

# Utilities Advisory Board



July 27, 2016 at 12:00 p.m.  
Public Safety Building, 500 N. Virginia Ave., 2<sup>nd</sup> floor  
Chief Beary Community Rm

<b>1 call to order</b>	<b>*Projected Time</b> <b>*Subject to Change</b>
<ul style="list-style-type: none"> <li>Approve June 22, 2016, Minutes</li> <li>Citizen Comments</li> </ul>	12:00-12:05
<b>2 new business</b>	<b>*Projected Time</b> <b>*Subject to Change</b>
<ul style="list-style-type: none"> <li>UAB - Comprehensive Plan review Public Facilities</li> <li>Discussion of objectives for the upcoming year</li> </ul>	12:05-12:30
<b>3 action items</b>	<b>*Projected Time</b> <b>*Subject to Change</b>
<ul style="list-style-type: none"> <li>Update on Sewer Policy</li> </ul>	12:30-12:35
<b>4 reports/discussion</b>	<b>*Projected Time</b> <b>*Subject to Change</b>
<ul style="list-style-type: none"> <li>Financials</li> <li>W/WW Report</li> <li>Electric Utility Report                             <ul style="list-style-type: none"> <li>- Transition Update</li> <li>- Monthly Data</li> <li>- Undergrounding Plan Revision update</li> </ul> </li> <li>Sustainability Report</li> </ul>	12:35-1:00
<b>5</b>	

Next meeting date – August 24, 2016

## appeals & assistance

"If a person decides to appeal any decision made by the Commission with respect to any matter considered at such meeting or hearing, he/she will need a record of the proceedings, and that, for such purpose, he/she may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based." (F. S. 286.0105).

"Persons with disabilities needing assistance to participate in any of these proceedings should contact the City Clerk's Office (407-599-3277) at least 48 hours in advance of the meeting."

**CITY OF WINTER PARK  
UTILITY ADVISORY BOARD**

**Staff Report  
July 27, 2016**

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REQUEST TO PROVIDE DISCUSSION AND FEEDBACK ON THE PUBLIC FACILITIES ELEMENT OF THE CITY OF WINTER PARK COMPREHENSIVE PLAN UPDATES IS REQUESTED.

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The Public Facilities Element is one of nine which combine to form the city's Comprehensive Plan. The plan itself ensures that the overarching growth management for Winter Park meets all state and federal regulations and the stated vision for the city. In short, it lays out the priorities of the city to its residents for the foreseeable future. The last update to the plan was in 2009. It must be reviewed to reflect current trends, new technologies, and policy-driven priorities into the future. The timing of the update is further augmented given the city's recent adoption of its Visioning Plan.

Each municipality and county is required to review their comprehensive plan every seven years per state statute. In February, the City sent a letter to the state of its intention to update the plan. The city has one year to complete its updates and receive approval from the state.

Each mandatory and optional element in the comprehensive plan is divided into two sections; the Goals, Objectives, and Policies (GOP) and the Data Inventory and Analysis (DIA) section. The GOP is the only section of the two to be officially adopted by the city and approved by the state. The DIA provides support and supplemental material only and is intended to act as a reference.

Included in this packet is a timeline of which advisory boards will review each element. While each meeting is public, these boards have specific expertise in each of their assigned elements for review.

The Public Facilities Element focuses on the utilities provided by the city including sanitary sewer, solid waste, potable water, natural groundwater aquifer recharge, stormwater management and electric utility. Staff is requesting a review by the Utility Advisory Board to ensure compliance with local goals, objectives, and policies.

## 2016 Comprehensive Plan Timeline\*

*\*Dates, times and locations are subject to change.*

*Please visit [cityofwinterpark.org/comp-plan](http://cityofwinterpark.org/comp-plan) for the most updated timeline.*

Date	Comprehensive Plan Element	Advisory Board to review elements
Wednesday, July 20, 2016	Public Facilities	Lakes & Waterways Advisory Board
Wednesday, July 27, 2016	Public Facilities	Utility Advisory Board
Wednesday, July 27, 2016	Recreation & Open Space	Parks & Recreation Advisory Board
Thursday, July 28, 2016	Recreation & Open Space	Keep Winter Park Beautiful & Sustainability Advisory Board
Thursday, July 28, 2016	Conservation	Keep Winter Park Beautiful & Sustainability Advisory Board
Monday, August 01, 2016	Review of elements	Comprehensive Plan Task Force Meeting
Thursday, August 11, 2016	Housing	Keep Winter Park Beautiful & Sustainability Advisory Board
Thursday, August 11, 2016	Public Facilities	Keep Winter Park Beautiful & Sustainability Advisory Board
Wednesday, August 17, 2016	Conservation	Lakes & Waterways Advisory Board
Wednesday, August 17, 2016	Housing	Economic Development Advisory Board
Tuesday, September 06, 2016	Review of elements	Planning & Zoning Board meeting
Thursday, September 08, 2016	Future Land Use	Keep Winter Park Beautiful & Sustainability Advisory Board
Monday, September 12, 2016	Review of elements	Comprehensive Plan Task Force Meeting
Tuesday, September 13, 2016	Future Land Use	Transportation Advisory Board
Tuesday, September 20, 2016	Future Land Use	Economic Development Advisory Board
Thursday, September 22, 2016	Future Land Use	Community Redevelopment Agency Advisory Board
Monday, September 26, 2016	Review of elements	Comprehensive Plan Task Force Meeting
Monday, October 03, 2016	Review of elements	Comprehensive Plan Task Force Meeting
Tuesday, October 04, 2016	Review of elements	Planning & Zoning Board meeting
Tuesday, October 11, 2016	Transportation	Transportation Advisory Board
Thursday, October 13, 2016	Transportation	Keep Winter Park Beautiful & Sustainability Advisory Board
Tuesday, October 18, 2016	Transportation	Economic Development Advisory Board
Monday, October 24, 2016	Review of elements	Comprehensive Plan Task Force Meeting
Tuesday, November 01, 2016	Review of elements	Planning & Zoning Board meeting
Monday, November 14, 2016	Review of elements	City Commission meeting; 1st public hearing
Monday, December 12, 2016	Review of elements	City Commission meeting; 2nd public hearing

**CHAPTER 4: PUBLIC FACILITIES**

~~(Reference §9J-5.011(2), FAC)~~

**WINTER PARK RELATED VISION THEMES**

Cherish and sustain Winter Park's extraordinary quality of life.

Plan our growth through a collaborative process that protects out City's timeless scale and character.

**4-1: PUBLIC FACILITIES GOALS, OBJECTIVES, AND IMPLEMENTING POLICIES.** This section stipulates goals, objectives, and implementing policies for the Public Facilities Element, which includes sanitary sewer, solid waste, potable water, natural groundwater aquifer recharge, ~~and~~ stormwater management ~~and electric utility~~. The purpose of this element is to provide guidance for appropriate plans and policies needed to meet identified or projected needs in these public facilities.

This Chapter (element) is based upon the data and analysis presented in Chapter 4 of the Data Inventory and Analysis document that supports City of Winter Park Comprehensive Plan.

This element provides a means to guide community management decisions in a manner that ensures public facility and infrastructure components are available and maintained to serve demands generated by existing and future population and development. Public facilities must be in place simultaneous with demand to maintain environmental balance, continue satisfactory delivery of public services, protect health and safety of the community and utility customers, and meet desired quality of life. As most areas within the City are accessible to central water and sewer lines, this element places emphasis on maintenance through repair and replacement of capital facilities, while striving for environmental and service improvements.

**GOAL 4-1: PROMOTE PUBLIC HEALTH AND SAFETY THROUGH PUBLIC FACILITIES. TO ENSURE THE PROVISION OF HIGH QUALITY, HEALTHFUL, EFFECTIVE, RELIABLE AND NECESSARY SERVICES FOR COORDINATED SANITARY SEWER, POTABLE WATER, SOLID WASTE, DRAINAGE AND NATURAL GROUNDWATER AQUIFER RECHARGE TO CITY RESIDENTS, CUSTOMERS AND VISITORS WHILE ENSURING PROTECTION AND PRESERVATION OF THE ENVIRONMENT.**

**Provision of Public Facilities**

**OBJECTIVE 4-1.1: PROVIDE SERVICE CONSISTENT WITH LEVEL OF SERVICE STANDARDS.** Service all new development and redevelopment with potable water, sewerage, stormwater management and solid waste management that meets or exceeds the adopted levels of service.

**Policy 4-1.1.1: Infrastructure Available Concurrent with Development.** Assure the provision of these infrastructure and public facility and services concurrent with development.

**Policy 4-1.1.2: Infrastructure Priority Criteria.** Prioritize infrastructure investment based on existing facilities; deficiencies first, replacement and retrofitting of facilities second, and future facility needs third.

**Policy 4-1.1.3: Maximize Use of Existing Facilities.** Locate public service facilities and utilities so as to maximize their efficiency, minimize their cost, and minimize their impacts on the natural environment.

**Policy 4-1.1.4: Use of Interlocal Agreements.** Be responsive to opportunities for interlocal agreements with adjacent governments for the purpose of improving and integrating the provision of these public facilities to the areas adjacent to the City.

**OBJECTIVE 4-1.2: LAND USE AND PUBLIC FACILITY COORDINATION.** Achieve internal consistency in the Comprehensive Plan by managing land use so that new development and redevelopment are permitted only if the necessary public facilities are provided concurrently with the impacts of the development.

**Policy 4-1.2.1: Compliance with Concurrency Requirements.** The City shall ensure that all development shall be in compliance with applicable state and City concurrency laws.

**Policy 4-1.2.2: Coordinate Development Timing with Infrastructure Funding and Availability.** Ensure that the location and timing of new development or redevelopment is coordinated with the City's ability to provide and fund public facility improvements.

**Policy 4-1.2.3: Location and Timing of Improvements.** Consider the location and timing of new public facility construction in requests for land use plan amendments.

#### Sanitary Sewer Sub-Element

**GOAL 4-2: SANITARY SEWER. PROVIDE COST-EFFECTIVE WASTEWATER TREATMENT AND ENVIRONMENTALLY ACCEPTABLE EFFLUENT DISPOSAL THROUGH CENTRAL WASTEWATER TREATMENT SYSTEMS.**

**OBJECTIVE 4-2.1: WASTEWATER COLLECTION AND TREATMENT.** Provide users with economically and environmentally sound wastewater collection and treatment, which protects investments in existing facilities and promotes orderly, compact urban growth.

#### a. Central Wastewater System

**Policy 4-2.1.1: Sanitary Sewer Minimum Level of Service.** The City shall maintain and develop sanitary sewer collection and treatment facilities and systems that provide and ensure that the minimum adopted levels of service for sanitary sewer of 139 gallons per day per capita and 320 gallons per day per equivalent residential unit are available to serve the City and its utility service areas.

**Policy 4-2.1.2: Alternative Sources for Sewer Treatment.** If the City's central sewer treatment facilities do not have capacity to treat all wastewater flows generated from existing and future demands within the service area, the City shall purchase capacity from nearby sewer providers to assure central sewer service capacities are sufficient to meet or exceed the sanitary sewer level of service standard.

**Policy 4-2.1.3: Mandatory Connection to City's Central Sewer System.** All new development and redevelopment within the City shall connect to the central sanitary sewer system except as otherwise allowed by policy under Objective 4-2.1.b.

**Policy 4-2.1.4: Discourage Duplication of Services.** Continue interlocal agreements with adjacent governments, authorities and private utilities on utility service area boundaries so that there are no unnecessary duplications of service lines or conflicts in service provision.

**Policy 4-2.1.5: Sewer System Improvements and CIP.** Implement sanitary sewer system maintenance and improvement projects in accordance with the Capital Improvements Program (CIP).

**Policy 4-2.1.6: Sanitary Sewer Capacities and Concurrency Management System.** As part of the annual preparation of the fiscal year budget, the City's concurrency management system shall be update to identify available capacities within the sewer treatment system operated by the City as well as available capacities reserved through agreements with other sewer service providers. Upon completion of the annual concurrency management system update, the City shall send a copy of the concurrency management report to Orange County or any local other government whose constituents reside or own property within Winter Park's sewer service area.

#### **b. Septic Tanks**

**Policy 4-2.1.7: Prohibit Septic Tanks for New Development within the City Limits.** New development and redevelopment within the City limits are prohibited from using septic tank systems except as otherwise allowed under Objective 4-2.1.b All new development within the City limits shall connect to the central wastewater system no later than the issuance of a certificate of occupancy unless otherwise allowed under Objective 4-2.1.b

If a sewer collection line is not within 100 feet of a vacant residential lot or a residential lot on which an existing home was demolished or destroyed, septic tanks may be used on an interim basis by a single family home subject to a sewer collection agreement that requires the property owner to connect to the sewer line within five years from the date on which an operating sewer line is available within right-of-way or easements adjacent to the property. An alternative timeframe may be established within the agreement subject to approval by the City Commission, but connection shall occur no later than ten years. The sewer collection agreement shall be established between the property owner and the City, and shall be recorded prior to issuance of a certificate of occupancy.

For purposes of this policy, redevelopment shall be defined as improvements equal to 50% of the value of the current structure, based on the most recent building value listed by the Orange County Property Appraiser's Office.

**Policy 4-2.1.8: Installment and Operation of Septic Tanks.** All septic tanks systems, including drain fields, must comply with Orange County Health Department septic tank policies, standards and criteria.

**Policy 4-2.1.9: Elimination of Septic Tanks.** For development currently served by septic tanks, the City should evaluate and consider solutions and programs that can be used to encourage connection to the City's utility wastewater system.

**Policy 4-2.1.10: Elimination of Existing Septic Tanks in Areas with Unsuitable Soils.** Existing septic tanks in areas with unsuitable soils shall be required to connect to sanitary sewer facilities within one year from the installation of sewer collection lines within right-of-way or easements adjacent to a parcel. Any problem areas that experience septic tank failures due to unsuitable soils or any areas where septic tank problems are identified by the Orange County Health Department, shall be prioritized for extension of sanitary sewer facilities and the City shall, on its own or in consort with Orange County, require hookup to these sewer facilities with costs reimbursed to the City via property assessments or other contractual agreements.

**Policy 4-2.1.11: Prohibit Mounded Drain Fields.** Within the City limits, the City shall prohibit the use of mounded or elevated septic tank drain fields.

#### c. Package Treatment Plants

**Policy 4-2.1.12: Prohibit Use of Package Treatment Plants.** Within the City utility service area, the City shall prohibit the construction and use of private package treatment plants even as an interim service provision. If areas are annexed into the City that are served by package treatment plants, the City shall prepare a plan no later than one year from the annexation date to address closure of the facility and connection to the City's utility wastewater system.

#### Solid Waste Sub-Element

### GOAL 4-3: SOLID WASTE SERVICES. AN ENVIRONMENTALLY SAFE, EFFICIENT AND COST EFFECTIVE SYSTEM FOR THE COLLECTION, TRANSFER AND DISPOSAL OF SOLID WASTE.

**OBJECTIVE 4-3.1: EFFICIENT SOLID WASTE COLLECTION AND DISPOSAL.** Provide safe, sanitary and efficient solid waste collection and contract disposal for all properties within the City and encourage reduction of waste through recycling programs.

**Policy 4-3.1.1: Collection Level of Service and Disposal of Standard Solid Waste Materials.** ~~Provide bi-weekly~~ [Continue](#) solid waste collection and disposal service to all residential and non-residential properties in the City through contractual agreements with waste collection businesses. The level of service provided for collection and disposal shall be consistent with the level of waste generated from development and land uses occurring within the City. The City shall manage collection and disposal services sufficient to accommodate at least an annual average daily level of service of 4.2 pounds per capita.

**Policy 4-3.1.2: Disposal Capacity.** The City shall continue to require the waste collection provider to secure arrangements with landfill operators regarding sites for disposal of solid wastes. The City shall require within service agreements that the waste collection provider disposes of trash at landfill or similar disposal sites approved by the Florida Department of Environmental Protection.

**Policy 4-3.1.3: Yard Trash and Recyclable Collection and Disposal.** Continue yard trash and recyclable collection services through contractual agreements with waste collection businesses. The City shall assure through service agreements with the waste collection provider that yard trash and recyclable collections will be transferred to appropriate recycling or processing centers.

**Policy 4-3.1.4: Large and Bulky Trash Pickups for Residential Customers.** Through service agreements with the waste collection provider, the City shall require waste collection providers to provide special pickup service for large and bulky trash.

**Policy 4-3.1.5: Construction Debris.** Construction sites will provide on-site trash containers for construction debris and shall be responsible for arranging regular collection and removal of construction debris to maintain public health and for fire prevention purposes.

**Policy 4-3.1.6: Voluntary Recycle Program.** Continue the voluntary residential recycling program of newspapers, glass, plastic and aluminum for the City's residential customers. The City shall also require through any new contractual agreements with waste collection providers that recycling programs be offered on a voluntary basis to non-residential customers.

