

Stormwater • Aquifer Recharge

Goals, Objectives, and Policies

Approved August 12, 1991 • Amended June 8, 2009

Element

POLICY DOCUMENT

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STORMWATER AND AQUIFER RECHARGE GOALS, OBJECTIVES AND POLICIES

GOAL 1

To provide efficient and economic stormwater management which will protect the public and property from flooding and which will maintain and improve water resource quality.

Objective 1.1 The City shall annually evaluate existing flooding areas within the city and formulate a five-year program, for input into the Capital Improvement Element, outlining the appropriate retrofit or development strategies to alleviate flooding problems.

Policy 1.1.1 The City shall continue to accept existing conditions as the pre-1984 LOS standard and shall comply with requirements of the National Pollution Discharge Elimination System (NPDES) permit to outline deficiencies, to schedule needed capital improvements and to include a water quality component for existing development which is in compliance with the State Water Policy, Chapter 60-40 F.A.C., as applied by FDEP and the Water Management Districts.

(Amended February 7, 2000, Effective March 9, 2000, Doc. No. 32636; Amended June 8, 2009, Effective August 25, 2009, Doc. No. 0906081103)

Policy 1.1.2 The City shall apply all criteria contained within the Engineering Standards Manual (ESM) and associated documents as the post-1984 LOS standard including:

<u>Facility</u>	<u>LOS</u>
City Primary	Design Storm: 25 year / 24 hour Max. Flood Stage: 100 yr / 3 day below floor elevations Max. Hydraulic Grade Line (HGL): at gutter elevation for 25 year / 6 hour storm
City Secondary	Design Storm: 10 year /6 hour Max. HGL: 1' below gutter elevation Check Storm: 25 year/6 hour Max HGL: at gutter elevation
City Tertiary	Design Storm: 10 year/6 hour Max. HGL: 1' below gutter elevation Check Storm: 25 year/6 hour Max. HGL: at gutter elevation
Arterial Road	Roadway Section and Inlet Design: 10 year/6 hour storm Minimum 2' between seasonal high water table and bottom of base course.

Collector Road	Roadway Section and Inlet Design: 5 year /6 hour storm Minimum 1' between seasonal high water table and bottom of base course.
Minor Road	Roadway Section and Inlet Design: 3 year /6 hour storm Minimum 1' between seasonal high water table and bottom of base course.
Travel Lane Spread	12 feet for all roads; roads with parking lane, width measured from face of curb to centerline outermost travel lane; clearance between design water surface and top of curb - 1".
Maximum Run Distance	400 feet to first inlet
Retention Ponds	Per Water Management District criteria
Detention Ponds	Per Water Management District criteria
Detention Ponds (landlocked basins)	Per Water Management District criteria
Floodprone Areas	Development allowed in 100 year floodplain with compensatory storage loss for floodplain and no development in the floodway.

(Amended June 29, 1998, Effective July 30, 1998, Doc. No. 31329; Amended June 8, 2009, Effective August 25, 2009, Doc. No. 0906081103)

Policy 1.1.3 The City shall maintain up to date data on the cost and effectiveness of stormwater facilities to facilitate future stormwater management strategies.

Policy 1.1.4 The City shall upgrade and retrofit stormwater facilities with roadway reconstruction wherever feasible.

Policy 1.1.5 The City shall periodically review revenue charges for the Stormwater Utility to ensure that all costs for implementing and maintaining the stormwater management plan of the City are met.

Policy 1.1.6 The City shall meet State water quality standards in Chapters 62-302 and 62-520, F.A.C., as applied by FDEP and the Water Management Districts through compliance with the ESM for all development and redevelopment without exception for size or type of development.

(Amended February 7, 2000, Effective March 9, 2000, Doc. No. 32636; Amended June 8, 2009, Effective August 25, 2009, Doc. No. 0906081103)

Objective 1.2 The City shall continue to update its stormwater inventory through its computerized Geographic Information System to include the International Airport, annexations and to verify the accuracy of the existing inventory of the stormwater system infrastructure.

(Amended February 7, 2000, Effective March 9, 2000, Doc. No. 32636)

Policy 1.2.1 The City shall update its inventory of stormwater facilities as annexations occur.

