countywide Watershed Atlas, a website that serves as the public clearinghouse for stormwater, water resources, and other natural resources data regarding Seminole County. This tool contains hydrologic data (water level and flow data), bathymetric (contour) data, vegetation data, wildlife data, and water quality data on all of the water bodies in Seminole County, providing staff, citizens, and professionals with up to date information online.

Primary sources of information used to produce this element are from or include the following:

A Seminole County Public Works – Engineering Division

B Seminole County Development Review Engineering

C Seminole County Roads- Roads and Stormwater Division

D Seminole County Drainage Inventory and Engineering Evaluations

E Seminole County Environmental Services - Watershed Management Division

DRAINAGE ELEMENT
GOALS, OBJECTIVES, AND POLICIES

GOAL

The County will continue to implement a cost-effective stormwater program, to minimize flooding and the adverse impacts of uncontrolled stormwater runoff.

OBJECTIVE DRG 1 DEFICIENCY CORRECTION

The County will continue to implement a program to systematically identify and correct existing surface water quality and stormwater management deficiencies and meet future needs. Emphasis should be placed on maximizing use of existing facilities and meeting best stormwater management practices for new development.

Policy DRG 1.1 Basin Evaluations

The County shall continue its long-range program strategy, which builds upon existing stormwater studies to direct Stormwater Program needs that shall include, at a minimum, the following activities:

A The County shall continue to prepare individual drainage basin master plans, which survey and assess systems conditions, identify existing and future system deficiencies and identify necessary improvements to meet levels of service. These plans shall be periodically reviewed and updated; and

B The County shall prioritize remaining basin master studies based on the best available data, ongoing agency studies, identified deficiencies and anticipated growth.

Policy DRG 1.2 Deficiency Correction

The County shall seek to eliminate identified deficiencies through a systematic program to upgrade existing structures and/or construct area-wide systems as funding becomes available.

Policy DRG 1.3 Complaint Tracking

The County shall continue to operate the existing drainage complaint tracking system to facilitate the identification of nuisance problems, to assist in locating and prioritizing capital projects, and to establish a database of historical drainage needs and corrective actions.

Policy DRG 1.4 Right-of-Way Acquisition

The County will continue to secure legal access and/or acquire rights-of-way associated with primary stormwater conveyances in order to correct deficiencies and maintain facilities.

Policy DRG 1.5 Deficiency Correction

The County shall maximize the use of existing facilities through increased capacity, operation and maintenance and consider area-wide stormwater facilities in correcting existing deficiencies and meeting growth needs.

Policy DRG 1.6 Strategy for Deficiency Correction/Study Implementation

The following chronology of events shall be used as a guide to facilitate the completion of basin evaluations, correction of deficiencies and maintenance of facility performance:

A BASIN EVALUATIONS: Basin evaluations shall be completed based on *Policy DRG 1.1 Basin Evaluations*. Basin evaluations shall include the components outlined in *Policy DRG 1.1 Basin Evaluations*. and long-term improvements both for water quality and quantity and identification of the design storm to which long term improvements will be made and maintained for each basin.

B DEFICIENCY CORRECTION - QUANTITY: The Capital Improvements Element of the Comprehensive Plan shall be amended as needed to adopt improvement projects necessary to meet and maintain the following level of service standards:

1 A 100-year/24-hour design storm standard will be assigned to bridges with spans greater than 20 feet and to any modeled stormwater structure intended to keep evacuation routes and emergency service buildings identified by the County operational.

2 A 50-year/24-hour design storm standard will be assigned to all cross drains and bridges with spans less than 20 feet intended to keep operational evacuation routes and emergency services buildings identified by the County operational.

3 A 25-year/24-hour design storm standard (as identified above) will be assigned to the primary drainage system and all retention/detention facilities included in the stormwater model that are not subject to the criteria listed above.

4 A 10-year/24-hour design storm standard will be assigned to all closed pipe conveyance systems included in the stormwater model that are not subject to the criteria listed above.

5 Parcels in a land-locked basin shall be designed to the 100-year/ 24-hour total retention or volumetric difference for the 25-year/96-hour storm event depending on the determination of appropriate receiving system.

C DEFICIENCY CORRECTION - QUALITY: The Capital Improvements Element of the Comprehensive Plan shall be amended as needed to adopt improvement projects necessary to address meeting established TMDL standards:

1 Maintain State water quality standards and any TMDL pollutant load reduction requirements assigned to water bodies identified as "impaired".

2 Seek to identify water bodies at risk of pollutant impairment by means of the water quality monitoring program.

D FACILITY IMPROVEMENT DESIGN: All structural improvements to the Countywide conveyance system shall be consistent with the standards and criteria adopted in *Policies DRG 5.1 Development Level of Service Standards* and *DRG 5.2 Land Development Code Stormwater Criteria* and *Exhibit DRG: Level of Service Standards For Development* as implemented within the County's Land Development Code.