**Policy 4-3.1.7: Public Awareness Program.** Continue a public awareness program jointly developed by the City and Waste Management to inform and educate residents of the environmental and cost benefits associated with recycling.

**Policy 4-3.1.8: Implement Recycling Programs.** Continue to provide the actions necessary for implementation of the interlocal agreement for county-wide recycling and disposal requirements.

**Policy 4-3.1.9: Capacity Concurrent with Development Impacts.** The City shall require, before development is permitted, that solid waste disposal facilities be available concurrent with the demand for those facilities in accordance with the adopted level of service. Solid waste disposal facilities means both available landfill capacity necessary for that development and collection mechanisms necessary for transportation of the solid waste to be generated.

**Policy 4-3.1.10: Coordination with County Landfill Capacity.** The City shall annually coordinate with Seminole County and Orange County regarding status of existing and future landfill capacity. Prior to entering into a service agreement with a waste collection provider, the City shall require the service provider to demonstrate that landfill sites are available and accessible to the provider for the duration of the service agreement.

**Policy 4-3.1.11: Hazardous Waste Collection and Disposal.** The City shall continue to support Orange County's hazardous waste collection and disposal program by informing and educating citizens and businesses regarding proper disposal needs as well as the location of County hazardous waste disposal sites.

#### **Drainage Sub-Element**

**GOAL 4-4: DRAINAGE. PROVIDE STORMWATER DRAINAGE TO PROTECT AGAINST FLOOD CONDITIONS AND PREVENT DEGRADATION OF QUALITY OF RECEIVING WATERS.**



**OBJECTIVE 4-4.1: STORMWATER MANAGEMENT AND WATER QUALITY.** Provide adequate drainage and stormwater management prior to discharge of stormwater to lakes and streams so as to ensure protection from flooding and limit degradation of receiving water quality.

**Policy 4-4.1.1: Stormwater Quantity Level of Service.** The City adopted a drainage facility level of service standard for new development or redevelopment that requires design of drainage facilities and low impact development techniques to eliminate or minimize stormwater runoff discharges, as well as the retention and treatment of the first inch of stormwater, to be consistent with the requirements Chapter 62-25 Section 25.040, F.A.C and Chapter 62-302.500 F.A.C. ~~However, in certain circumstances, the City's stormwater regulations may require that this be accomplished in excess of these standards by excluding the use of underground retention facilities or may require properties to comply with these standards, where not required by these State rules, when undergoing redevelopment wherein the Stormwater Board of Appeals may allow the accomplishment of this level of service off site.~~

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**Policy 4-4.1.2: Stormwater Quality Level of Service.** Stormwater facilities and site development shall be designed to prevent runoff from lowering water quality within freshwater lakes below the minimum conditions necessary to maintain State classifications as established in Chapter 62-302, F.A.C. Stormwater treatment is required by retention of up to two inches of runoff on newly developed and redeveloped sites.

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**Policy 4-4.1.3: Stormwater Design Compatibility with Natural Systems.** Stormwater retention/detention areas located outside of public right-of-way, and which are visible to or accessible to the public, shall be designed and landscaped to appear as a natural waterbody unless determined by the City that public health or safety may be threatened. Such stormwater detention or retention areas shall be designed so that the shorelines are sinuous rather than straight, and so that water/land interfaces are curvilinear.

**Policy 4-4.1.4: Roadway Stormwater Facilities.** New subdivisions or other development projects creating new public or private roads shall provide stormwater retention and detention for all new roadways constructed consistent with the first inch retention requirements of Section 62-25 F.A.C, Regulation of Stormwater Discharge; Chapter 62-25, Section 25.040 F.A.C; and Chapter 62-302.500 F.A.C.

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~~**Policy 4-4.1.5: Compliance with Stormwater and Lakes Management Plan.** Development and redevelopment shall comply with all applicable stormwater design and facility requirements established within Stormwater and Lakes Management plans approved by the City Commission. Site design shall accommodate and occur consistent with the stormwater retention/detention design as set forth within the stormwater master plan.~~

~~**Policy 4-4.1.6: Stormwater Design for Redevelopment Not Subject to Approved Stormwater and Lakes Management Plans.** Redevelopment must retrofit existing development sites to meet the City's stormwater design and level of service standards, or to comply with the requirements of stormwater master plans approved when renovation value to buildings exceeds 50% of its market value. The market value shall be determined according to the most recent valuations listed by the Orange County Property Appraiser's office. A stormwater master plan must have been approved by the City Commission.~~

**Policy 4-4.1.57: ~~Eliminate Discharge to Lakes~~ Eliminate Localized Flooding and Pollutant Discharge to Lakes through the Stormwater Utility Capital Improvement Plan Program.** The City's Stormwater Utility CIP Program shall include a continuous program of capital the implementation drainage improvement projects to eliminate localized flooding. The City's CIP also includes which work water quality projects to eliminate pollutants by reducing nutrient loads from to eliminate stormwater runoff that direct discharges of stormwater directly into lakes into lakes and drainage wells. This is accomplished by retrofitting the drainage systems to include solids removal technologies and stormwater retention to allow a and percolation into the ground. of stormwater These CIP projects shall be implemented through methodologies equivalent to the standards referenced in Policies 4-4.1.1 and 4-4.1.2 prior to discharge or overflow into the lakes or drainage wells.

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**Policy 4-4.1.68: Stormwater Utility Fees and Revenue Program.** Continue collecting, monitoring and adjusting the stormwater utility fees as required to fully fund the City's stormwater program. The stormwater utility revenues to be set aside for the stormwater capital improvement plan with the balance toward drainage operation and maintenance costs as a funding source for drainage operations, maintenance and capital improvements, and implement capital improvements as programmed in the Capital Improvements Plan.

**Policy 4-4.1.9: Continue the Use of Stormwater Utility Revenue for Capital Improvements.** Continue the use of stormwater utility revenue to be set aside for capital stormwater improvement projects with the balance toward drainage operation and maintenance costs. Additionally, continue to apply for stormwater management cost share programs as a supplemental funding sources.

**Policy 4-4.1.740: Require Stormwater Analysis and Treatment Implementation with Redevelopment Plans.** To create opportunities for efficient use of land, innovative site design, and conformance with desired land use plans and development character, the City shall require stormwater analysis and treatment implementation as part of redevelopment plans involving multiple properties. The City shall also encourage or consider the preparation of stormwater master plans in conjunction with proposed neighborhood plans.

### Potable Water

**GOAL 4-5: POTABLE WATER. PROVIDE ALL USERS WITH ECONOMICALLY AND ENVIRONMENTALLY SOUND POTABLE WATER PRODUCTION, TREATMENT AND DISTRIBUTION SYSTEMS WHICH MEET THEIR NEEDS FOR QUANTITY, QUALITY, AND SAFETY.**

**OBJECTIVE 4-5.1: PROVIDE POTABLE WATER TO MEET CUSTOMER NEEDS.** The City shall provide water production, treatment and distribution facilities, and equipment necessary to meet the needs of its customers and necessary to meet adopted level of service standards through the year 2020 2025.

**Policy 4-5.1.1: Potable Water Level of Service.** The City adopts potable water minimum level of service standards of 150 gallons per capita per day for average usage and 225 gallons per capita per day for peak usage.

**Policy 4-5.1.2: Compliance with Florida Department of Environment (FDEP) and Insurance Service Organization (ISO) Public Water System Standards.** Water production, treatment and distribution facilities shall be maintained, operated, and improved in a manner necessary to continue meeting the adopted level of service standards, FDEP water quality criteria set forth in Chapter 64-550, FAC, and ISO fire flow criteria.

**Policy 4-5.1.3: Provide Capital Improvements to Meet Level of Service Standards.** The City shall invest in the water production capital improvement projects itemized in the Capital Improvements Element that are required to maintain level of service standards set forth in Policy 4-5.1.1 and 4-5.1.2.

**Policy 4-5.1.4: Capital Improvement Investment for Water System.** The City shall invest in the water distribution improvement projects itemized in the Capital Improvements Element.

**Policy 4-5.1.5: Mandatory Connection to Water System.** The City shall require all new development within the water utility service area to utilize the City's potable water for consumptive, non-irrigation uses.

**Policy 4-5.1.6: Water Capacity Concurrent with Development Impacts.** Water capacity in the Winter Park Utility system shall be available consistent with the City's adopted level of service standards prior to issuance of a City building permit. For development within the Winter Park Utility service area but outside the City's boundaries, the City shall not issue a connection permit unless water capacity is available consistent with the City's adopted level of service standard.

**Policy 4-5.1.7: City Participation in Opportunities Generated by Development Activities.** The City shall cooperate with developers in financially participating in the cost of over-sizing new water mains or looping water systems when there is a need for such improvement and when there is an economic efficiency benefit to the City in such participation.

**Policy 4-5.1.8: Implementation of City Water Supply Facilities Work Plan.** The Water Supply Facilities Work Plan located in the Data Inventory and Analysis section of this Public Facilities Element is hereby adopted as an exhibit to this element.

**Policy 4-5.1.9: Multi-jurisdictional Planning Initiatives.** Identify partnerships with surrounding utilities such as Orange County, Orlando Utilities Commission, and Seminole County on regional water supply development projects to provide wholesale water to the City of Winter Park. ~~Such projects include working with the Seminole County and exploring the technical and institutional feasibility of developing the Lake Monroe alternative and the preliminary design for the St. Johns River near Deland and Lower Ocklawaha River Alternative Water Supply projects.~~

**OBJECTIVE 4-5.2: POTABLE WATER CONSERVATION AND PROTECTION OF GROUNDWATER SUPPLIES.** Conserve potable water supply to encourage reduction in water demand; to prevent and reduce wasteful, uneconomical, impractical, or unreasonable use of water resources; and to preserve natural groundwater aquifer supplies for existing and future population by continuing distribution of reclaimed water as a source for non-potable water and by promoting water conservation programs.

**Policy 4-5.2.1: Water Reclamation.** The City shall continue to apply treated effluent as reuse water for irrigation within parks, open space areas, golf courses, and cemeteries. Reuse lines shall be expanded as opportunities arise to provide additional areas of the City with reclaimed water for irrigation purposes. Expansion of the reuse lines and reclaimed water shall also occur consistent with requirements set forth by the St. Johns River Water Management District within the City's consumptive use permits.

**Policy 4-5.2.2: Participation in the ~~East~~ Central Florida Water Supply Planning Initiative.** In an effort to cooperatively work with local governments and the SJRWMD in a planning process to find and prioritize regional water supply solutions, the City will continue participation in this intergovernmental involvement program sponsored by the SJRWMD.

**Policy 4-5.2.3: Promote Low Water Use Landscaping and Plants.** At least fifty (50%) percent of landscape plants used to meet City landscaping requirements for new development and redevelopment shall use native or drought resistant vegetation.

**Policy 4-5.2.4: Water Conservation Plans and Education Programs.** The City will cooperate with the SJRWMD to implement and participate in water conservation activities and programs required by the City's consumptive use permit issued by the SJRWMD. The City will also continue to educate water users in the use of water conservation techniques by posting information on the City's website or having such information available to the public through the [Public Works Department and Utility Division Parks and Recreation Department and Utility Department](#).

**Policy 4-5.2.5: Water Conservation Fixtures.** New construction shall be required to use water fixtures that efficiently distribute water in a manner that reduces overuse and promotes water conservation.

**Policy 4-5.2.6: Support Activities Related to Priority Water Resource Caution Area (PWRCA).** The City shall cooperate with the SJRWMD regarding regional water management activities and programs to use alternative sources for water supply to promote reduced future reliance on groundwater aquifers.

#### Natural Groundwater Aquifer Recharge Sub-Element

**GOAL 4-6: GROUNDWATER AQUIFER RECHARGE AND GROUNDWATER SUPPLY. TO MAINTAIN AND PROTECT THE NATURAL GROUNDWATER AQUIFER RECHARGE FUNCTIONS AND CAPABILITIES OF WINTER PARK.**

**OBJECTIVE 4-6.1: AUGMENT AQUIFER RECHARGE AND PROTECT WELLFIELD CONES OF INFLUENCE.** The City shall reduce potential for contamination of groundwater aquifer through stormwater management practices and through management of land use activities that may threaten groundwater quality near wellfield sites.

**Policy 4-6.1.1: Stormwater Retention and Detention for Roadway Runoff.** New subdivisions and development constructing new or modifying existing public roads, shall provide stormwater retention and detention for all new roadways constructed consistent with the first

inch retention requirements of Section 62-25, Regulation of Stormwater Discharge; Chapter 62-25, Section 25.040; and Chapter 62-302.500 F.A.C.

**Policy 4-6.1.2: Stormwater Management Regulations:** The City shall require one inch stormwater retention meeting the referenced state standards not only for new development, but also for redevelopment wherein property owners must retrofit existing developed sites when those buildings undergo renovations exceeding 50% of the value of those structures.

**Policy 4-6.1.3: Impervious Coverage and Groundwater Percolation.** The City shall require, by virtue of landscaping requirements, retention requirements or impervious coverage limits that single family properties may not exceed 50% impervious coverage, or 60% when limited and restricted to a one story residence; low density residential may not exceed 65% impervious coverage, multi-family residential and planned developments may not exceed 75% impervious coverage; and non-residential development may not exceed 85% impervious coverage, except in areas designated as Central Business District.

**Policy 4-6.1.4: Eliminate Direct Discharge into Surface Waters.** The City's Stormwater Utility Program shall include a continuous program of capital drainage improvement projects which work to eliminate direct discharge of stormwater into lakes and drainage wells by retrofitting the drainage system to include retention and percolation of stormwater equivalent to the standards referenced in Policies 4-4.1.1 and 4-4.1.2 prior to discharge or overflow into the lakes or drainage wells.

**Policy 4-6.1.5: Wellfield Protection Area.** A wellfield protection area is established within a 500 foot radial setback distance for a public well. The intent of wellhead protection area is to protect potable water wells, as defined in Rule 62-521.200, FAC, from contamination, and to prevent the need for their replacement or restoration due to contamination. Land uses and construction within the wellfield protection zone shall not create a threat to groundwater quality resulting from contamination entering the ground. Use and activities within the wellfield protection areas shall be consistent with the requirements and prohibitions stipulated within Section 62-521.400, FAC, Ground Water Protection Measures in Wellhead Protection Areas.

**Policy 4-6.1.6: Protect Effective Aquifer Recharge Areas** The City shall preserve the predevelopment conditions of highly effective aquifer recharge areas as depicted on Map [4-3 PFE-4-03](#) in this element with regard to soil type, drainage rates, grade elevation, so as to minimize the reduction in the recharge of the surficial aquifer. A field analysis shall be required to delineate the area enveloped by the highly effective aquifer recharge area. The groundwater level and fluctuations shall not be worse than under predevelopment conditions. Highly effective aquifer recharge areas shall be designated on the Future Land Use Map series. Map [4-3 PFE-4-03](#) in this element and shall be all areas with recharge rates over ~~four (4)~~ five (5) inches per year.

### **Electric Utility Sub-Element**

#### **GOAL 4.7: ELECTRIC UTILITY. PROVIDE COST-EFFECTIVE AND RELIABLE ELECTRIC SERVICE THROUGHOUT THE CITY.**

**OBJECTIVE 4.7.1: ELECTRIC DISTRIBUTION.** Provide users with an economically and environmentally sound electric utility, protecting investments in existing facilities and promoting orderly, compact urban growth.

**Policy 4.7.1.1: Level of Service.** The City shall maintain and develop a level of service consistent with the reliability and service rates of the region.

**Policy 4.7.1.2: Design and Construction.** The City shall use design and construction standards that are environmentally sensitive, safe, cost-effective, and appropriate, and that minimize their impact on surrounding neighborhoods.

**Policy 4.7.1.3: Mandatory Connection to City's Electric System.** All new development and redevelopment within the City shall connect to the city's electric utility system.

**Policy 4.7.1.4: Undergrounding of new electrical lines:** The City shall require the undergrounding of all new electrical lines except that interim installation of new aerial facilities may be allowed when accompanied by a plan to underground the lines in a timely manner.

**Policy 4.7.1.5: Electric Undergrounding.** The city will continue to pursue its electric undergrounding program in a timely and cost efficient manner. This includes the undergrounding of all primary and secondary overhead lines in the city.

**Policy 4.7.1.6: Trees and vegetation.** The City will apply directional pruning of trees and phased replacement of improperly located vegetation in the right of way wherever appropriate. The pruning and trimming of trees will be performed in an environmentally sensitive and aesthetically acceptable manner according to the City Urban Forestry Division.

**Policy 4.7.1.7: Emergency preparedness.** The City shall coordinate emergency preparedness and response with local and regional utility providers.