Objective 1.3 The City shall amend its regulatory and implementation documents by January 1, 2010 to resolve inconsistencies between the GMP, LDC, and ESM. These amendments are intended to protect natural drainage features, such as lakes, wetlands and rivers. As part of these amendments, there will be unified wetland standards, urban design criteria, as well as written criteria for the approval of variances to ESM standards. Post-construction monitoring for design effectiveness shall be required for innovative designs and shall include criteria for non-compliance.
(Amended February 7, 2000, Effective March 9, 2000, Doc. No. 32636; Amended June 8, 2009, Effective August 25, 2009, Doc. No. 0906081103)

Policy 1.3.1 The Land Development Code (LDC) and OUSWMM shall encourage reductions in impervious surfaces through reduced parking standards, where appropriate, and innovative stormwater and site design.

Policy 1.3.2 By January 1, 2010, The City shall update design criteria within the LDC to allow the multiple use of stormwater management facilities for recreation, conservation and open space. The City shall consider innovative technologies and best management practices for urban spaces in its LDC amendments.
(Amended June 8, 2009, Effective August 25, 2009, Doc. No. 0906081103)

Policy 1.3.3 The LDC shall incorporate and use Best Management Practices (BMP), non-structural stormwater management strategies, and xeriscaping to manage stormwater and its environmental impacts.
(Amended June 8, 2009, Effective August 25, 2009, Doc. No. 0906081103)

Policy 1.3.4 The City shall provide technical information and administrative support in any comprehensive surface water and groundwater basin management plan initiated by the Water Management Districts.

Policy 1.3.5 All land use planning and development approvals which impact water resources shall conform to or exceed the development practices within WMD comprehensive basin management plans.

Objective 1.4 The City shall continue its comprehensive maintenance plan for City maintained stormwater management facilities throughout the planning period, as required by the NPDES permit. This includes the periodic inspection of all pipes, canals, retention/detention facilities, inlets, drainwells and any other stormwater facility maintained by the City for general condition and pollution sources. The results of the inspections are to be included into the stormwater inventory/database as the information becomes available.
(Amended February 7, 2000, Effective March 9, 2000, Doc. No. 32636; Amended June 8, 2009, Effective August 25, 2009, Doc. No. 0906081103)

- Policy 1.4.1 The City shall maintain its stormwater management facilities in such a manner that the impacts to natural systems shall be minimized.
- Policy 1.4.2 The City shall maintain its stormwater facilities based upon the LOS criteria in Policies 1.1.1 and 1.1.2.
- Policy 1.4.3 The City shall continue to enforce its regulations in Chapter 28, which prohibit the depositing of leaves and other yard wastes into City streets, and Chapter 31, which prohibit the depositing of leaves and other yard wastes into the City stormwater system.
(Amended February 7, 2000, Effective March 9, 2000, Doc. No. 32636)
- Objective 1.5** The City shall continue to implement an inspection program for privately operated stormwater facilities, including pre-OUSWMM facilities within the City. Private facilities shall be inspected to verify effectiveness, and maintenance and shall be upgraded for pollution abatement to meet ESM requirements upon redevelopment.
(Amended June 8, 2009, Effective August 25, 2009, Doc. No. 0906081103)
- Policy 1.5.1 The City shall require that all private stormwater management facilities be maintained such that the effectiveness for stormwater abatement and water quality improvement are maximized.
- Policy 1.5.2 The City shall continue to provide incentives to multi-family, commercial, industrial and other business property owners to upgrade their stormwater management facilities such as those provided for in the Stormwater Utility Program.
(Amended February 7, 2000, Effective March 9, 2000, Doc. No. 32636)
- Objective 1.6** Throughout the planning period, the City shall continue to enhance the stormwater education program to educate the public on aspects of stormwater management.
(Amended May 16, 1994, Effective July 28, 1994, Doc. No.27538)
- Policy 1.6.1 The City's educational program shall include public service announcements, mail-outs, demonstrations and neighborhood meetings.
- Objective 1.7** The City shall continue to propose interlocal agreements with Orange County and other appropriate agencies relating to flood control of Primary Conveyance Facilities, water quality of lakes and regional stormwater projects within the Wekiva Study Area.
(Amended February 7, 2000, Effective March 9, 2000, Doc. No. 32636; Amended April 7, 2008, Effective June 24, 2008, Doc. No. 0804071001; Amended June 8, 2009, Effective August 25, 2009, Doc. No. 0906081103)
- Policy 1.7.1 The City shall notify the downstream jurisdictional agency for any stormwater action undertaken by the City which will impact any Primary Control Facility.

