



## **INFRASTRUCTURE ELEMENT**

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### **STORMWATER SUB-ELEMENT**

#### **GOALS, OBJECTIVES & POLICIES**

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### GOAL DR 1: STORMWATER MANAGEMENT/DRAINAGE SYSTEMS.

It is the goal of the City of Casselberry to provide adequate drainage and control of stormwater runoff and its associated pollutants such that surface and ground waters are protected for the public, and to do so in an efficient, orderly and environmentally sound manner. The City establishes the objectives and policies below, identified by the precedent "DR", towards the accomplishment of this goal.

**OBJECTIVE DR 1. CORRECTION OF EXISTING DRAINAGE SYSTEM DEFICIENCIES.** It is the City of Casselberry's objective to take specific action during the planning period (2009-2019) to assess and correct deficiencies in the stormwater management system and related structural facilities.

**Policy DR 1.1 Lawful Stormwater Management Operations.** The stormwater management system and related structural drainage facilities owned by the City of Casselberry shall be operated in a manner that complies with all applicable city, regional, state, and federal drainage and stormwater management standards, throughout the planning period (2009-2019).

**Policy DR 1.2 Master Stormwater Plan.** The City shall continue to implement the improvements and recommendations of an approved Master Stormwater Plan as funding permits. The recommendations shall be the basis for amending the 5 year Capital Improvements Plan.

**Policy DR 1.3 Drainage Systems Inventory.** The City shall maintain an inventory control system of all drainage systems and structures within the corporate City Limits to be updated on an annual basis. A list of deficiencies found in stormwater systems and drainage structures shall be kept with the inventory, and notations of erosion, rapid runoff, and indicators of poor drainage performance shall be made.

**Policy DR 1.4 Stormwater Facilities Schedule.** The Public Works Department shall establish a Stormwater Facilities Deficiencies and Retrofit Correction Schedule covering a five year increment. The schedule shall be part of the Master Stormwater Plan and address correction of deficiencies identified within the Master Stormwater Plan and Structural Drainage Facilities Inventory maintained by the City. It shall be consistent with the City Comprehensive Plan Capital Improvements Element. It shall prioritize projects for maximum efficiency and cost-effectiveness. The schedule shall serve as a guide for the City, shall be updated annually, and shall project a five year increment.

**Policy DR 1.5 Site Plan Reviews and Comprehensive Plan Consistency.** Throughout the planning period (2009-2019) public facilities and services intended to serve future development shall be consistent with the City of Casselberry Comprehensive Plan. Site plans will be reviewed for their impacts with regard to: ongoing performance capacity of existing stormwater drainage facilities and any present deficiencies to include (1) existing topography and soils classifications, (2) drainage capacity prior to development, (3)

drainage capacity subsequent to development, (4) amount of deficiency, if applicable, (5) alternatives to resolve the deficiency, (6) recommended option to overcome the deficiency, and (7) all required State and Federal permits have been obtained.

**OBJECTIVE DR 2. COORDINATION OF INCREASED DRAINAGE CAPACITY.** It is the City of Casselberry's objective to perform specific actions during the planning period (2009-2019) to mitigate the increased stormwater runoff to that necessary to protect surface and ground water quantity and quality for the City service area's future population.

**Policy DR 2.1 Coordinated Plans for Drainage Capacity Increase.** The City of Casselberry shall plan for increased capacity of stormwater management facilities to meet future drainage needs within the Casselberry service area. Information contained in the Master Stormwater Plan shall be used to prioritize and coordinate the expansion and upgrade of drainage facilities to meet future needs. Casselberry shall establish and maintain a current five year stormwater management facilities capital improvements program for the extension and increase in capacity of stormwater facilities. Relevant data and analysis shall be used to revise and amend as needed the Stormwater Deficiencies Schedule, contained in the Stormwater Master Plan, and the Five Year Capital Improvements Schedule in the Capital Improvements Element.

**Policy DR 2.2 Interlocal Coordination.** Casselberry shall continue throughout the planning period (2009-2019) to have both informal and formal contact with adjacent municipalities in order to encourage cost effective infrastructure and avoid unnecessary duplication in the provision of stormwater management studies and facilities. Contact shall include meetings, telephone exchanges, letters and other written communication, and other forms of coordination up to and including the establishment of interlocal agreements.