**Policy 4.7.1.8: Discourage Duplication of Services.** Continue interlocal agreements with adjacent jurisdictions, authorities and private utilities on utility service area boundaries so that there are no unnecessary duplications of service lines or conflicts in service provision.

**Policy 4.7.1.9: Electric Utility Improvements and CIP.** Implement electric utility system maintenance and improvement projects in accordance with the Capital Improvements Program (CIP).

**Policy 4.7.1.9: Electric Utility Incentive Programs.** The electric utility will explore opportunities for incentive programs and rebates to ensure a positive economic environment for residents and businesses.

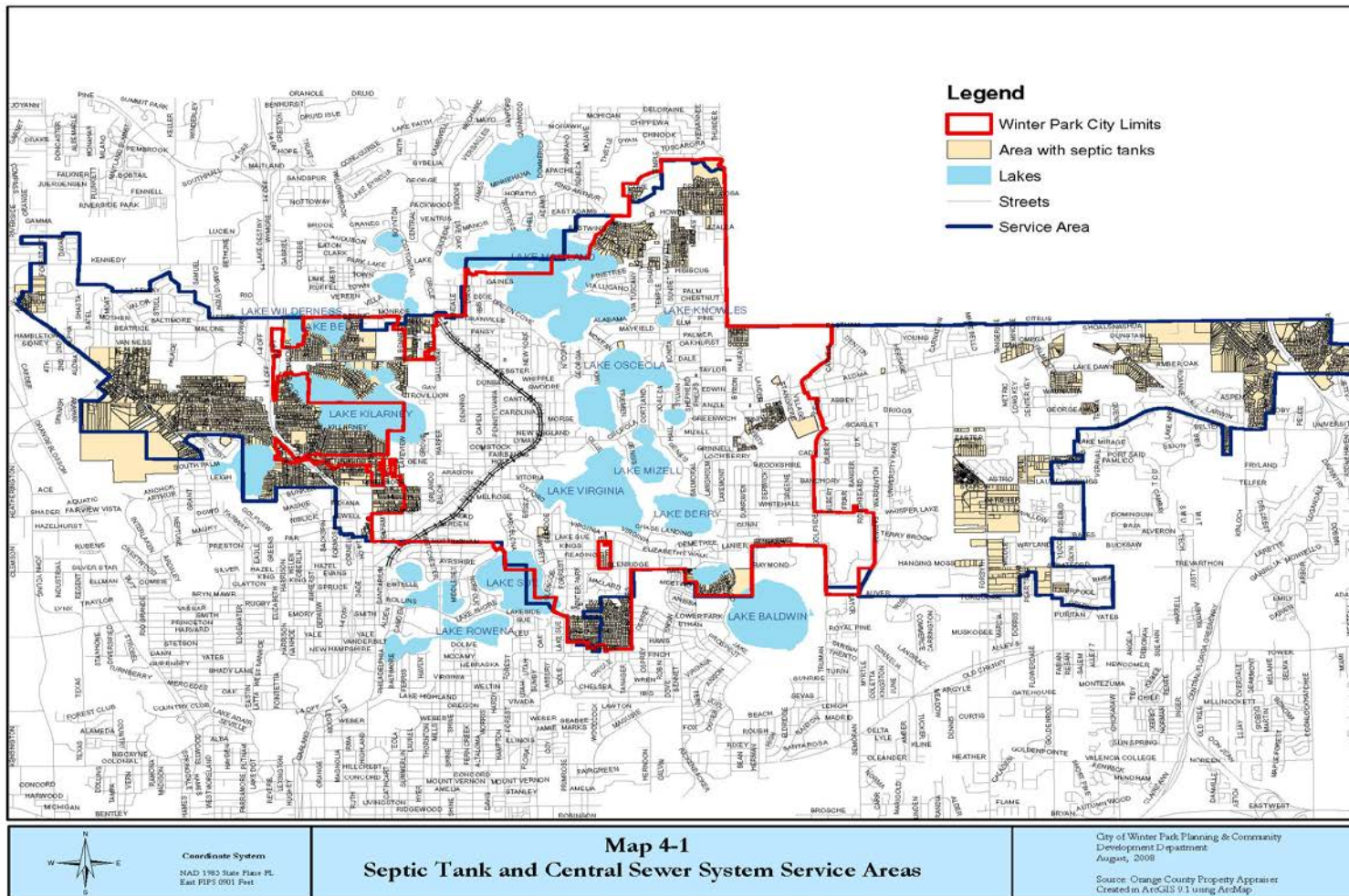
**Policy 4.7.1.10: Alternative technologies.** The City will facilitate the conversion to cost-effective and environmentally sensitive alternative technologies and energy sources as appropriate.

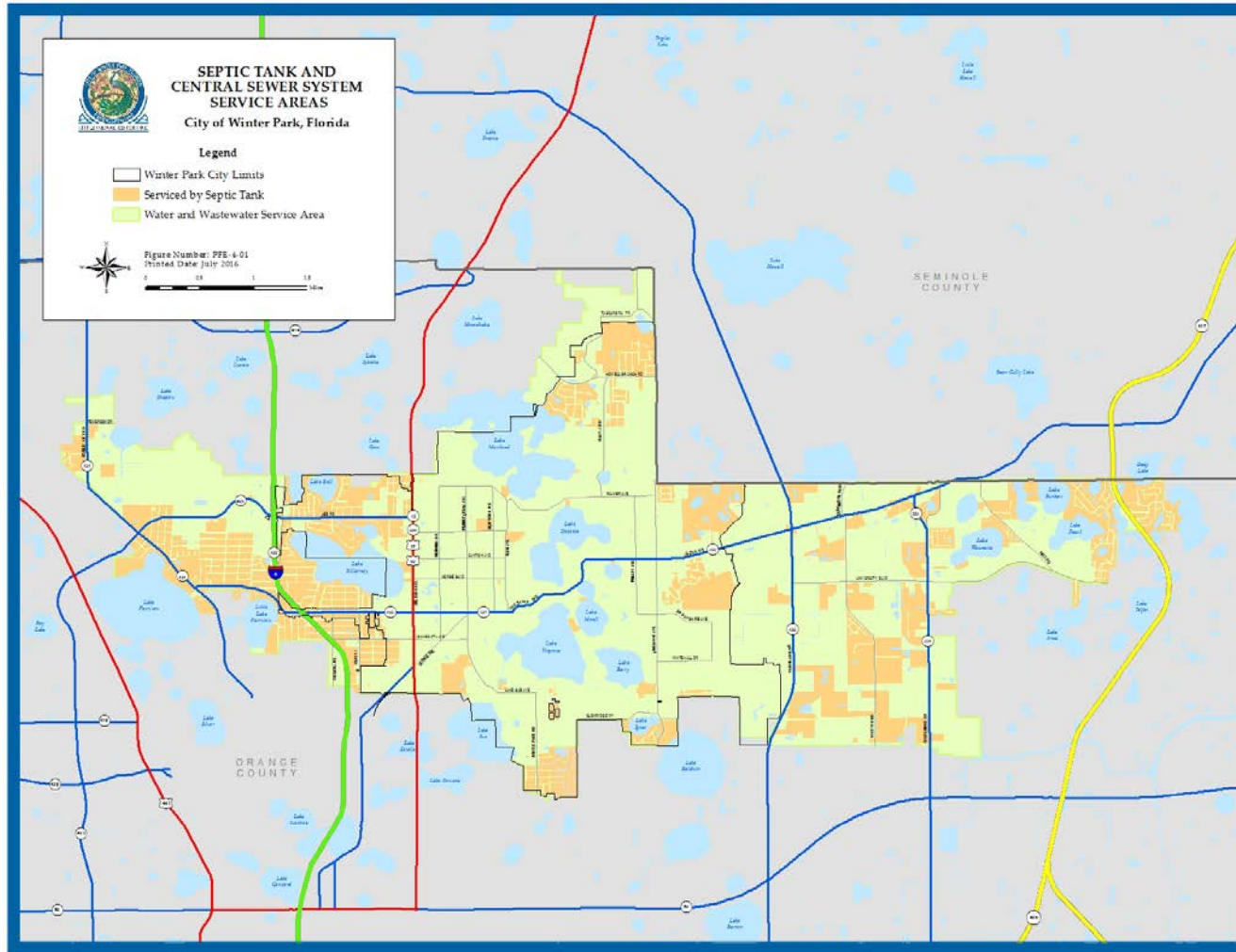
**Policy 4.7.1.11: Resource conservation.** The City shall facilitate and encourage conservation of energy resources.

## Public Facilities Map Series

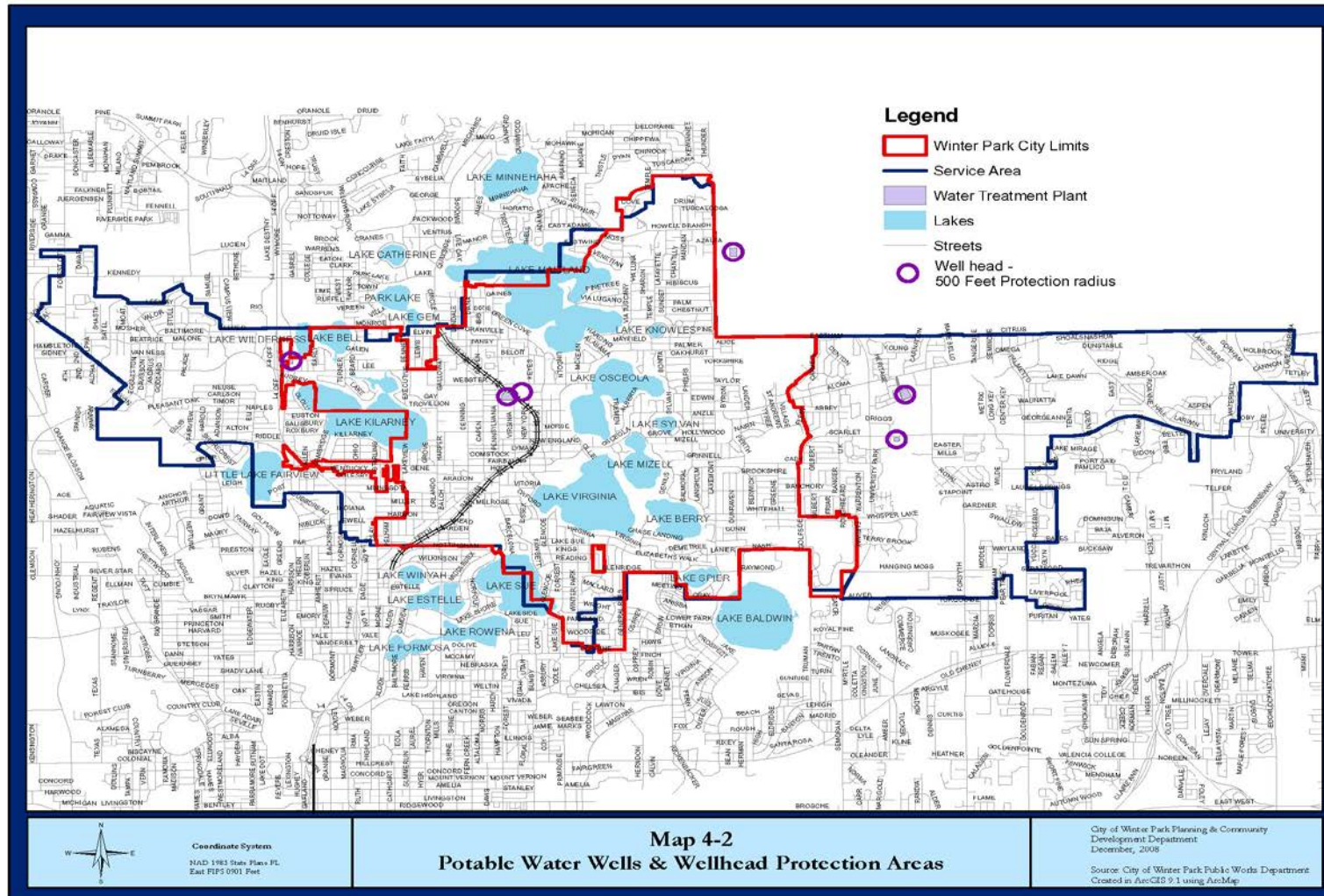
- ~~Map 4-1~~PFE-4-01: Septic Tank and Central Sewer System Service Areas
- ~~Map 4-2~~PFE-4-02: Potable Water Wells & Wellhead Protection Areas
- ~~Map 4-3~~PFE-4-03: Groundwater Aquifer Recharge Ranges
- ~~Map 4-4~~PFE-4-04: Jurisdictional Drainage Boundaries and Drainage Features
- ~~Map 4-5~~PFE-4-05: Sewage Treatment Facilities and Service Areas
- ~~Map 4-6~~PFE-4-06: Electric Utility Distribution AreaMap