- Policy 1.7.2 The City shall retrofit and/or repair drainwells or conveyance facilities which fall under the City’s jurisdiction. The County, FDOT and any other appropriate agency may have jurisdiction over such facilities within the City limits and costs will be shared among the appropriate agencies for such retrofits or repairs.
(Amended June 8, 2009, Effective August 25, 2009, Doc. No. 0906081103)
- Objective 1.8** The City shall protect aquifer recharge areas to maintain suitable groundwater levels and to protect groundwater quality. Protection measures will address the impacts of groundwater withdrawals on water quality, sinkhole formation, and supply well protection. This objective will work in conjunction with the applicable Potable Water and Wastewater objectives.
(Amended February 7, 2000, Effective March 9, 2000, Doc. No. 32636)
- Policy 1.8.1 The City shall encourage stormwater reuse systems and water reduction strategies to minimize water withdrawals. Lake water withdrawals shall be considered an appropriate form of stormwater reuse, subject to City oversight and City Code (Chapter 35.08).
(Amended February 7, 2000, Effective March 9, 2000, Doc. No. 32636; Amended June 8, 2009, Effective August 25, 2009, Doc. No. 0906081103)
- Policy 1.8.2 The LDC shall prohibit land uses which have a high potential risk for water contamination in primary groundwater recharge areas. Existing development in primary groundwater recharge areas shall be required to retrofit on-site storage areas to contain 120% of any stored regulated substance or generated waste in case of an emergency. Land uses with high potential risk include any uses or activities which are considered large or small quantity hazardous waste generators under the Resource Conservation and Recovery Act.
(Amended February 7, 2000, Effective March 9, 2000, Doc. No. 32636)
- Policy 1.8.3 The City shall protect the groundwater supplies both upgradient and downgradient of Orlando through intergovernmental cooperation.
- Policy 1.8.4 The City shall protect its groundwater resources by controlling increases in post-development runoff volumes in prime groundwater recharge areas.
(Amended June 8, 2009, Effective August 25, 2009, Doc. No. 0906081103)
- Policy 1.8.5 The City shall consider prime recharge areas as having high priority in the retrofitting of stormwater facilities to protect groundwater resources.

- Policy 1.8.6 The City shall coordinate with the OUC and the appropriate Water Management Districts to determine the extent to which groundwater withdrawals can be made without resulting in harm to the water resources and associated natural systems, and shall cooperate in the management of groundwater withdrawals to avoid withdrawals which would result in such harm.
(Amended May 16, 1994, Effective July 28, 1994, Doc. No. 27538)
- Objective 1.9** Throughout the planning period, all City departments shall explore and implement procedures to reduce their use of pesticides, herbicides and artificial fertilizers.
(Amended February 7, 2000, Effective March 9, 2000, Doc. No. 32636)
- Policy 1.9.1 Any Department using substances which have the potential to contaminate water resources shall review the need for these substances and, where appropriate, use available alternatives. In accordance with the City's NPDES permit, the City shall continue to require licensing for contractors that apply pesticides and herbicides on City property, train employees regarding pesticide use, and educate the public about pesticide use through the Florida Yards and Neighborhood Program.
(Amended February 7, 2000, Effective March 9, 2000, Doc No. 32636; Amended June 8, 2009, Effective August 25, 2009, Doc. No. 0906081103)
- Policy 1.9.2 The City shall incorporate xeriscape design into publicly maintained land to minimize water withdrawals, reduce the use of chemicals and reduce the cost of labor.
- Policy 1.9.3 The City shall utilize organic fertilizers and biological controls for pest and weed control wherever possible.
(Amended June 8, 2009, Effective August 25, 2009, Doc. No. 0906081103)
- Objective 1.10** Throughout the planning period, the City shall maintain a continuous program for identifying high risk drainage wells and taking corrective action to upgrade these drainage wells. The installation of pollution and control devices, rerouting of stormwater runoff and, in some cases, creating alternative methods of discharge and closing wells, are examples of the type of remedial measures which would be undertaken.
(Amended May 16, 1994, Effective July 28, 1994, Doc. No. 27538)
- Policy 1.10.1 The City shall continue to coordinate with other agencies having an interest in drainage wells in the City of Orlando.
(Amended June 8, 2009, Effective August 25, 2009, Doc. No. 0906081103)
- Policy 1.10.2 The City will continue to reduce its dependence upon drainage wells that take direct street run-off, converting such wells to lake level control wells where possible, and will preserve the use of existing lake level control wells.
(Amended June 8, 2009, Effective August 25, 2009, Doc. No. 0906081103)

Policy 1.10.3 Recognizing the groundwater recharge benefits of drainwells, the City shall address water quality concerns through retrofitting and upgrading of drainage wells where necessary.