**OBJECTIVE DR 3. MAXIMIZING THE USE OF EXISTING PUBLIC FACILITIES.** It is the City of Casselberry's objective to take specific action during the planning period (2009-2019) to maximize the use of existing, public stormwater management facilities.

**Policy DR 3.1 Use of Highest and Best Technology.** The City of Casselberry Department of Public Works shall identify, develop, and implement environmentally sound stormwater management policies throughout the planning period (2009-2019). The Public Works Department shall review the Master Stormwater Plan, shall incorporate and use current and technically advanced environmental information, and shall abide by the limits established by the St. John's River Water Management District pursuant to their statutory obligations in the performance of stormwater drainage volume and lake levels, treatment and distribution services. Public health, economic impacts, impact on natural systems, and aesthetic impacts shall be considered in the selection of drainage systems and methods.

**Policy DR 3.2 Computer Based Maps Access.** The City's Public Works Department shall use computer based mapping technology to locate and maintain an inventory of all City stormwater management facilities. The map and inventory shall be updated on a continual basis.

**Policy DR 3.3**      **NPDES Record-keeping.** The City's Public Works Department shall continue to meet the requirements of the City's NPDES permit in conjunction with Seminole County.

**Policy DR 3.4**      **Service Area Boundaries.** The City of Casselberry Public Works Department shall meet with the SJRWMD, and adjacent governments, authorities and private utilities to establish interlocal agreements on stormwater management service area boundaries so that there are no unnecessary duplications of service lines or conflicts in service provision.

**Policy DR 3.5**      **Stormwater Management System Representative.** Throughout the planning period (2009-2019), a City of Casselberry representative shall participate in functions related to stormwater management, whose purpose is to coordinate the regulatory activities of state, regional, or local agencies to reduce unnecessary duplication and to maximize the effectiveness of existing manpower and revenue allocations.

**Policy DR 3.6**      **Ranked Development Criteria.** Throughout the planning period (2009-2019) the following ranked criteria shall be used by Casselberry to establish priorities for the provision of stormwater management services:

1. Provision of service to existing developed areas that either present an immediate threat to public health or safety or produce serious pollution problems;
2. Upgrading of the pollutant prevention characteristics of existing stormwater drainage systems or the treatment of deteriorating surface water quality in order to bring the water quality into compliance with regulatory standards;
3. Development of drainage systems for areas within the corporate limits identified in the Facilities Correction Schedule, Capital Improvements Program, and the City of Casselberry Comprehensive Plan;

The Public Works Department shall apply these priorities in the development of departmental procedures, standards and written guidelines, including the development of the Master Stormwater Plan.

**Policy DR 3.7**      **Level of Service.** The City of Casselberry shall require stormwater treatment capacity at a level of service equal to or in excess of the present level of service of a twenty-five year frequency stormwater event of twenty-four hours duration for stormwater management.

All stormwater treatment and disposal facilities shall be required to meet the design and performance standards established in Chapters 40, Florida Administrative Code, with on-site treatment to meet water quality standards required by Chapter 302, Section 62-302.500, Florida Administrative Code and any amendments.

Stormwater discharge facilities must be designed so as to not degrade the receiving water body 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, and any amendments, or below the present level, whichever results

in the higher water quality. All standards are to apply to all new development and redevelopment. Any exemptions, exceptions, or thresholds in these citations, including project size thresholds, are not applicable. In the cases of redevelopment, the level of treatment (or lack thereof) in the existing developed condition may be considered when evaluating proposed improvements, and regulations promoting improved water quality and level of service specifically for redevelopment, may be added to the ULDRs.

**OBJECTIVE DR 4. PROTECTION OF SURFACE WATER QUALITY AND OTHER NATURAL DRAINAGE FEATURES.** It is the City of Casselberry's objective to perform specific actions during the planning period (2009-2019) to protect public health by protecting natural drainage features,.

**Policy DR 4.1 Environmental Impact Site Reviews.** When it has been determined by the City Planning and Zoning Commission/Land Planning Agency after input from the Development Review Committee that an application for development will result in a substantial adverse environmental impact, the Commission may limit the density/intensity of development. Substantial environmental impact may be determined by one or more of the following:

- A. Rapid stormwater runoff type drainage.
- B. Inability to meet stormwater management criteria set forth in the City of Casselberry Drainage Systems Ordinance; and
- C. Contamination of surface water bodies or groundwater.