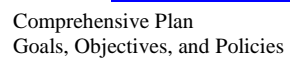


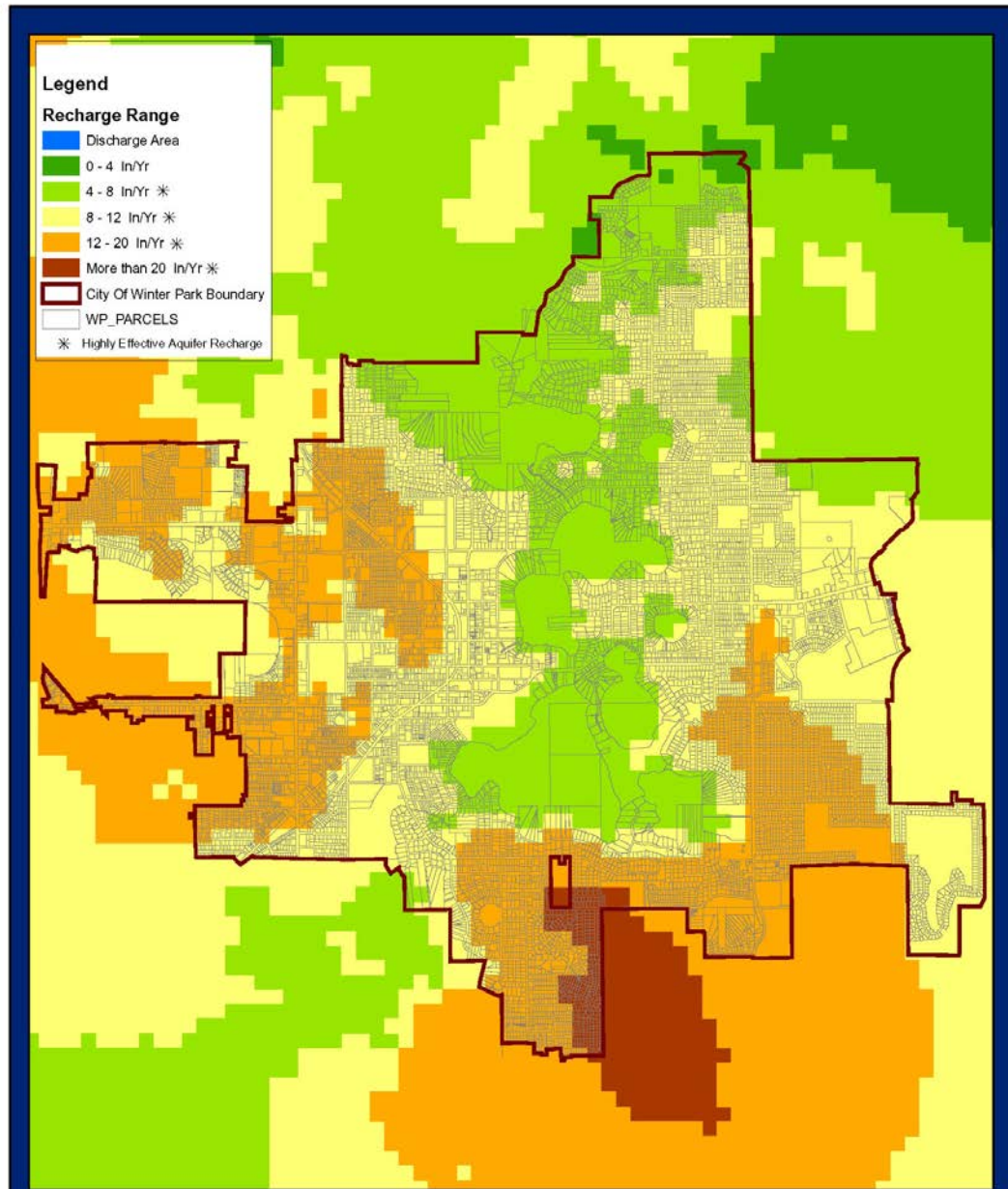




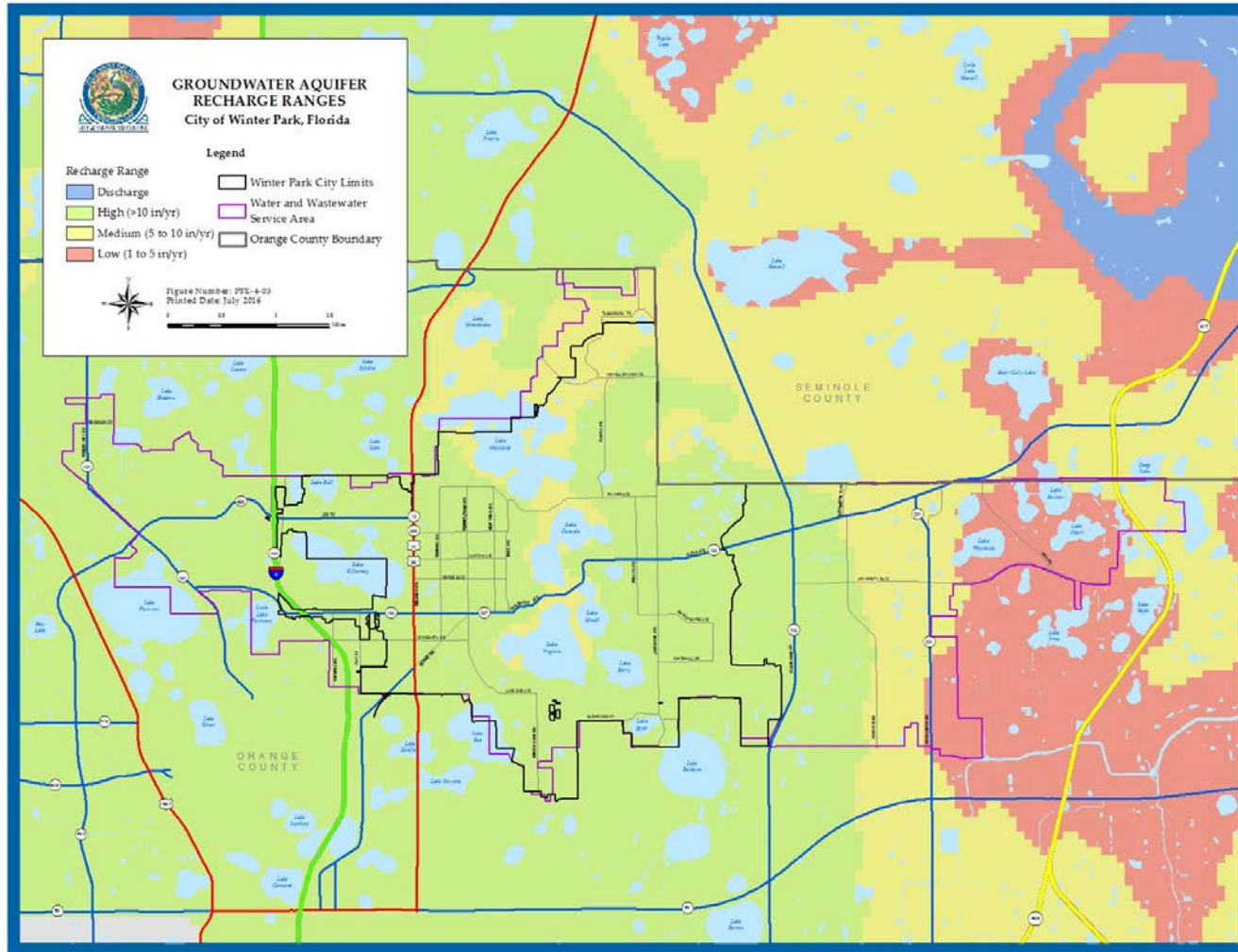


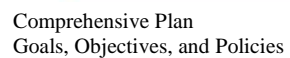




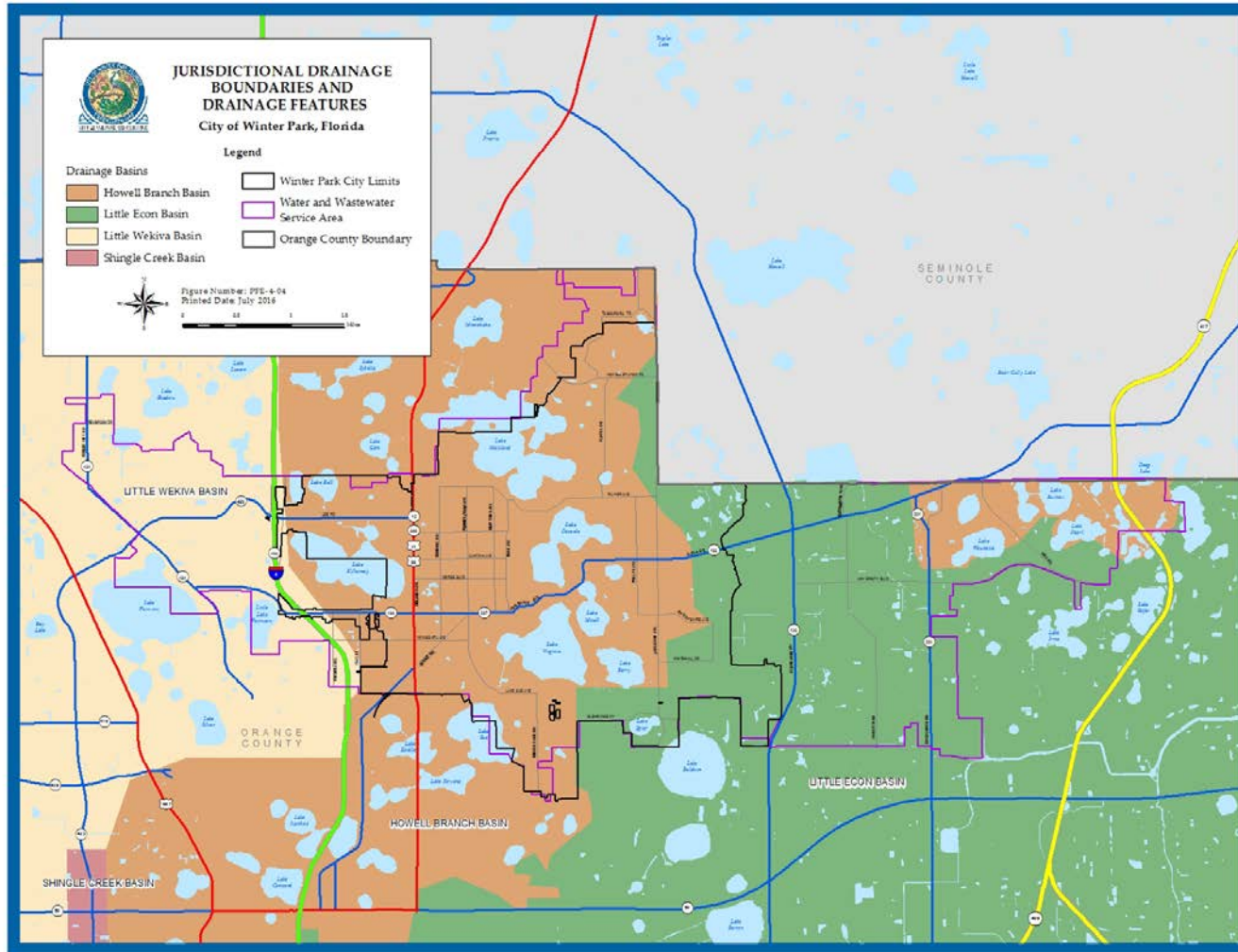




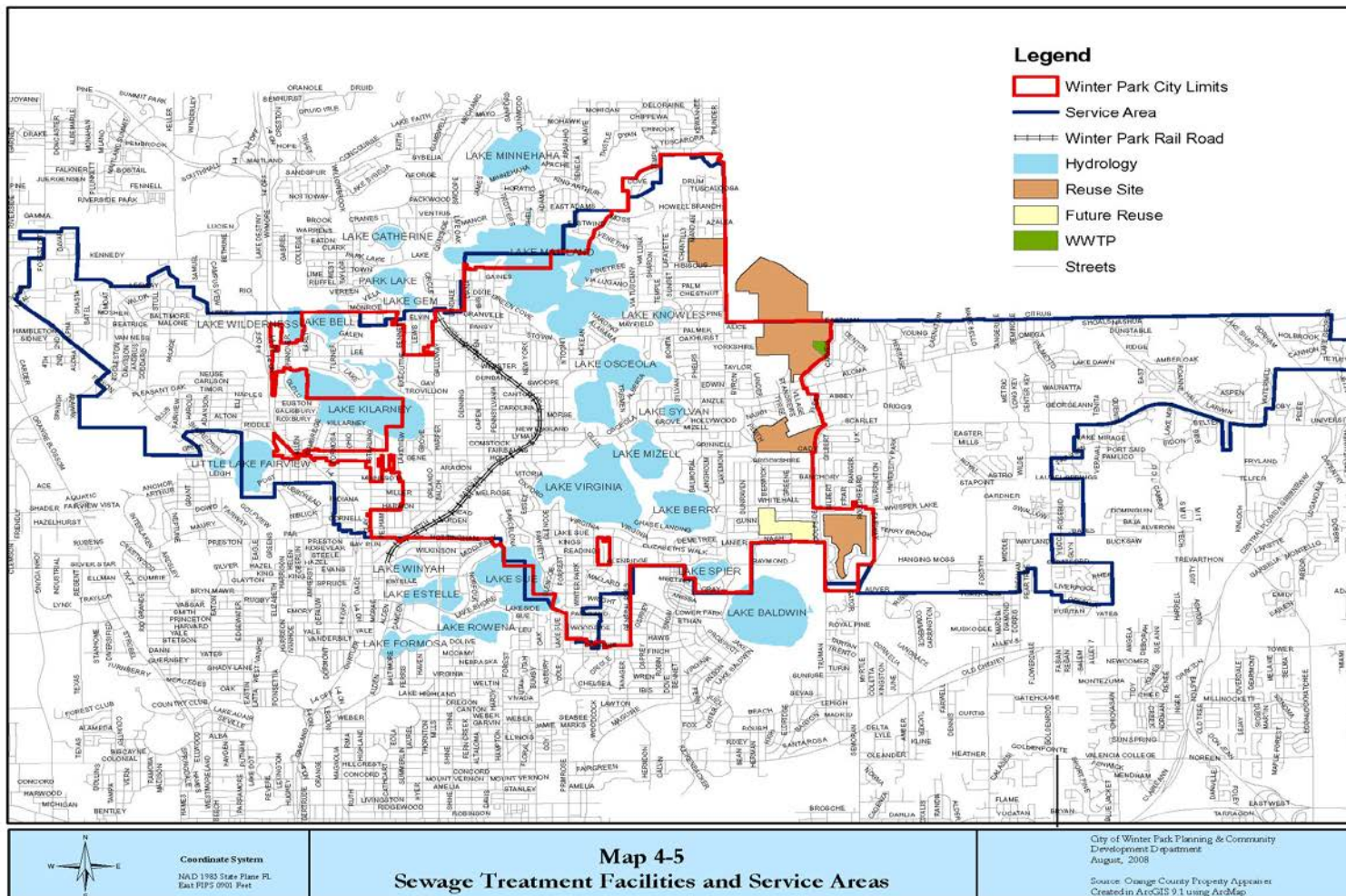


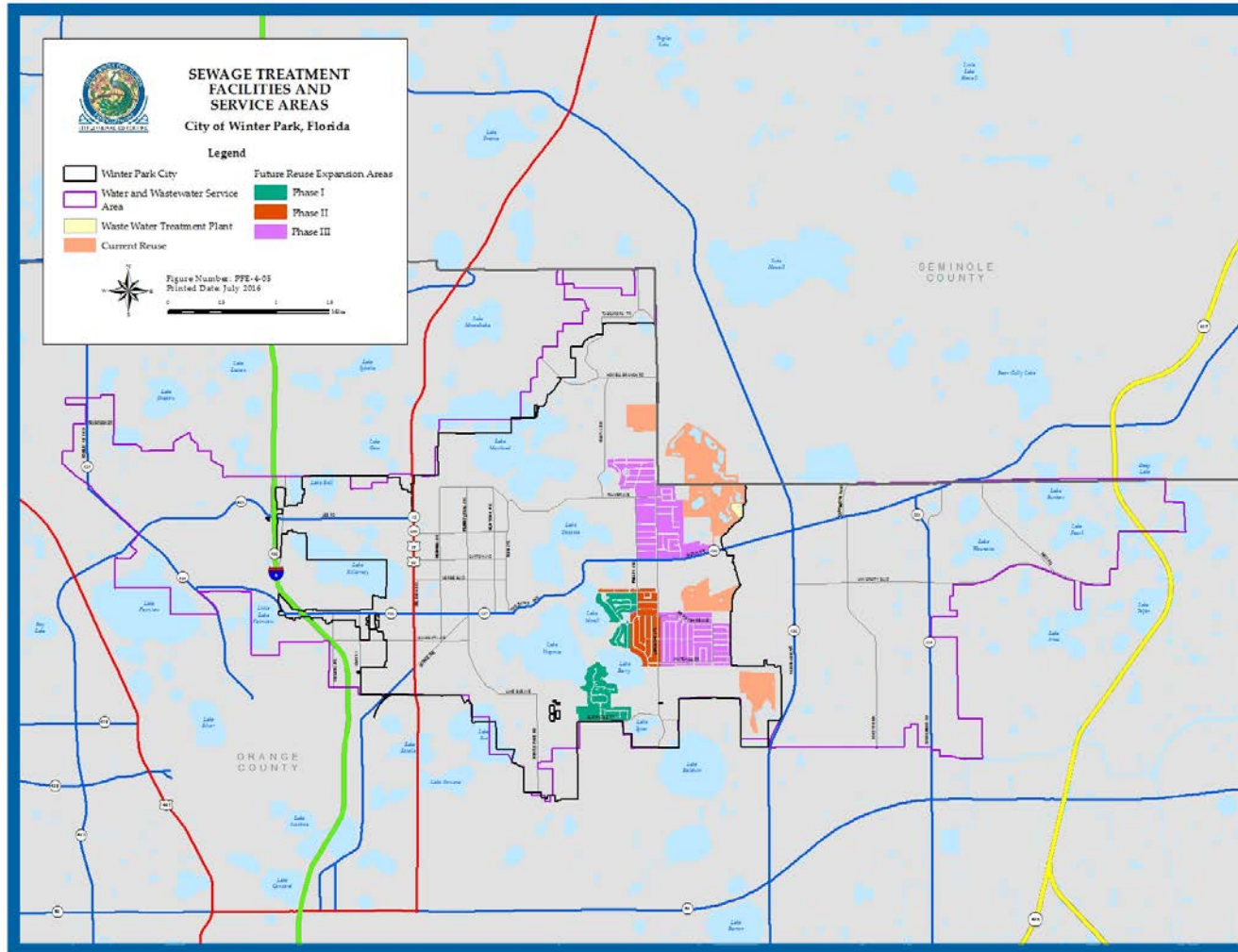


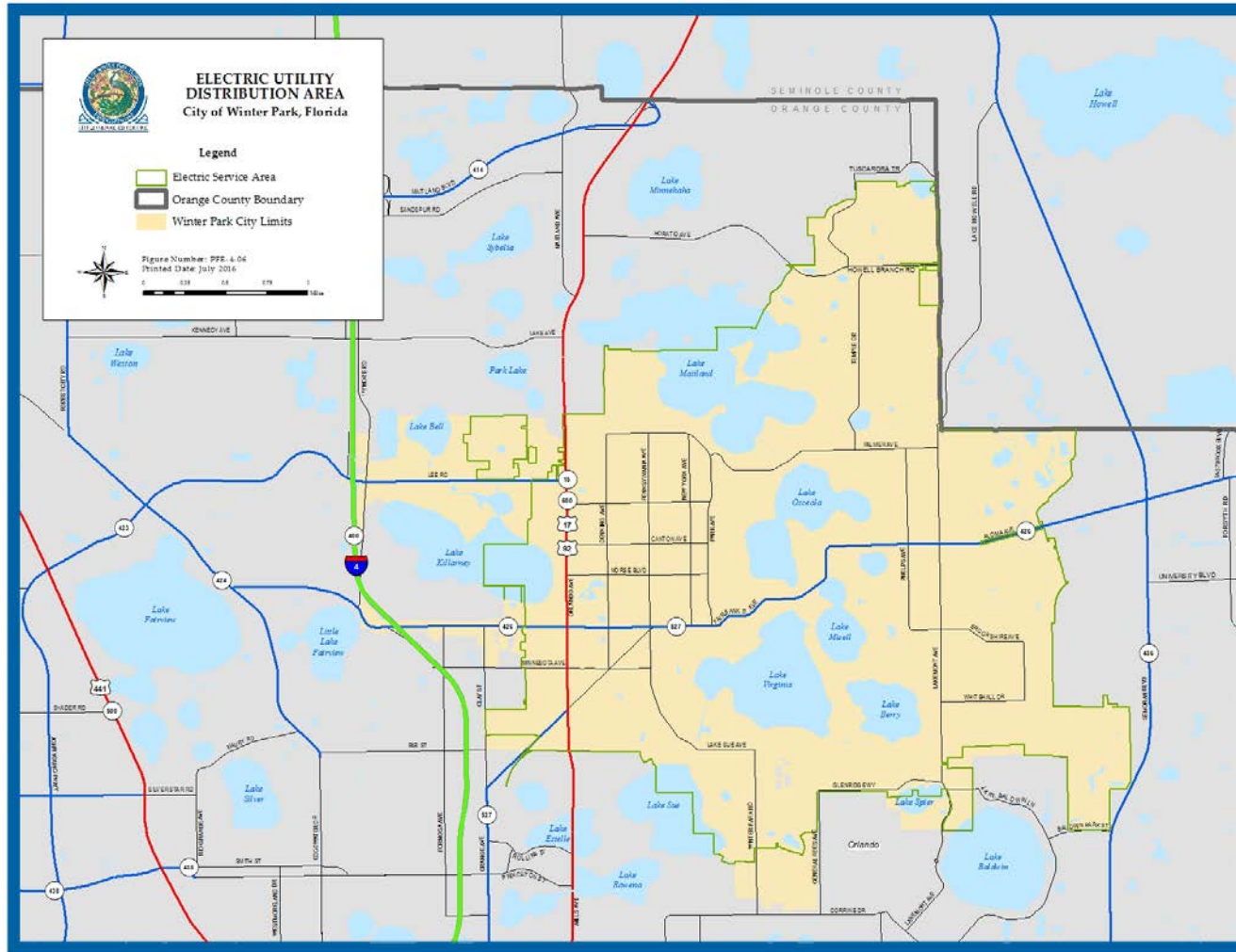












## PUBLIC FACILITIES ELEMENT DATA INVENTORY AND ANALYSIS

### 9J-5.011(1), F.A.C.

Public facilities include potable water, wastewater, solid waste, drainage, and natural groundwater aquifer recharge. Pursuant to the requirement of 163.177(6)(f), F.S., and 9J-5.011, F.A.C., this section provides an inventory and analysis of the existing potable water, sanitary sewer, solid waste, and drainage facilities and services within the City of Winter Park (City) as well as its water and sewer utility service areas that extend into unincorporated Orange County.