E OPERATION AND MAINTENANCE STANDARDS: Maintain an ongoing

operation and maintenance program as required. Annual program costs shall be incorporated into the annual Stormwater Field Operations operational budget.

Policy DRG 1.7 Inclusion within the Capital Improvements Element (CIE)

The annual update to the CIE five-year capital projects listing for Drainage shall include deficiency corrections identified in the basin studies; projects identified in Seminole County are listed in the BMAP Statewide Annual Report.

OBJECTIVE DRG 2 FACILITY REGULATION, CONSTRUCTION, DESIGN AND MAINTENANCE

Protect the public safety, welfare, and property from flood hazards and degradation of water quality through effective regulation, design, and maintenance of stormwater facilities and systems.

Policy DRG 2.1 Land Development Code

The County shall continue to amend the Public Works Engineering Manual (including surface Stormwater Management Standards) to ensure consistency with Chapter 62-330 Florida Administrative Code, and of the St Johns River Water Management District Permit Information Manual.

Policy DRG 2.2 Floodprone Area Delineation

The County shall continue to rely upon Flood Insurance Rate Maps as produced by the Federal Emergency Management Agency.

Policy DRG 2.3 Floodprone Area Regulation

The County shall address areas subject to flooding problems collaboratively with the development community, and in the development review process permit only minor modification, with compensating storage, of the 100-year flood elevation.

Policy DRG 2.4 Conservation Easements

The County shall continue to require the dedication of conservation easements as a means of protecting the functions of floodways and water quality.

Policy DRG 2.5 Facility Construction

The County shall prohibit alteration of existing structures and natural drainage systems that would potentially endanger public safety and/or have an adverse effect on property, water quality or other natural resources.

Policy DRG 2.6 Underdrain Regulations

The County shall update the Public Works Engineering Manual to effectively address the known problems associated with many underdrain facilities and provide feasible alternatives.

Policy DRG 2.7 Facility Development Regulations

The County shall continue to rely upon the Public Works Engineering Manual's Stormwater Management Standards to ensure that the design, construction and operation of stormwater facilities is consistent with adopted engineering standards and encourages the use of best available management practices.

Policy DRG 2.8 Wekiva Study Area Land Development Regulations

The County shall enforce, and, as appropriate, strengthen existing Land

Development Code regulations to implement the master stormwater management plan and land development regulations provisions of the Wekiva Parkway and Protection Act, Sections 369.319 and 369.321(6), FS. Land development regulations shall implement Plan policies regarding stormwater management systems within the Wekiva Study Area.

OBJECTIVE DRG 3 NATURAL RESOURCE IMPACTS

The County shall maintain or improve the quality and function of natural drainage systems, ground and surface waterways, recharge areas and associated natural resources through emphasis on non-structural approaches to floodplain management. Ground water and recharge areas are further protected by *CON 1 Groundwater Protection* and its associated policies; and, *Objective CON 2 Surface Water Protection* and its associated policies.

Policy DRG 3.1 Non-Structural Floodplain Management

The County shall continue to rely on a nonstructural approach to floodplain management in order to maximize flood-holding capacity and minimize public expenditure for capital and maintenance costs.

Policy DRG 3.2 Surface Water Quality Plan

The County shall continue implementation of its watershed management plan to monitor and protect the quality and functioning of surface water resources. This program shall continue coordination with the St. Johns River Water Management District, Florida Department of Environmental Protection and US Environmental Protection Agency stormwater programs to increase consistency with programs such as the National Pollutant Discharge Elimination System (NPDES) and Total Maximum Daily Load (TMDL).

The County shall work cooperatively with the Florida Department of Environmental Protection (FDEP) to develop a proactive approach to the TMDL process through the County's monitoring program, NPDES, Lake Management Program, and County's Watershed Atlas Projects. These projects, and coordination between County and FDEP staff, with assistance from the County's consultant, has and will continue to enable the County to participate and have greater affect upon the development of TMDLs for all impaired water bodies, including those located within municipalities.

Policy DRG 3.3 Agency Coordination

The County shall continue to work with the St. Johns River Water Management District, the Federal Emergency Management Agency and other agencies to update mapping of floodways, identify point sources of pollution, conduct basin specific studies and develop regulations for the protection of drainageways.

Policy DRG 3.4 Stormwater Runoff Treatment

The County shall continue to rely on the Public Works Engineering Manual and encourage nonstructural techniques such as Low Impact Development to ensure stormwater runoff be treated to reduce the pollutant loads discharged into receiving waters. Waters that have been identified as "impaired" or that have an adopted Total Maximum Daily Load, will require additional or more stringent treatment.