**Policy DR 4.2 Continuing Protection of Natural Drainage Features.** Throughout the planning period (2009-2019), the City of Casselberry shall continue to encourage the nonstructural approach using techniques such as street sweeping and public education to meet both surface water quality and quantity, and shall require that drainage systems be sized to accommodate existing upstream runoff. Requirements pertaining to structural stormwater management conveyances shall be continued.

Drainage plans for all development shall be required in all site plan submittals, and to be reviewed by the Development Review Committee for a determination of compliance. The following review criteria shall be applied:

1. Bodies of receiving water shall not be degraded
2. Runoff shall not be greater than prior to development. Consideration of existing conditions may be applied in cases of redevelopment.
3. Use of shallow, flat, slow-velocity, open channel types shall be preferred for all major storm water conveyance systems
4. Rapid runoff conveyance systems are expressly prohibited
5. LOS must be met according to policy DR 3.7
6. Implementation of Low Impact Development (LID) techniques will be encouraged

**Policy DR 4.3**      **Water Quality Analysis and Improvement Program.** The Public Works Department shall be responsible to ensure that water quality testing is performed for lakes within the City. If the results of the water quality analyses demonstrate deteriorating water quality, the Public Works Department shall develop a water quality analysis and improvement program for the entire drainage system

**OBJECTIVE DR 5. FISCALLY RESPONSIBLE PUBLIC STORMWATER MANAGEMENT SERVICES.** It is the City of Casselberry's objective to perform specific actions during the planning period (2009-2019) so that the City's stormwater management operations are fiscally responsible.

**Policy DR 5.1**      **Five Year Plan.** The City of Casselberry Public Works Department shall establish a capital improvements program covering a five year increment. The schedule shall incorporate the deficiencies correction schedule identified within Policy DR 1.3. It shall be consistent with the City Comprehensive Plan Capital Improvements Element. It shall prioritize projects for maximum efficiency and cost-effectiveness. The schedule shall serve as a guide for the City, shall be updated annually, and shall project a five year increment.

**Policy DR 5.2**      **Stormwater Management Utility.** The City of Casselberry shall continue to implement its stormwater utility calculated a fee based upon an equivalent residential unit (ERU) for all development.

**Policy DR 5.3**      **Alternate Funding Pursuit.** The Casselberry Public Works Department shall continue to pursue alternative funding sources and participate with other localities in order to plan and develop the stormwater management program.

## EXECUTIVE SUMMARY

The development and management of an adequate drainage and stormwater program is an asset in land use management. Rapid drainage and stormwater run-off is associated with developed land use. It can cause sedimentation in sewer pipes and lakes, heavy metal concentrations in surface waters, soil erosion, polluted surface waters and, ultimately, groundwater pollution. A sign of improper drainage is an accelerated rate of lake pollution by nutrient overloading, which produces lakes choked by plants and algae in an unnaturally short time.

Stormwater management systems employ various techniques to handle the first flush of rainfall runoff, in which about 80-90% of the pollution load is carried. Grassed swales as well as curbs and gutters are among the techniques utilized.

Casselberry began a stormwater management program following two hurricanes which passed through the area producing disastrous results. The City has now completed a master stormwater plan and has formulated recommendations and improvements to implement that plan in the City's Capital Improvements Schedule. This will continue to be done for the planning period of 2009-2019.

The federal government, (U.S. Environmental Protection Agency) the state government (Department of Environmental Protection) and the regional government (St. John's River Water Management District) all have regulations that apply to the protection of groundwater, thereby indirectly affecting stormwater management systems.

Casselberry's natural drainage systems include the Gee Creek, Howell Branch, and Little Econ Basins. The Gee Creek Basin is the most significant, and has received extensive study. Howell Branch Basin is second in significance, and Casselberry's share of the Little Econ is very small. Casselberry primarily has Type 1 (surface or swale drainage along street through areas which do not have storm sewers) and Type 3 drainage (to and along streets which have storm sewers, curbs and gutters).

Casselberry continues to define its drainage level of service as that of protection provided by a ten-year design storm, with retention areas designed to withstand a 25-year storm event. Other management techniques that are currently being carried out include lake level monitoring, lake water quality sampling, city cooperation in the development of the Lake Jesup Basin Management Action Plan (BMAP) for addressing Total Maximum Daily Loads (TMDLs), an emphasis on public education with regard to lake management and water quality issues, and a stormwater utility.