**Methodology.** In general, the methodology for this element includes analysis of the baseline operating capabilities of existing facilities and mapping of existing service area boundaries. Current demand and design capacity as well as the existing level of service at which each facility was operating was also identified. After the baseline information was analyzed, projections of future needs were made based on projected population growth and current planned improvements for each of these facilities. Each sub-element in this element contains unique background information related to individual public facilities and services and includes projections which are developed separately for each public facility.

In 2004, the City completed an engineering report for its water and wastewater utility services. The Winter Park Bond Issue Engineering Report was used as the primary resource for water and wastewater facilities information and data. Other sources for information include the City of Winter Park's application to renew SJRWMD Consumptive Use Permit No. 7624, Florida Department of Environmental Protection (Orlando Office), Orange County, the City of Orlando, and Waste Management, Incorporated, of Orlando.

## WASTEWATER SUBELEMENT

**Introduction.** Wastewater service is comprised of three components – sewage collection, treatment, and disposal. Disposal includes solids and effluent reuse, which is also referred to as reclaimed or grey water.

Within the City of Winter Park, most development receives wastewater service from a sewer system that transports sewage through underground pipes to an offsite treatment facility for processing and disposal. This type of wastewater service is referred to as a central sewer system. Centralized wastewater sewer systems must meet standards established and monitored by the Florida Department of Environmental Protection and the U.S. Environmental Protection Agency.

Development not connected to a central sewer system receives wastewater service from onsite treatment facilities. Only a limited number of single family homes use onsite septic tank systems. No area within the City receives treatment service from a wastewater package plant, which is a privately-owned treatment facility handling a relatively limited volume. Onsite septic tanks systems must comply with state standards monitored and enforced by the Orange County Health Department.

Map 4-1 delineates the areas within the City's jurisdictional boundaries that are served by a central sewer system or by a septic tank system.



### Centralized Wastewater Service

The City of Winter Park owns, operates, and maintains a central wastewater system that in year 2004 provided service to approximately 14,503 accounts and a population of 43,000 customers. Divided into three separate service areas, Winter Park's sewer system extends beyond its corporate limits to serve development located in unincorporated Orange County and is bounded by the cities of Maitland and Eatonville on the north and Orlando on the south.

The City's central wastewater service is managed and operated by the Water and Wastewater Utility Department. The entire sewer systems consists of approximately 742,400 feet of sewer lines, 4,135 manholes, and 108 pumping stations with 222,240 feet of associated force mains. While the City owns nearly all of the collection system and a wastewater treatment facility, wholesale agreements have been established with the other local governments to treat and dispose of effluent generated from within Winter Park's wastewater service area. No sewer flows within the City's general sewer service area are treated by privately-owned utilities.

In 2005, the City's general sewer service had a combined daily service capacity of 8.166 million gallons per day (MGD) by using five different wastewater treatment plants. The wastewater treatment plant owned by Winter Park treats only 7.5% of the total sewer system treatment capacity, with a substantial portion of the capacity provided through wholesale agreements with other governments.

**Service Area.** Covering 22 contiguous square miles, Winter Park's general wastewater service area (GWSA) covers the entire eight square miles within the City's corporate limits as well as 14 square miles adjacent to the City. The City's water and sewer service areas share the same geographical boundaries, forming a single contiguous utility service area. The GWSA is served by three physically independent wastewater systems – the West, East, and Central Districts.

Boundaries for the wastewater service area and its three districts are delineated on Map 4-1. This map presents the general wastewater service area, service district boundaries, and the location of the wastewater treatment plant and effluent disposal sites located within the service area. District characteristics are summarized in Table 4-1.

Winter Park and Orange County have entered into an inter-local agreement defining the boundaries of the City's sewer utility serve area boundaries.

**Table 4-1  
District and Service Area Characteristics**

	East System	West System	Central System	GWSA <sup>1</sup>
<b>Area (square miles)</b>	n/a	n/a	n/a	22
<b>Accounts</b>	n/a	n/a	n/a	14,503
<b>Customers (population)</b>	n/a	n/a	n/a	43,000
<b>General Service Area</b>	Unincorporated areas east of the City limits.	Unincorporated areas west of the City limits.	Incorporated Winter Park	n/a
<b>Treatment Facility</b>				
Iron Bridge Regional Treatment Plant	X		X	
Altamonte Springs Regional Water Reclamation Facility		X	X	
Orange County Utilities McLeod Road Sewage Treatment Plant	X	X		
Winter Park Estates Water Reclamation Facility	X			

Source: Winter Park Utilities, 2005.

X – Wastewater treatment plant serves this district of the GWSA.

n/a – not available

**Wastewater Collection/Transmission Facilities.** Pursuant to the Florida Department of Environmental Protection, collection/transmission systems include sewers, pipelines, conduits, pumping stations, force mains, and all other facilities used for collection and transmission of wastewater from individual service connection laterals to facilities intended for the purpose of providing treatment prior to release to the environment.

Each wastewater service system physically functions independently, having no connections that allow effluent flows to be redirected from one system to another. Each system stands on its own for collection and distribution to a treatment facility. Within each of the three service systems, the collection system consists of gravity sewer lines, lift stations, or force mains (pressurized sewer lines). The City's collection facilities for the entire general service area consists of approximately 742,400 feet of sewer lines, 4,135 manholes, and 108 pumping stations with 222,240 feet of associated force mains.

**A. Individual Sewer System Transmission.** For the Central Sewer Systems, wastewater flow is directed to the Howell Branch master pumping station through sewer gravity lines or force mains. Located north of Howell Branch Road and east of Temple Trail, the master pump station then transfers flows to the Iron Bridge Regional Sewage Treatment Plant (owned and operated by the City of Orlando).

Winter Park partnered with Orlando, Orange County, Maitland, Casselberry, Seminole County and Winter Springs to form a regional transmission authority to fund and install transmission lines to

send wastewater flows to the Iron Bridge treatment facility. The South Seminole-North Orange County Wastewater Transmission Authority operates and maintains the transmission system under contractual agreements with the same participating government entities.

For the East Sewer System, wastewater flow is directed to the three different treatment plants – Iron Bridge, Orange County Utilities, and Winter Park Estates. For the West Sewer System, collection lines send wastewater to both the McLeod Road Water Reclamation Facility and Altamonte Springs Regional WWTF.

- B. Inflow and Infiltration.** Common to sewer collections systems throughout Florida is the inflow and infiltration of groundwater and stormwater into sewer lines. Inflow involves stormwater entering sanitary sewer lines through manholes or cracked lines during or after rainstorms. Infiltration involves a continual seepage of groundwater into sewer lines and laterals through cracked lines or off line joints. Seepage from infiltration will vary based on seasonal and climatic changes affecting rainfall levels. For example, wastewater volumes treated at the City's Winter Park Estates Water Reclamation Facility were lower in 2000 than any of the five previous years because of a regional drought experienced in 1999 and 2000.
- C. Performance and Improvements.** For the collection system within each of the three service areas to maintain effective performance and to continue compliance with FDEP standards, the City will continue an ongoing maintenance and repair program through its Utility Division. These activities will include the following:
1. Extension of sanitary sewer lines to areas where development currently relies on septic tanks.
  2. Sanitary sewer manholes deteriorated by hydrogen sulfide gas will need to be repaired or replaced to avoid potential groundwater infiltration.
  3. Asbestos cement force mains that have been deteriorated by hydrogen sulfide gas will require replacement to prevent potential leaks and possible collapse of pipes. The City plans to replace sanitary force mains with high density polythelene pipe.
  4. The Hibiscus Lift Station is currently failing because of age and use. The City will convert this facility to a submersible lift station.
  5. 15 CAN type lift stations that are to be converted to submersible stations for safety and reliability reasons.
  6. South Seminole North Orange County Wastewater Transmission Authority transmission line rehabilitation.

Unpredicted malfunctions to the collection system occur on occasion, sometimes causing overflow onto adjacent sites, surface waters or upper groundwater. Malfunctions have occurred as the result of sewer lines breaking under stress, from construction activity or blockage in the line. Lift stations have also malfunctioned because of pump failure created by hurricanes, lightning strikes, power outages, or equipment breakdowns. All malfunctions that result in an overflow are reported to the FDEP through a Sewer Overflow Report, a form prepared by FDEP.

A major extension of sewer mains is planned for the western portion of Fairbanks Avenue from Lakeview Avenue to Interstate 4. The extension is anticipated to occur by early 2007 or earlier. This extension will allow the City to better serve customers and development located within the West Sewer System.

All collection and transmission facilities must comply with standards set forth in Chapter 62-604, Florida Administrative Codes, which are enforced by FDEP. These standards establish design, construction, and operation requirements for wastewater collection and transmission systems and establish procedures to obtain a permit to construct or modify a domestic wastewater collection and transmission system.

**Treatment Facilities.** Wastewater treatment is provided by inter-local agreements with nearby municipal utilities and by the Winter Park Estates Water Reclamation Facility, which is owned and operated by the City. The treatment facilities that serve each of the three sewer systems are listed in Table 4-2. Pursuant to FDEP, "treatment" means any method, technique, or process which changes the physical, chemical, or biological character or composition of wastewater and thereby reduces its potential for polluting waters of the state.

**Table 4-2**  
**Treatment Facilities Serving Each Sewer System**

Facility	Owner/Operator	East System	West System	Central System
Winter Park Estates Water Reclamation Facility	City of Winter Park	X		
Iron Bridge Regional Treatment Plant	City of Orlando	X		X
Regional Water Reclamation Facility (RWRF)	City of Altamonte Springs		X	X
Orange County Utilities	Orange County	X		
Conserv II Wastewater Treatment Plant (McLeod Road )	City of Orlando		X	

Source: Winter Park Utilities Division, 2002.

A. **Winter Park Estates Water Reclamation Facility.** The Winter Park Estates Water Reclamation facility operates an effluent reuse treatment plant and is permitted by the FDEP as a domestic wastewater treatment plant. This wastewater treatment plant (WWTP) treats a portion of the wastewater generated within the City and its utility service area. Other portions are treated by other wastewater treatment plants or by onsite septic tanks. Winter Park Estates exclusively treats wastewater collected from the City's Central Sewer System. The population served by Winter Park Estates is estimated at 7,800, based on the FDEP renewal application submitted by the City in December 2002.

1. **Treatment Facilities.** Operated as a complete mix/extended aeration treatment facility with chemical addition and tertiary filtration, the facility has a design capacity for 0.750 million gallons per day (MGD) but is limited to processing .615 MGD because of a lack of available onsite storage capacity and a scarcity of eligible sites for reuse irrigation. In 2005, the facility treated an average of .396 MGD. The aeration facilities are currently undergoing a 2.3 million dollars upgrade to replace the surface mechanical aerators with fine bubble diffuser type. After completion, pilot tests can be preformed to support aerating the treatment capacity with the State.

2. **Disposal.** An effluent storage facility consists of two holding ponds and a 3.0 million gallon storage tank. Treated effluent is distributed for reuse as irrigation at the Cady Way athletic



fields, Interlachen Golf and Country Club, Winter Pines Golf Course, and Glen Haven Cemetery, all of which are located within Winter Park's corporate limits. The planned future expansion of the reuse system will also include WPHS. Tale 4-3 lists the permitted daily effluent reuse volumes that can be sent to each site in 2006.

**Table 4-3**  
**Effluent Reuse Sites and Permitted Reuse Flows, 2006**

Reuse Site	Permitted Flow (mgd)
Winter Pines Golf Course	0.155
Cady Way/Showalter Field	0.120
Interlachen Country Club	0.190
Glen Haven Memorial Park (cemetery)	0.150
Total	0.615

Source: Winter Park Utilities, 2006.

3. **Biosolids.** Sludge, or biosolids, collected at the Winter Park Estates facility is pumped via a special force main to Orlando's Iron Bridge Regional Water Reclamation Facility, where digesters are used to stabilize the sludge by removing residual organic matter. Biosolids used or disposed at the Iron Bridge RWRF amount to an average of 41 dry tons per year. The digested sludge is removed from the system and receives final disposal through land application at FDEP approved landfills. No sludge hauling by truck occurs from the Winter Park Estates Water Reclamation Facility.
4. **Regulatory Analysis.** Any entity that intends to collect, transmit, treat, dispose of, and/or reuse domestic wastewater are required to obtain a wastewater permit from the Florida Department of Environmental Protection, which regulates and enforces standards set forth in Chapter 62, Florida Administrative Codes. Standards established by the State of Florida must be consistent with mandatory standards established by the U.S. Environmental Protection Agency.

The facility is currently operating under permit FLA10819-001 that expires on July 14, 2008. The current permit limits the WWTP to an annual average daily flow of .75 MGD.

A review of compliance inspection reports and other regulatory files indicates that the facility site has been substantially compliant.

- B. **Wholesale Providers.** The majority of the City's wastewater is treated at regional facilities owned and operated by other local governments. All are located outside of the City's jurisdictional boundary and the GWSA. The City has reserved capacity in these facilities through wholesale sewer agreements with the City of Orlando, the City of Altamonte Springs, and Orange County Utilities. Table 4-4 summarizes the maximum daily capacity that the City has reserved from each treatment facility.

**Table 4-4  
Current Wastewater Treatment Capacities**

Utility	Government	Treatment Capacity (mgd)	Percent of Total Flows from City Wastewater Service Area (2003)
<b>City-Owned Facilities</b>			
Winter Park Estates Water Reclamation Facility	Winter Park	0.75	8.08%
<b>Reserved Capacity</b>			
Regional Wastewater Reclamation Facility <sup>1</sup>	Altamonte Springs	0.413	6.54%
Iron Bridge Regional Treatment Plant	Orlando	5.962	70.23%
Conserv II Reclamation Facility (McLeod Road WWTP)	Orlando	1.000	13.15%
Orange County Utilities	Orange County	.176	1.9%
<b>Total Sewer System Capacity</b>		<b>8.301</b>	<b>100.0%</b>

<sup>1</sup> Source: Altamonte Springs City Plan 2020, Infrastructure Element, 2002.

Source: All other data provided by Winter Park Utilities, 2005.