Policy DRG 3.5 Development Regulations

The County shall prohibit development practices which create over-drainage of

land and soil.

Policy DRG 3.6 Low Impact Development Practices

The County shall amend the Public Works Engineering Manual to incorporate and promote Low Impact Development (LID) principles and BMPs to better conserve, protect, and restore water bodies and ecosystems, reduce infrastructure costs, and mitigate potential environmental impacts.

In general, the LID approach includes practices that:

A Encourage preservation of natural resources;

B Allow development in a manner that helps mitigate potential environmental impacts;

C Reduce cost of stormwater management systems;

D Use a host of management practices to reduce runoff; and

E Reduce pollutant release into the environment.

Policy DRG 3.7 Groundwater Recharge/Facility Design

The County shall require on-site retention BMPs, including LID BMPs, in upland areas to maximize groundwater recharge.

Policy DRG 3.8 Education Program/Brochure

The County shall continue its commitment to its public education programs, supporting all appropriate videos, brochures, and other means of providing education in the following instructional areas: the causes and potential for flooding; the importance of natural conditions and vegetation to water quality maintenance; the importance of keeping drainage ways unobstructed; available County information such as Flood Insurance Rate Maps; County and State Code requirements; and ways to maintain water quality of lakes, conveyances and retention ponds. Brochures for public dissemination shall continue to be developed. The online Seminole County Watershed Atlas is an example of a public education program product.

Policy DRG 3.9 Groundwater Recharge

The County shall continue to evaluate its protection of recharge areas with each Evaluation and Appraisal Reporting cycle and amend regulations as necessary to ensure that natural recharge of groundwater from rainfall is not decreased.

OBJECTIVE DRG 4 FUNDING

The County shall implement innovative and feasible regulations and financing mechanisms to eliminate existing deficiencies, maintain existing systems and plan for future needs, including applying for state and federal grants.

Policy DRG 4.1 Funding for Stormwater Improvements

The County shall continue to seek implementation of a dedicated funding mechanism, such as a Stormwater Utility, Municipal Services Taxing Unit, or penny sales tax, for financing existing and future Stormwater Program needs.

Policy DRG 4.2 Regional Stormwater Facilities

The County shall study and assess the feasibility and practicality of implementing area-wide or regional stormwater treatment facilities.

Policy DRG 4.3 Middle St. Johns Basin Stormwater Working Group

The County shall continue to coordinate, through the Middle St. Johns Basin Stormwater Working Group, the joint review, implementation and funding of basin master plans and associated improvements.

Policy DRG 4.4 Infrastructure Coordination

The County shall continue to coordinate the implementation of stormwater projects with roadway, utility or other facility improvements to maximize the efficient use of funds and to coordinate the proper sizing of new and replacement structures.

Policy DRG 4.5 Wekiva Study Area Capital Improvements

The County shall implement the provisions of the Wekiva Parkway and Protection Act, Sections 369.319, and 369.321(2), Florida Statutes, by application of the following strategies:

A Beginning in Fiscal Year 2006-2007, the County shall prioritize, in conjunction with overall County stormwater management efforts, the projects, programs, and activities applicable to Seminole County identified in the "Wekiva Parkway and Protection Act, Master Stormwater Management Plan Support, Final Report", November 2005 (the "CDM Plan" [formerly *Camp Dressor & McGee*]).

B The County shall base funding of any project, program, or activity from the CDM Plan on the following criteria:

1. Financial feasibility
2. Flood severity
3. Recharge potential
4. Ease of maintenance
5. Public benefit
6. Ease of securing permit
7. Construction cost
8. Water quality retrofit need
9. Potential pollutant load reduction

C Projects, programs, or activities identified in the CDM Plan that meet the above criteria and are incorporated into the Capital Improvements Element, shall be identified as five-year capital improvements.

D The County shall investigate, with each Evaluation and Appraisal Report cycle, Best Management Practices and available technology for stormwater reuse, and shall evaluate the possibility of establishing a stormwater reuse program for the Wekiva Study Area. The County shall incorporate any adopted stormwater reuse program into the Land Development Code.

E The County shall continue to fund stormwater projects, programs, and activities, including operations and maintenance. Funding sources may include the Transportation/General Fund/Municipal Service Taxing Unit or other identified sources.

OBJECTIVE DRG 5 LEVELS OF SERVICE

Established levels of service standards are performance standards which relate to the capacity, water quality treatment and flood control of stormwater facilities in order to meet minimum

applicable State and Federal standards for water quality and flood protection.