Objective 1.11 Throughout the planning period, the City shall, where required, update and maintain its master stormwater management plan to, at a minimum, address the requirements of the Wekiva Parkway and Protection Act Master Stormwater Management Plan Support Document (“MSMP”), dated November 2005, together with the Little Wekiva River Watershed Management Plan, dated November 2005 (“WMP”), and include the following: data collection, identification of problem areas, hydraulic/hydrologic analysis of the primary stormwater management system, water quality, recommendations and estimated costs for capital improvements.

(Amended April 7, 2008, Effective June 24, 2008, Doc. No. 0804071001)

Policy 1.11.1 The City shall identify subbasins within the Wekiva Study Area where future pollutant loads are predicted to exceed existing conditions, on a percentage basis. The City shall then evaluate the need for additional pollutant controls beyond the typical requirements of the Engineering Standards Manual, consistent with the best management practices identified in the MSMP.

(Amended April 7, 2008, Effective June 24, 2008, Doc. No. 0804071001)

Policy 1.11.2 Throughout the planning period, the City shall implement the recommendations identified in the MSMP and WMP for the prioritized deficiencies.

(Amended April 7, 2008, Effective June 24, 2008, Doc. No. 0804071001)

Policy 1.11.3 The City shall apply strategies recommended by St. John’s River Water Management District in the MSMP to identify and prioritize capital improvements projects annually for stormwater facilities within the Wekiva Study Area. These strategies include:

- Surface Water Conservation
- Groundwater Protection
- Reuse Management, and
- Surface Water Treatment.

(Amended April 7, 2008, Effective June 24, 2008, Doc. No. 0804071001)

Policy 1.11.4 For those areas outside the City’s reclaimed water service area, and inside the Wekiva Study Area, the City shall identify large potential users such as golf courses, parks, and recreation areas, as part of the Technical Review Committee approval process. Such users shall be required to implement stormwater irrigation practices unless demonstrated that such practices are impracticable and/or financially infeasible.

(Amended April 7, 2008, Effective June 24, 2008, Doc. No. 0804071001)

GOAL 2

To preserve the quality of Orlando's many lakes, recognizing the importance of lake beauty, cleanliness, and recreational use as a natural asset contributing to the general appeal of Orlando as a residential and business community.

Objective 2.1 The City shall continue to fully implement a water quality monitoring plan as a basis for determining water quality and prioritization of lake and drainwell retrofit and/or upgrading.

(Amended February 7, 2000, Effective March 9, 2000, Doc. No. 32636)

Policy 2.1.1 The City will participate in the development of Basin Management Action Plans, along with the Florida Department of Environmental Protection and other stake holders, for any City lake which fails to meet the minimum criteria of Chapter 62-303, F.A.C. (Impaired Water Rule). The City will then implement projects and/or programs identified in the Impaired Water Body's Basin Management Action Plan to reduce the City's allocation of pollutant loading which exceeds the Florida Department of Environmental Protection's established Total Maximum Daily Loading (TMDL).

(Amended February 7, 2000, Effective March 9, 2000, Doc. No. 32636; Amended June 8, 2009, Effective August 25, 2009, Doc. No. 0906081103)

Policy 2.1.2 The City shall provide incentives to property owners to implement BMP's or retrofit individual stormwater management facilities to reduce nutrient loads which will impact water quality of receiving bodies. Stormwater utility fees should be reduced for significant reductions in runoff or improvement to water quality from the site.

Policy 2.1.3 The City shall provide technical assistance to lakefront property owners to maintain and increase the use of natural vegetation along lakeshores.

Policy 2.1.4 The City shall annually publish a quantitative report on the variability of water quality including the trophic state of each City lake.

Policy 2.1.5 The City shall encourage citizen and neighborhood involvement in addressing lake water quality concerns for those lakes wholly and/or partially within the City of Orlando.

(Amended February 7, 2000, Effective March 9, 2000, Doc No. 32636)