1. **Iron Bridge Regional Reclamation Facility.** Although the majority of the wastewater treated by Iron Bridge facility is generated from within the City of Orlando, flows are contributed from other sources, including parts of Winter Park, Maitland, Casselberry and unincorporated portions of Orange and Seminole Counties. Over 70% of the daily wastewater flows generated within Winter Park's GWSA were treated at the Iron Bridge Facility in 2005. Owned and operated by the City of Orlando, the plant is physically located in Seminole County, approximately six miles to the east of Winter Park. The primary lift station transmitting wastewater flows to Iron Bridge is owned and operated by South Seminole North Orange County Waste Water Transmission Authority.

The total permitted capacity of the Iron Bridge facility is 40 mgd. Permitted as a domestic wastewater facility, Iron Bridge operates as a physical, chemical, and biological sewage treatment plant with reuse discharge to the Little Econlockhatchee River and to reclaimed water systems for irrigation.

The City's current contract with the City of Orlando stipulates that a maximum flow of 5.962 million gallons per can be transmitted to the Iron Bridge Regional Reclamation Facility. According to the Winter Park Bond Issue Engineering Report (2004), improvements proposed to the Iron Bridge facility may provide additional committed capacity for Winter Park, if the facility is re-rated. The report did not indicate the amount of reserved capacity that will be available to the City's general wastewater service area. To maintain existing received capacity, the City must share in the costs associated with these proposed improvements. The estimated prorated share of the cost that Winter Park will incur is \$8,300,000.

2. **Conserv II Reclamation Facility.** Located on McLeod Road in southwest Orlando, the Conserv II WWTP treated about 13% of the wastewater generated within the GWSA in 2005. In addition to western portions of the City of Orlando, this plant, which is owned and operated by the City of Orlando, treats wastewater received from the West Sewer System of Winter Park's

GWSA. Classified as a domestic wastewater treatment facility, the Conserv II plant has a permitted capacity of 25 mgd and operates as an activated sludge sewage treatment plant providing effluent to spray irrigation and freeze protection for orange groves in West Orange and Lake County.

The City's current contract with the City of Orlando stipulates that maximum flow of one million gallons per day can be transmitted to the Conserv II Reclamation Facility (i.e., McLeod Road Wastewater Treatment Plant).

3. **Regional Water Reclamation Facility (aka Swofford).** The Regional Water Reclamation Facility (RWRF) is owned and operated by the City of Altamonte Springs, located approximately three miles to the north in Seminole County. Designed and permitted as a domestic wastewater treatment facility, the RWRF is an AWT facility with discharge directed to the Little Wekiva River and to the City's "APRICOT" reuse system. In 2005, approximately 6.5% of the total wastewater flow within the GWSA received treatment at Altamonte Springs' RWRF.

With a permit capacity of 12.5 mgd, the RWRF had 5.483 mgd of capacity available in 2000 for additional wastewater demand when discounting capacity used for surface water augmentation and taking into consideration treatment capacity reserved under wholesale agreements with other cities.

The City's current contract with the City of Altamonte Springs stipulates that a maximum of 413,524 gallons per day of wastewater can be transmitted to the Regional Wastewater Reclamation Facility.

4. **Orange County Utilities.** Only a relatively small area within the City's East Sewer System receives treatment from Orange County Utilities. Several wholesale agreements have been established between the City and Orange County to serve pockets of development within the East System's service area. Table 4-5 summarizes the development served by Orange County Utilities and the general terms of the agreement.

All agreements were originally established with Florida Water Services, Inc., a private investor owned utility company. Orange County acquired Florida Water Services several years after the agreements were arranged.

**Table 4-5**  
**Development Served by Orange County Wastewater Utilities**

Development	Land Use Type	Termination Date <sup>1</sup>	Service Volume (gallons per day)
Hunters Ridge Apartments	Residential	12/07/2008	61,250
University/Goldenrod Shopping Center	Commercial	4/12/2009	35,000
Laural Springs, Fontana, and Sutton Place Apts.	Residential	9/2008	80,000
<b>Total</b>			<b>176,250</b>

Source: Winter Park Utilities, 2003.

<sup>1</sup> All wholesale agreements include an automatic renewal for five years after the termination date.

**Current Wastewater Demand.** In 2003, the City served approximately 8,477 single-family, multi-family, and commercial sewer customers within the City limits, and approximately 6,026 customers outside the City limits. According the Winter Park Bond Issue Report, 2004, nearly 25% of wastewater demand is generated from the ten customers listed in Table 4-6.

**Table 4-6**  
**Top Ten Sewer Customers by Volume**

Customer <sup>1</sup>	Land Use Type	Volume <sup>1</sup> (x1000 gallons)
Orange County <sup>2</sup>	Residential	83,741
Rollins College	Institutional	21,041
Picerne Development	Residential	61,825
Equity Residential Apartments	Residential	31,437
Winter Park Hospital	Institutional	26,124
Winter Park Towers Retirement Center	Institutional	20,692
Club at Winter park	Residential	18,694
Bailey Appollo/Sutton Place	Residential	20,225
Winter Park Town Center, LTD	Residential	16,687
Nob Hill Apartments	Residential	14,249
<b>Total</b>		<b>335,666</b>

<sup>1</sup> Source: Winter Park Bond Issue Engineering Report, CH2M Hill.

<sup>2</sup> Customers served by Orange County Utilities, as shown in Table 4-5

Table 4-7 summarizes the historical wastewater flows entering treatment plants providing service to the Winter Park service area. Based on annual average daily flows experienced in 2003 for the entire GWSA, the 14,503 service accounts generated a demand of 6.099 mgd. A review of historic wastewater flows from 1995 through 2003 indicates that flows experienced in 2003 were lower than that recorded in previous years. Lower flows in 2003 are a direct result of a regional drought occurring during that year. Lower rainfall cause groundwater levels to drop, resulting in a lower level of infiltration and inflow.

**Table 4-7**  
**Historic Wastewater Flows**  
**Winter Park General Wastewater Service Area**

Year	Winter Park Estates <sup>1</sup>	Conserv II <sup>2</sup>	Iron Bridge <sup>2</sup>	RWRF <sup>3</sup>	Orange County Utilities	Total Average Daily Flow
	(mdg)	(mdg)	(mdg)	(mdg)	(mdg)	(mdg)
1995	0.374	0.688	5.707	0.247	0.176 <sup>5</sup>	7.016
1996	.0371	0.635	5.622	0.244	0.176 <sup>5</sup>	6.872
1997	0.404	<sup>4</sup>	<sup>4</sup>	0.207	0.176 <sup>5</sup>	N/A
1998	0.365	.0594	6.246	0.241	0.176 <sup>5</sup>	7.446
1999	0.359	.0562	5.466	0.306	0.176 <sup>5</sup>	6.693
2000	0.424	0.462	5.051	0.292	0.176 <sup>5</sup>	6.229
2001	0.316	0.470	4.856	0.251	0.176 <sup>5</sup>	5.893
2002	0.348	0.413	5.149	0.263	0.176 <sup>5</sup>	6.173
2003	0.316	0.277	5.280	0.226	0.176 <sup>5</sup>	6.099

Source: Source: Winter Park Bond Issue Engineering Report, Table 2-9; CH2M Hill, 2004.

<sup>1</sup> Owned and operated by the City of Winter Park.

<sup>2</sup> Owned and operated by the City of Orlando.

<sup>3</sup> Owned and operated by the City of Altamonte Springs.

<sup>4</sup> Information not available because an Orlando computer problem occurred during that period.

<sup>5</sup> Information not readily available. Flows represent insignificant portion of total flows. For analysis purposes, flows based on maximum capacities allowed under wholesale agreements with Orange County.

**Future Wastewater Demands.** Winter Park's GWSA covers a region within the Orlando metropolitan area that is urban in character and substantially develop. Vacant land comprises a very small portion of the service area. Within the nine square miles comprising Winter Park's corporate boundaries, vacant land represents only approximately 250 acres, less than five percent of its land area. While development of vacant land will create additional demands for wastewater services, redevelopment may likely result in additional wastewater demands where new development replaces existing buildings and uses with those having higher development intensities.

Wastewater flows generally have a direct relationship with potable water flows. This situation is not the case if stormwater is also processed through a wastewater system; however, this is not the case for Winter Park's wastewater service. Wastewater flows occur at volumes less than potable water flows, since irrigation demand makes up a significant portion of the City's potable water flow. Therefore, as water conservation measures are implemented in future years, the per capita demand for wastewater should decline at a rate less than that experienced for potable water demands.

**A. Projected Wastewater Flows.** Based on the Winter Park Bond Issue Engineering Report (2004), wastewater demand is anticipated to increase at an average annual rate of approximately one half of one percent through 2025. The population projections for the service area within the City were adjusted to reflect the changing market conditions in 2008. The projections for 2018 were reduced by 1,000, 2023 by 2,000, and 2028 by 3,000 people. Wastewater flows anticipated from 2008 through 2028 are provided in Table 4-8. The flows for 2026 through 2028 are a straight line projection from the Engineering Report data. The projected flows represent future demand. Anticipated demand for future years is anticipated to occur at an annual average daily rate of 145

gallons per person. This average is derived from system-wide flows that include wastewater collected from residential and non-residential land uses.

**Table 4-8**  
**Future Wastewater Flows and Capacity Needs**

Year	GWSA Population	Average Annual Daily Flow (mgd)	2000 System Design Capacity (mgd)	Capacity Surplus (Needs) (mgd)
2008	43,760	6.3	8.3	2.0
2013	44,800	6.5	8.3	1.8
2018	45,160	6.5	8.3	1.8
2023	46,480	6.7	8.3	1.6
2028	48,280	7.0	8.3	1.3

Source: Winter Park Bond Issue Engineering Report, 2004. The population projections for the service area within the City were adjusted to reflect the changing market conditions in 2008. The projections for 2018 were reduced by 1,000, 2023 by 2,000, and 2028 by 3,000 people.

- B. Wastewater Demand by Sub-area.** Winter Park's general wastewater service area covers its entire incorporated area as well as adjacent unincorporated areas. Within the wastewater service boundaries, total annual wastewater flows are generated from outside the City are slightly higher than those generated from within the City's incorporated boundaries. Table 4-9 summarizes wastewater flows for the three-year period from fiscal year 2001 to 2003.

**Table 4-9**  
**Wastewater Flows by Jurisdictional Area**

Sub-area	FY 2001	FY 2002	FY 2003
<b>Total Flows (x 1000)</b>			
Inside City	1,034,821	1,009,712	976,143
Outside City	1,059,422	975,981	980,457
<b>Percent of Total Flows (x 1000)</b>			
Inside City	49.4%	50.8%	49.9%
Outside City	50.6%	49.2%	50.1%

Source: Winter Park Bond Issue Engineering Report, 2004.

- C. Capacity Needs.** Based on anticipated demand for wastewater flows projected, sufficient capacity is available on a system-wide basis through year 2028. The re-rating of the Iron Bridges WRF may provide the additional capacity.
- D. Level of Service.** The Level of Service (LOS) standard has been set at an annual average daily rate of 139 gallons per capita. The level of service is based on total flows for the general wastewater service area and service area population.

### Onsite Sanitary Sewer Systems

While most development within the City of Winter Park receives wastewater service from the City's central sewer system, some development and areas of the City use onsite septic tanks. The primary land use served by septic tanks is single-family residential homes. Areas within the City served by septic tanks area illustrated on Map 4-1. Areas served by septic tanks that are located outside the City's corporate boundaries but within the GWSA are not inventoried and analyzed within this element.

**Land Use Served by Septic Tanks.** Less than 100 single family homes within the City are served by septic tanks. A majority of the homes served by septic tanks are located on the north or northeast side of the City. A small number of commercial businesses are saved by septic tanks. These are concentrated primarily along Lee Road and Fairbanks Avenue. A gravity sewer is being planned for portions of Fairbanks Avenue that are currently served by septic tanks. That project is expected to be completed by 2010.

**Soil Compatibility.** Acceptable operation of septic systems requires soil types suitable for dissipating overflow and seepage percolating from the underground tank. Soils that drain poorly or that function poorly as filters will cause effluent concentrations to exceed levels considered acceptable by the Orange County Health Department. However, most areas of the City are served by a centralized wastewater system, thus reducing potential of incompatibility between septic tanks use and soil types. Among the soils types indigenous to the Winter Park, the most common soils covering the City are those classified by the U.S. Soil Conservation Service (SCS) as urban land and Candler urban complex. Urban land typically is assigned by the SCS to lands served by centralized sewer systems. Candler urban complex has only slight limitation for use for septic tank absorption and in most cases is suitable for septic tank use. Several soil associates are present that do have moderate or severe limitations for septic tank use according to the SCS. Table 4-10 lists those soil associations that have a low and moderate potential for septic tank use.

A comparison of the soil associations (Map 1-7) with locations where septic tanks are used (Map 4-1) indicates that most homes are located in areas where Candler-Urban soils occur. Seven homes served by septic tanks are located on parcels abutting lakes or a canal. Based on a comparison of the general location of the parcels identified on Map 4-1 with the Soil Associations Map, some homes are located on soil types listed in Table 4-10 that are not suitable for septic tank use.

**Table 4-10  
Generalized Soil Potential for Septic Tanks**

Potential	Description	General Soil Association	Soil #
Low	Serious limitations due to wetness/flooding, slope, and poor filtration resulting in poor performance of septic systems. Higher costs associated with overcoming limitations.	Basinger: Nearly level and very poorly drained. Typically found in shallow depressions and sloughs.	3
		Hontoon: Nearly level and very poorly drained.	19
		Smyrna urban complex: Nearly level and poorly drained.	45
		Pomello urban complex: Nearly level to gently sloping and moderately well drained and of areas of urban land.	35
		Ona urban complex: Nearly level and poorly drained and areas of urban land.	27
		Zolfo urban complex: Nearly level and somewhat poorly drained and areas of urban land. Found in areas characteristic of flatwoods at one time.	55
Medium	Moderate limitations due to wetness. Limitations can be overcome; however, if wetness persists, maintaining the septic system can be costly.	Millhopper urban complex: Nearly level to gently sloping and moderately well drained. Typically found in upland areas.	24
		Taveres urban complex: Nearly level to gently sloping and moderately well drained. Typically found on low ridges and knolls in the flatwoods.	48

Source: Soil Survey for Orange County, U.S. Soil Conservation Service; August, 1989.

**Regulatory Analysis.** Installation and operation of onsite septic tank systems must comply with state standards. Standards for septic tank systems and other onsite sewage treatment and disposal systems are set forth in Section 381.0065, Florida Statutes (FS) and Chapter 64E-6, Florida Administrative Code (F.A.C.). The Florida Department of Health, Onsite Sewage Program, locally enforces these state standards through its County Health Departments. For development using septic tanks in Winter Park, permits must be obtained from the Orange County Health Department.

For development proposing to use septic tanks, the City of Winter Park requires building permit applicants to obtain all necessary septic tank permits from the Orange County Health Department prior to the City issuing any permits that allow site construction to proceed. When code enforcement issues are raised by the septic tank performance, the City also coordinates concerns with the Health Department.

**Impact of Wastewater Facilities on Adjacent Natural Environment.** Based on review of FDEP records and contact with the Orange County Health Department, an agency of the Florida Department of Health, no substantial impacts to the natural environment have occurred in recent years as a result of failures in sanitary sewer systems. Malfunctions to system operations have occurred, but such situations were corrected. Coordination and communication with FDEP occurred when appropriate and applicable.

**A. Centralized Wastewater System.** The City is responsible for the operation and maintenance of nearly all of the wastewater collection system within the general wastewater service area and for the Winter Park Estates Wastewater Reclamation Plant. As explained above, malfunctions within the



collection and treatment systems occur on occasion. Some malfunctions result in the overflow of effluent. When such spillage occurs within Winter Park's treatment and collection system, the City's Utilities Department submits a Sewer Overflow Report to the FDEP. Within these reports the City indicates the extent of the spillage, remedial actions implemented to repair the system, and methods used, if necessary, to remove or alleviate spillage.

FDEP investigates malfunctions based on the severity of a case or the frequency in system failures. Also, FDEP evaluates the history of a system's malfunctions as part of its review of the five-year permit renewal. A general review of FDEP records did not identify any substantial impacts to adjacent natural environments as a result of system malfunctions. FDEP will conduct an extensive analysis of the Winter Park's collection and treatment system during the review of the City's application to renew its domestic wastewater permit. As part of this review, FDEP will evaluate the wastewater system's historical performance and determine whether improvements are necessary to continue compliance with FDEP standards.

- B. Septic Tanks Systems.** Based on a telephone contact with the Orange County Health Department, no known areas within the City are experience abnormal frequencies in septic tank failures.

## POTABLE WATER SUBELEMENT

### Introduction

The City owns and operates a potable water system that serves customers within its corporate limits as well as adjacent unincorporated areas. Covering a service area identical to that for the City's wastewater system, the potable water system combined with the wastewater system forms a single unified and contiguous utility service area. Approximately 75% to 80% of the utility service area is served by this water system. The remainder of the utility service area receives water from individual wells serving the Winter Park Golf Course and the Lake Island Irrigation System. The population served by the water system was approximately 68,000 in 2003.