Policy DRG 5.1 Development Level of Service Standards

The County shall require that all new development and redevelopment meet the design criteria set forth in *Exhibit DRG: Level of Service Standards For Development* and implemented through the County's Public Works Engineering Manual.

Policy DRG 5.2 Land Development Code Stormwater Criteria

The County shall require all development applications to meet the following stormwater quality and quantity criteria implemented within the Public Works Engineering Manual:

A All site alteration activities shall provide for such water retention, settling structures and flow alteration devices as may be necessary to ensure that post-development runoff will not be greater than the pre- development runoff.

B Permitted rates and volumes of stormwater runoff, whether discharged into natural or artificial water courses, shall meet existing water quality standards or ensure that the receiving water body is not degraded below the minimum conditions necessary to assure the suitability of water for the designated use of its classification as established in Chapter 62-302, Florida Administrative Code, whichever is greater.

C No site alteration shall cause siltation of wetlands, pollution of downstream wetlands, reduce the natural retention or filtering capabilities of wetlands, or cause a health hazard.

Policy DRG 5.3 Agency Standards

The County shall regulate through the land development process development and redevelopment consistent with and meeting the minimum requirements of the St. Johns River Water Management Chapter 62-330 Florida Administrative Code (FAC); the ERP Applicant's Handbook, Volume I, General and Environmental; and the SJRWMD Permit Information Manual.

Policy DRG 5.4 Water Quality Monitoring and Deficiency Correction Program

The Comprehensive Plan shall be amended to incorporate the long-range deficiency correction and monitoring programs, such as those required by the Environmental Protection Agency and Florida Department of Environmental Protection (FDEP) into the Capital Improvements Element. Basin Management Action Plans (BMAPs) developed by the State pursuant to F.S. 403.067(7) outlines what activities and capital improvements (CIP) projects will be implemented in order to restore the health of each water body. Each local government, agency, and/or private entity stakeholder that contributes pollutant loads to an impaired water body are required by State and Federal regulations to identify specific activities and or CIPs that will be funded and implemented to offset or reduce their individual pollutant loads. BMAP projects necessary to achieve the pollutant load reductions are updated annually in the BMAP Star Report compiled by FDEP and will be included by reference in the Capital Improvement Element of the Comprehensive Plan.

Policy DRG 5.5 Expansion of Total Maximum Daily Load Program

The County shall consider establishing a Total Maximum Daily Load (TMDL)

Program for all surface water bodies once such programs have been established for impaired bodies of water.

OBJECTIVE DRG 6 INTERGOVERNMENTAL COORDINATION

The County shall work with all parties to maximize funding, education, deficiency correction of existing stormwater management facilities, construction of new stormwater management facilities and surface water protection in Seminole County.

Policy DRG 6.1 Intergovernmental Coordination

The County shall continue to work collaboratively with the Stormwater Working Group, the Florida Department of Environmental Protection, the US Environmental Protection Agency, the Federal Emergency Management Agency, and other agencies to maximize its goals relating to funding drainage improvements, water quality improvements, and environmental protection projects.

Policy DRG 6.2 Seminole County Watershed Atlas

The County shall continue to coordinate with the Municipalities, other Local Governments, State, and Federal agencies to allow the Seminole County Watershed Atlas to reflect the most current and up-to-date information on new changes in regulations, water quality, hydrology, other environmental parameters, or other types of data as decided by the Watershed Management Division.

Policy DRG 6.3 Wekiva Study Area Stormwater Management

The County shall address the master stormwater management plan provision of the Wekiva Parkway and Protection Act, Section 369.319, Florida Statutes, to assist in alleviating problems related to surface water conveyance and quality, and in improving the quality and quantity of groundwater discharging into the springs within the Wekiva Study Area, by application of, but not limited to, the following strategies:

A Implementation of the projects, programs, and activities recommendations, applicable to Seminole County, contained in the "Wekiva Parkway and Protection Act, Master Stormwater Management Plan Support, Final Report", November 2005 (the "CDM [Camp Dressor & McGee] Plan"); and

B Implementation of Best Management Practices (BMPs), including, but not limited to, applicable BMPs recommended in "Protecting Florida's Springs – Land Use Planning Strategies and Best Management Practices", Florida Department of Community Affairs and Florida Department of Environmental Protection, 2002, and from the Model Goals, Objectives, and Policies, Wekiva Study Area, published by the Department of Community Affairs (April 2006).

C As additional protection to groundwater and surface water, development activity (including the placing or depositing of fill within wetlands and the 100 year floodplain identified by Federal Emergency Management Agency), within the Wekiva River Protection Area shall be prohibited except in cases of overriding public interest. Where wetland values are degraded due to overriding public interest, mitigation efforts shall occur. Floodplain impacts will require compensating storage.

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