The City's water system serves retail customer groups both inside and in the contiguous areas outside the City limits. All water capacity is distributed on a retail basis. While the City provides water capacity to Orange County Utilities, water capacity is reserved under a retail agreement. The City does not have any wholesale water agreements with any of its water customers or with other utility providers. The City does have an emergency interconnect with Orange County that is only used on an emergency basis and is not used as a source of water for the City.

The overall system consists of eight active raw water wells that draw from the Floridan aquifer to service four interconnected water treatment plants. The City is currently making improvements to all of its water treatment facilities. When these improvements are completed, the total combined design capacity of the City's treatment plants will be 28.8 mgd while the City is allowed to withdraw 12.7 mgd average from the lower Floridan aquifer in 2025. The consumptive use permit from the St. Johns River Water Management District (SRJWMD) does not cover the planning period from 2026 to 2028. The City will apply for a renewal of the consumptive use permit prior to that time. Total water flows averaged 11.4 mgd average in 2005. All new development within the water service area is required to connect to the City's water system.

### Service Area

Winter Park's potable water system covers 22 contiguous square miles. Approximately 40% of the service area -- representing approximately 9 square miles -- lies within the City's corporate limits. The remaining 13 square miles is located within unincorporated Orange County adjacent to the City. All potable water used within the service area is treated by Winter Park's treatment plants. Groundwater wells at the Winter Park Golf Course and proposed at Lake Island Estates Park are for irrigation use only.

Population served by the water service system was approximately 68,000 in year 2003 with approximately 26,000 of this total representing population residing inside Winter Park's city limits. Approximately 62% of the population served by the City's water system is located outside city limits while 38% reside within Winter Park.

### Raw Water Supply

All potable water used within the Winter Park water service area is withdrawn from the Lower Floridan aquifer, a groundwater source lying at a depth of as much as 1,300 feet below surface. No surface water

is treated as a source of potable water at this time. Groundwater from the Lower Floridan aquifer is primarily used as potable water for public consumption and landscape irrigation. More information describing the Floridan aquifer is provided under the subsection addressing natural groundwater recharge.

**Potable Water Source.** Any use of groundwater from the Floridan aquifer requires approval from the SJRWMD. One of five regional water management districts established by the Florida legislature, the SJRWMD responsibility is to ensure the sustainable use and protection of water resources for the benefit of the people residing within the District as well as the state of Florida. Withdrawal of groundwater from the Floridan aquifer requires a consumptive use permit issued by the SJRWMD. Such permit establishes a maximum amount of groundwater that can be withdrawn.

As set forth within three consumptive use permits issued to Winter Park, the City is authorized to withdraw up to 4.68 billion gallons per year from the aquifer. Nearly all the permitted groundwater capacity is allocated to the City's potable water system with less than one percent assigned for irrigation at individual wells at Winter Park Golf Course and Lake Island Estates Park. A summary of the maximum groundwater withdrawals allowed under consumptive use permits issued to the City is provide in Table 4-11.

**Table 4-11**  
**Maximum Permitted Withdrawal from the Floridan Aquifer**

User	CUP <sup>1</sup> Permit Number	Permit Expiration Date	Max Yearly Permitted Withdrawal (mg)	Ave Daily Permitted Withdrawal (mg)	Use	Area Served
Winter Park Water System	7624	October 12, 2025	4,635.5	12.7	public supply	22 square miles
Winter Park Golf Course	3394	20 years from date of issuance <sup>2</sup>	45.000	n/a	golf course and common area irrigation	38.0 acres
Lake Island Irrigation System	60174	October 6, 2019.	0.951	n/a	irrigation for urban landscape	18.60 acres
Total Permitted Aquifer Withdrawals	n/a	n/a	4681.451	n/a	n/a	n/a

<sup>1</sup> CUP – Consumptive Use Permit.

<sup>2</sup> Permit under review for renewal as of February 2003.

Source: SJRWMD Consumptive Use Permit Applications, October 2002.

**Groundwater Reliability.** Based on an analysis of future water demands and available groundwater supplies for east-central Florida, the SJRWMD has estimated that groundwater supplies cannot meet quantities necessary to serve population levels anticipated for year 2020. In April 2000, the SJRWMD adopted its first long-term water supply plan. For the east-central Florida region of the District's jurisdictional area, the water plan identifies areas that likely will not be able to meet water supply needs from groundwater sources without creating adverse impacts to this resource and associated natural systems. Winter Park lies at the geographic center of the SJRWMD's east-central Florida sub-area,

which extends from the southern end of Flagler County to the Brevard County's southern boundary and westward to the eastern perimeter of Sumter County.

- A. **Groundwater Quantity.** The SJRWMD has classified those areas within east-central Florida that may not be able to meet water supply needs from groundwater sources as "priority water resource caution area" (PWRCA). According to the SJRWMD's Water Supply Plan, a substantial portion of the east-central Florida area has been designated as a PWRCA. Winter Park lies within the PWRCA's boundary.

Competition for water within east-central Florida is anticipated to increase as regional population continues to grow. Population growth within the City will likely average annual rates lower than anticipated for the region. However, the availability of groundwater supplies is a regional issue. According to the SJRWMD, seventy-eight public supply utilities serve the region, and most prefer long-term use of the Florida aquifer to meet water demands generated by their customers. To address regional water supply needs, the SJRWMD initiated the East-central Florida water supply initiative. Its primary purpose is to facilitate intergovernmental participation as part of an effort to identify potential solutions to meeting future water needs.

Pursuant to Senate Bills 360 and 444, the City will be required to incorporate traditional and alternative water supply projects selected from the SJRWMD District Water Supply Plan or proposed by the City, reuse and conservation projects, and a ten year water supply facilities work plan for building public, private, and regional water supply facilities which are necessary to meet water needs. The City's water supply facilities work plan is incorporated into this plan.

- B. **Groundwater Quality.** Water quality within the Floridan aquifer system is considered good, with only the removal of hydrogen sulfide and chlorination required for primary treatment. While eastern areas of east-central Florida experience saltwater intrusion within groundwater, Winter Park is further inland in an area where groundwater has not yet been adversely affected from saltwater encroachment.
- C. **Potable Water Wells.** Eight wells, of which six are currently operational, are located throughout the 22 square mile water service area. Extending to depths of 1200 to 1,355 feet into the Florida aquifer, wells 16 inches to 20 inches in diameter pump approximately 3,000 gallons per minute (gpm) to 4,000 gpm to one of four water treatment plants. Well locations are illustrated on Map 4-2. A summary of each well serving the public water system is provided in Table 4-12. The wells located on Swoope Avenue are located within the City while the other well sites are located within unincorporated areas of the City's water service area. The two irrigation wells located at Lake Island Estates Park and at Winter Park Golf Course do not appear in Table 4-12.

**Table 4-12**  
**Summary of Raw Water Wells Serving Public Water System**

Well Location	Year of Construction	Casing Diameter	Casing Depth	Total Depth	Pump Rate
		(in)	(ft)	(ft)	(gpm)
Magnolia Ave 6	1957	16	1148	1315	3500
Magnolia Ave 11	1993	16	950	1355	3000
Swoope Ave 10	1990	16	920	1330	4000
Swoope Ave 12	2003	20	1120	1200	4000
Aloma Ave 13	2004	20	930	1350	4000
Aloma Ave 14	2004	20	930	1350	4000
Wymore Rd 5*	1955	16	1160	1275	3500
Wymore Rd 9*	1990	16	1010	1300	3000

Source: Winter Park Bond Issue Engineering Report, 2004. \*The Wymore Road wells have been out of service and will be placed into standby operation and only used in case of emergency.

### Water Treatment Facilities

Currently, raw water pumped from the six wells is transmitted to and treated at one of the four interconnected water treatment plants. The location of each of these water treatment facilities is shown in Map 4-5.

The original four water treatment facilities serving the system were the Swoope Avenue Water Treatment Plant, Wymore Road Water Treatment Plant, Magnolia Avenue Water Treatment Plant and the University Boulevard Water Treatment Plant. All but the Swoope Avenue facility are located within unincorporated areas of the City's water service area. Each plant includes onsite storage tanks as well as associated high service pumps to transmit treated water into the distribution system. All four plants have onsite emergency power generation capability. Table 4-13 provides a summary of the design capacity and facilities associated with each treatment plant.

The City is in currently implementing improvements to all of its water treatment facilities. Prior to these improvements, primary treatment at the plants consisted of aeration for taste and odor removal, chlorination for disinfection, and fluoridation for the promotion of dental care in children. The new Swoope Ave WTP completed in 2004 uses ozone for removal of H<sub>2</sub>S and disinfection. The Magnolia WTP ozone improvements were completed in late 2006. The new Aloma WTP, which also uses ozone, was completed in late 2006 as well. The Aloma WTP replaced the University WTP. The Wymore WTP will be converted to a repump facility in 2008. The Swoope WTP has been increased in capacity to also serve the Wymore service area and the wells at the Wymore WTP will be placed into standby operation and will only be used in case of an emergency. At all the plants, the pH of the water is adjusted with sodium hydroxide to prevent corrosion of piping with the distribution system.

**Table 4-13**  
**Design Capacities for Water Treatment Plants and Associated Facilities**

Plant	1 <sup>st</sup> Year of Operation	Treatment Capacity (mgd)	Connected Wells	Total Well Capacity (mgd)	Onsite Storage (mg)	Service Pumps	Service Pump Capacity (mgd)
Swoope Ave	2004	11.4	2	11.5	1.9	4	16.4
Wymore Rd*	1955	0.0	2*	9.4	2.3	4	10.8
Magnolia Ave	1957	7.4	2	9.4	1.5	4	16.4
Aloma	2007	10.0	2	11.5	1.9	4	18.9
Total		28.8	6	32.4	7.6	16	62.5

Source: Winter Park Bond Issue Engineering Report, 2004.

\* The Wymore plant is used to maintain pressure in the system but will not contribute to system capacity.

**Regulatory Analysis and Performance.** Quality of drinking water must comply with standards established by the U.S. Environmental Protection Agency and by the Florida Department of Environmental Protection. All public water systems are required to periodically test water served to the public for contamination.

The Safe Drinking Water Act, which was enacted by Congress in 1974, authorizes the U.S. Environmental Protection Agency (EPA) to establish water quality standards that will ensure safe drinking water for the public. The Florida Legislature enacted a similar "Safe Drinking Water Act" which is contained in Sections 403.850 - 403.864, Florida Statutes. This statute authorizes the Florida Department of Environmental Protection (FDEP) to formulate and enforce rules pertaining to drinking water. FDEP's rules follow the national primary and secondary drinking water standards of the federal government. Additional rules were also created by FDEP to fulfill environmental goals identified by the state. Florida's water quality standards and monitoring requirements are contained in Chapters 62-550, 62-555, and 62-560, Florida Administrative Code (F.A.C.).

The City is required to monitor drinking water for concentrations of regulated and unregulated compounds to determine if they meet standards established by FDEP and the Safe Drinking Water Act. According to the City's Water Quality Report for year 2004, the Winter Park water system is monitored 8 hours a day, 5 days a week, by state certified water treatment plant operators and via SCADA at other times. Operators test the water daily to ensure that state and federal water quality regulations are being met. In 2004, certified laboratories performed approximately 3,000 analyses on water samples taken throughout the City's water system. As required by a 1996 amendment to the Safe Drinking Water Act, a report must be prepared annually by all drinking water utilities to disclose results of their water monitoring program. The City's annual water quality report is made available to the public and is also posted on the City's internet site.

**Ongoing System Improvements.** The City's oldest WPT, the Swoope Avenue WTP, has been replaced with a new, state of the art facility located across the railroad tracks at the intersection of Swoope and Virginia Avenue. The old facility has been demolished with the exception of one production well, which has been renovated. The Phase I improvements to the Magnolia Avenue WTP have also been completed. These improvements are associated with reliability and redundancy. Phase II incorporated ozone treatment. The gaseous chlorine systems have been replaced with more safe and effective sodium

hypochlorite systems. Other improvements made in recent years include replacement or repair of ground storage tanks, new well pumps, and other typical maintenance activities.

As part of the Winter Park Bond Issue Engineering Report (Bond Issue Report) prepared in 2002, the City developed a long-term water system improvement program to address repair, replacement and new infrastructure to improve and enhance the reliability and redundancy of the water system and to meet potential new federal and state water quality standards. The water system improvement plan also identified improvements that improved overall taste and odor. Proposed improvements to the system were implemented in two phases and are described below as appearing in the Bond Issue Report.

- A. **Summary of Water System Improvements Program.** The City of Winter Park's two-phased Water System Improvements Program (WSIP) focuses on reliability and redundancy in Phase 1 and future regulations and water aesthetics in Phase 2. The Water System Improvements Program was endorsed by the City Commission of February 13, 2001. At the same time, the Commission authorized the City's Public Works Department staff to move forward with implementation of the first phase of the WSIP.
- B. **Phase 1 Improvements.** The first phase focuses on improvements necessary to improve the reliability and redundancy with the water system. Phase 1 commenced in 2001 and was completed in 2004. Totaling 20 million dollars, Phase 1 improvements were funded from 2002 Water and Sewer Bonds and impact fees. Work completed: Phase 1 was the first phase of the Magnolia Ave WTP, Phase 1 and 2 of Swoope Ave WTP, and underground electrical and surge protection for all 4 WTP sites.
- C. **Phase 2 Improvements.** To meet new state and federal water quality regulations and to improve the taste and odor of drinking water, improvements will be necessary at water treatment plants. The second phase commenced in 2004. The funding sources include the 2004 W & S bond issue and water utility revenues. Work consisted of the new Aloma WTP, O3 addition at Magnolia WTP, modification of the Wymore WTP, and abandonment of the University WTP.

### Water Distribution System

In 2004, the water distribution system covering the 22 square mile service area consisted of 550 miles of water distribution lines, 1,252 fire hydrants, and associated valves and appurtenances. To maintain acceptable flow rates within the distribution system, pressure is maintained from the use of six service pumps and five ground level storage tanks. Distribution lines receive water flow from primary mains that extend varying distance from each of the four treatment plans. Extending 40.5 miles in total combined length, primary mains range in diameter from 12 to 36 inches. Water flow is monitored by over 23,700 service meters at customer sites. Table 4-14 provides an inventory of the City's water distribution system by pipe diameter.

**Table 4-14**  
**Inventory of Winter Park Distribution System**

<b>Diameter (inches)</b>	<b>6-8</b>	<b>10-12</b>	<b>16</b>	<b>20</b>	<b>24</b>	<b>30</b>	<b>60</b>
Length (feet)	918,400	202,550	30,800	510	5,430	220	60
Length (miles)	173	38.5	5.8	0.1	1.0	0.04	0.01

Source: Winter Park Bond Issue Engineering Report, 2004.

### Water Demand and Available Capacities

Water demand analysis was performed as part of the Bond Issue Engineering Report prepared in 2004. Most information and text presented below originates from this report.

**Current Water Demands.** In 2003, the average daily flow for the entire Winter Park water system was 10.6 mgd. Prior to 2001 plant flows were estimated using inaccurate tank drawdown and rated pumping techniques. The top ten water users within the water service represent approximately 10% of the total annual demand for water. Table 4-15 lists the historic water flows for the Winter Park water system from 1995 to 2003. The top ten water users for year 2003 are listed in Table 4-16.

**Table 4-15**  
**Historic Water Flows**

<b>Year</b>	<b>Water Treatment Plant</b>				<b>Average Daily Demand</b>
	<b>Swoope Ave</b>	<b>Wymore Ave</b>	<b>Magnolia Ave</b>	<b>University Blvd</b>	
	Flow <sup>1</sup> (mgd)	Flow (mgd)	Flow (mgd)	Flow (mgd)	Flow (mgd)
1995	1.9	1.7	1.8	4.8	10.3
1996	2.2	1.7	1.8	4.9	10.63
1997	2.2	1.7	1.8	4.8	10.67
1998	2.4	1.9	2.3	5.1	11.79
1999	2.5	1.8	2.4	5.2	11.79
2000	3.2	1.9	3.3	4.8	13.15
2001	2.7	1.6	3.3	3.9	11.4
2002	2.6	1.5	4.2	4.2	10.9
2003	2.5	1.6	2.8	3.9	10.6

Source: Winter Park bond Issue Engineering Report, 2004.



**Table 4-16**  
**2003 Top Ten Water Users**

User	Land Use Type	Annual Water Usage for Year 2000 (x1000 gallons)
Orange County	Residential	84,797
Rollins College	Institutional	35,042
Picerne Development	Commercial	61,825
Equity Residential Apartments	Multi-family Residential	31,437
Winter Park Hospital	Institutional	33,703
Winter park Towers Retirement Center	Institutional	22,435
Club at Winter Park	Multi-family Residential	18,694
Bailey Appollo/Sutton Place	Multi-family Residential	20,225
City of Winter Park	Institutional	55,921
Winter Park Town Center, LTD	Commercial	17,023

Source: Winter Park Bond Issue Engineering Report, 2004.

**A. Current Available Capacity.** The Winter Park water system currently has sufficient capacity from groundwater sources, treatment plants, and the delivery system (i.e., service pumps) to meet water demands generated from customers inside and outside the city limits.

The volume of groundwater available to the water system is limited by the levels established in the consumptive use permit issued by the SJRWMD. Current groundwater allocation is limited to 12.7 mgd by the SJRWMD in 2025. The consumptive use permit does not cover the planning period from 2026 to 2028. The City will apply for a renewal of the consumptive use permit prior to that time. Table 4-17 lists available capacity in groundwater supplies based on groundwater allocations authorized by the SJRWMD and year 2008 thru 2025 demands.

**Table 4-17**  
**Current Available Capacity from Groundwater Sources**

Year	Permitted Groundwater Withdrawal <sup>1</sup>	Average Daily Demand	
		Average Daily Flow <sup>2</sup>	Available Capacity
	(mgd)	(mgd)	(mgd)
<b>2008</b>	11.9	11.2	0.7
<b>2013</b>	12.0	11.4	0.6
<b>2018</b>	12.2	11.4	0.8
<b>2023</b>	12.7	11.7	1.0
<b>2025</b>	12.7	11.9	0.8

<sup>1</sup> Average annual daily groundwater withdrawal allowed by Consumptive Use Permit

No. 7624, as issued by the SJRWMD.

<sup>2</sup> Source: Winter Park Bond Issue Engineering Report, 2004. The population projections for the service area within the City were adjusted to reflect the changing market conditions in 2008. The projections for 2018 were reduced by 1,000, 2023 by 2,000, and 2028 by 3,000 people.

Once groundwater is pumped from the Floridan aquifer, the treatment system must have the capacity to treat water volumes sufficient to meet customer demands. Customer demands are measured based on an average daily needs and maximum daily flow. The treatment systems at the four treatment

plants have a combined treatment capacity to meet the average daily and maximum daily flows demanded by water system customers. Table 4-18 summarizes available treatment capacities for average daily demands.

**Table 4-18**  
**Current Available Capacity for System-wide Treatment Facilities**

Year	Design Capacity	Average Daily Demand		Maximum Daily Demand	
		Average Daily Flow <sup>1</sup>	Available Capacity	Maximum Daily Flow <sup>2</sup>	Available Capacity
	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
2008	28.8	11.2	17.6	20.2	8.6
2013	28.8	11.4	17.4	20.5	8.3
2018	28.8	11.4	17.4	20.5	8.3
2023	28.8	11.7	17.1	21.1	7.7
2028	28.8	12.2	16.6	22.0	6.8

<sup>1</sup> Source: Winter Park bond Issue Engineering Report, 2004. The population projections for the service area within the City were adjusted to reflect the changing market conditions in 2008. The projections for 2018 were reduced by 1,000, 2023 by 2,000, and 2028 by 3,000 people.

<sup>2</sup> Based on a peaking factor of 1.8.

Once groundwater is treated, the water system must have the ability to pump sufficient water volumes to the customer. The water system must have a delivery system with sufficient capacity to meet water demands. Table 4-19 demonstrates that the water system has sufficient available capacity in service pumps to meet average daily and maximum daily demands.

**Table 4-19**  
**Current Available Capacity for Service Pumps**  
**(Delivery System Capacity)**

Year	Design Capacity	Average Daily Demand		Maximum Daily Demand	
		Average Daily Flow <sup>1</sup>	Available Capacity	Maximum Daily Flow <sup>2</sup>	Available Capacity
	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
2007	62.5	11.2	51.3	20.2	42.3
2013	62.5	11.4	51.1	20.5	42.0
2018	62.5	11.4	51.1	20.5	42.0
2023	62.5	11.7	50.8	21.1	41.4
2028	62.5	12.2	50.3	22.0	40.5

<sup>1</sup> Source: Winter Park Bond Issue Engineering Report, 2004. The population projections for the service area within the City were adjusted to reflect the changing market conditions in 2008. The projections for 2018 were reduced by 1,000, 2023 by 2,000, and 2028 by 3,000 people.

<sup>2</sup> Based on a peaking factor of 1.8.

- B. Customer Distribution by Account Classification.** The City classifies its water customers into four major classes: commercial (CM), multi-unit (ML), public authority (PA), and residential (RS). Commercial customers are composed of businesses as well as commercial operations such as developers and builders. Multi-unit customers include duplexes, townhouses, and apartment complexes. Public authority customers include all government offices as well as schools and other

municipal facilities. The residential customer class is composed of single family residential dwellings. Each water customer class is further divided into potable water and irrigation accounts.

The distribution of customer types according to the four account classifications described above are shown in Table 4-20 by sub-area and Figure 4-1 for the water service area. The water service area is divided according to customers located within the city limits and those located outside city limits in unincorporated Orange County. Based on a comparison of sub-area customer accounts for customers inside and outside the city limits, distribution in account types experienced outside city limits is similar to that inside the City. For example, residential accounts share a similar proportion of sub-area totals - 82.2% versus 83.2%.

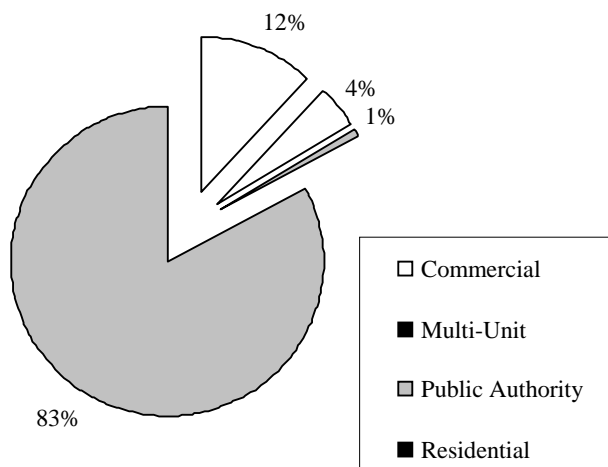
Figure 4-1 illustrates the proportional distribution of water service accounts by classifications. For the water service area, including areas inside and outside the city limits, residential accounts represent a substantial portion of the water accounts.

**Table 4-20**  
**Distribution of Water Service Accounts**  
**by Customer Classification**

Sub-area	Water Service – Customer Class	FY 2003	Percent of Sub-area	Percent of Total Service Area
Inside City	Commercial	1,383	12.0%	6.1%
	Multi-Unit	385	3.3%	1.7%
	Public Authority	215	1.9%	0.9%
	Residential	9,558	82.8%	42.1%
	Sub-total	11,541	100.0%	50.8%
Outside City	Commercial	1,373	12.3%	6.1%
	Multi-Unit	588	5.3%	2.6%
	Public Authority	40	0.4%	0.2%
	Residential	9,140	82.0%	40.3%
	Sub-total	11,141	100.0%	49.2%
Total Service Area		22,682	n/a	100.0%

Source: Winter Park Bond Issue Engineering Report, 2004.

**Figure 4-1**  
**Water Accounts by Customer Type**  
**Year 2004**



**C. Water Flow Demands by Service Area Location.** Winter Park's water service area covers its entire incorporated boundaries as well as adjacent unincorporated areas of Orange County. Based on water flow records for water service area during the three-year period from 2001 to 2003, water flow inside the city limits was slightly higher than that demand outside the city limits. Table 4-21 separates annual water flow according to water demand from inside and outside Winter Park's incorporated boundaries. Between 2001 and 2003, the incorporated area of the water service area consumed 52% to 54% of the service area's water flows. An increase in the proportion of water consumed within the incorporated area may be attributed to annexation of unincorporated areas located within Winter Park's water service area.

Figure 4-2 illustrates the share of annual water flow distributed to areas inside and outside Winter Park's city limits. Water flows inside the City occurred at high levels than outside the City.

**Table 4-21**  
**Water Flow Volumes by History and Distribution**

Sub-area	FY 2001	FY 2002	FY 2003
<b>Total Flows (x 1000)</b>			
Inside City	2,133,689	2,031,403	2,024,193
Outside City	1,854,837	1,851,881	1,729,814
<b>Percent of Total Flows (x 1000)</b>			
Inside City	53.5%	52.3%	53.9%
Outside City	46.5%	47.7%	46.1%

Source: Winter Park Bond Issue Engineering Report, 2002.

**Future Water Demands.** Water demand projections for Winter Park's water service area were performed in the Winter Park Bond Issue Engineering Report (2004). Methodology used to project future water flow is based on historical trend in both customer base and water production rates. Water demands were development using a per capita demand of 163 gallons per day. For projection of peak conditions, a maximum day demand to average day demand ratio of 1.8 was applied.

Table 4-22 summarizes the projected average daily flow projected for the water system while Table 4-23 identifies anticipated available or deficient capacities through year 2025. The consumptive use permit does not cover the planning period from 2026 to 2028. The City will apply for a renewal of the consumptive use permit prior to that time. In 2005, the groundwater allocation authorized by the SJRWMD was capped at 12.7 mgd average in 2025.

**Table 4-22**  
**Future Water System Demands:**  
**Projected Average Daily Flow**

Year	Service Area Population	Swoope Ave	Wymore Rd	Magnolia Ave	Aloma	Total Demand
2008	68,795	4.3	NA	2.9	4.0	11.2
2013	69,659	4.3	NA	3.0	4.1	11.4
2018	70,067	4.3	NA	3.0	4.1	11.4
2023	71,971	4.4	NA	3.0	4.3	11.7
2028	74,632	4.6	NA	3.2	4.4	12.2

Source: Winter Park Bond Issue Engineering Report, 2004. The population projections for the service area within the City were adjusted to reflect the changing market conditions in 2008. The projections for 2018 were reduced by 1,000, 2023 by 2,000, and 2028 by 3,000 people.

**Table 4-23**  
**Available Capacity for Future Water Demands**

<b>Year</b>	<b>Projected Demand (mgd)</b>	<b>Treatment Design Capacity (mgd)</b>	<b>Available Treatment Capacity (mgd)</b>	<b>SJRWMD Groundwater Supply<sup>1</sup> (mgd)</b>	<b>Available Supply Capacity (mgd)</b>
2008	11.2	28.8	17.6	11.9	0.7
2013	11.4	28.8	17.4	12.0	0.6
2018	11.4	28.8	17.4	12.2	0.8
2023	11.7	28.8	17.1	12.7	1.0
2028	12.2	28.8	16.6	12.7	0.5

<sup>1</sup> Groundwater supply based on average daily allocation granted by the SJRWMD consumptive use permit.

**Water Conservation and Reuse Practices and Regulations.** The following conservation and reuse practices and regulations are utilized by the City of Winter Park:

1. Operated as a complete mix/extended aeration treatment facility with chemical addition and tertiary filtration, the Winter Park Estates Water Reclamation Facility has a design capacity for 0.750 million gallons per day (MGD) but is limited to processing .615 MGD because of a lack of available onsite storage capacity and a scarcity of eligible sites for reuse irrigation. Treated effluent is distributed for reuse as irrigation at the Cady Way athletic fields, Interlachen Golf and Country Club, Winter Pines Golf Course, and Glen Haven Cemetery.
2. The City of Winter Park is a major contributor to the regional reuse systems in central Florida. The majority of the City's wastewater is treated at regional facilities owned and operated by other local governments. The City of Winter Park has reserved capacity in these facilities through wholesale sewer agreements with the City of Orlando, the City of Altamonte Springs, and Orange County Utilities. Over 70% of the daily wastewater flows generated within Winter Park's GWSA were treated at the Iron Bridge Facility in 2005. Iron Bridge operates as a physical, chemical, and biological sewage treatment plant with reuse discharge to the Little Econlockhatchee River and to reclaimed water systems for irrigation. Conserv II WWTP treated about 13% of the wastewater generated within the GWSA in 2005. Conserv II plant has a permitted capacity of 25 mgd and operates as an activated sludge sewage treatment plant providing effluent to spray irrigation and freeze protection for orange groves in West Orange and Lake County. In 2005, approximately 6.5% of the total wastewater flow within the GWSA received treatment at the Regional Water Reclamation Facility (RWRF) is owned and operated by the City of Altamonte Springs. Designed and permitted as a domestic wastewater treatment facility, the RWRF is an AWT facility with discharge directed to the Little Wekiva River and to the City's "APRICOT" reuse system. Only a relatively small area within the City's East Sewer System receives treatment from Orange County Utilities.
3. The City of Winter Park has adopted a water conservation rate structure for its utility system.

Chapter 58 of the Winter Park Code of Ordinances includes landscape regulations. Native and Florida Friendly plants are encouraged and small areas of turf less than 100 square feet or within an area with any one dimension less than three feet are not allowed. Organic mulch is required in plant beds and around individual trees in turf grass areas.

## NATURAL GROUNDWATER AND AQUIFER RECHARGE

### SUB-ELEMENT

#### Introduction

More than 95% of east-central Florida's public water supply comes from aquifers. All of Winter Park's water supply originates from an aquifer. An aquifer is a body of porous sediment or rock, consisting of sand, shell or limestone that allows water to move underground. Surface water percolates through the earth's surface and geological strata to underground locations where it is naturally stored as groundwater. The underground storage areas are the aquifers from which groundwater is withdrawn and pumped to water treatment plants or irrigation systems.

As discussed under the Potable Water sub-element the SJRWMD Water Supply Plan (2000) indicates that groundwater supplies will be insufficient to meet future water demands in east-central Florida based on current water consumption trends. Located at the center of east-central Florida, Winter Park lies within an area designated by the SJRWMD as a priority water resource caution area (PWRCA). Areas designated as a PWRCA may not be able to meet future water supply needs from groundwater sources. A substantial portion of the east-central Florida area, including all of Winter Park's water service area, has been designated as a PWRCA.

The quantity and quality of surface water percolating into the aquifers will determine what volumes of groundwater supplies will be available for future use and will affect the cost to treat raw water. This natural groundwater and aquifer recharge section is intended to aid Winter Park in their efforts to direct future development and development regulations so that they incorporate the protection of groundwater resources. The purpose of this section is to guide the conservation and protection of the natural functions of natural groundwater and aquifer recharge.

#### Environmental Impacts Related to Deficient Groundwater Recharge

This protection and conservation is important because it provides several benefits to the City. One benefit of recharge is the replenishment of water supplies. Water withdrawals from an aquifer must be balanced by recharge to ensure the sustainable use of groundwater. Another recharge benefit is the maintenance of lake levels, wetlands, stream flows and spring flows. Lakes and streams in Winter Park are supported by groundwater and spring flows that in turn must have recharge in order to maintain their flow, especially during drought periods.

Aquifer recharge also helps to dilute any contaminants in the water supply by augmenting the fresh water supply. It is also believed that recharge helps to prevent sinkhole formation caused by fluctuations in surficial groundwater tables. In susceptible areas, the amount of groundwater and the hydrostatic pressure can help to prevent or retard the development of sinkholes.

#### Description of the Aquifer System

The hydrogeologic nature of the aquifer beneath east-central Florida is separated into three systems: the surficial, the intermediate, and the Floridan. While all three systems are used for groundwater supply in east-central Florida, the consumptive use permits issued by the SJRWMD allow Winter Park to withdraw groundwater from the lower Floridan aquifer.

The Southeastern Geological Society (1986) described the hydrogeologic nature of the three aquifer systems as follows:

- A. Surficial Aquifer System.** The surficial aquifer system consists primarily of sand and sandy clay. It extends from land surface downward to the top of the confining unit of the intermediate aquifer system, where present, or to the top of the confining unit of the Floridan aquifer system. The surficial aquifer system contains the water table, which is the top of the saturated zone within the aquifer. Water within the surficial aquifer system occurs mainly under unconfined conditions, but beds of low permeability cause semi-confined or locally confined conditions to prevail in its deeper parts.

While not used for the Winter Park water service area, the surficial aquifer system serves as a source of water for public supply in St. Johns, Flagler, Brevard, and Indian River counties. It is also used as a source of water for domestic self-supply [i.e., private wells], mainly along the coastal portions of SJRWMD but also in inland areas scattered throughout SJRWMD.

- B. Intermediate Aquifer System.** The intermediate aquifer system consists of thin water-bearing zones of sand, shell, and limestone, which lie within or between less permeable units of clayey sand to clay. At the top of this aquifer system, poorly- yielding to non-water-yielding strata occur. This strata, referred to as an upper confining unit, coincides with the base of the surficial aquifer system. This unit lies immediately above the Floridan aquifer system and is geologically referred to as the Hawthorn Group. In oilier places, one or more low-to-moderate yielding aquifers may be interlayered with relatively impermeable confining beds. The aquifers within this aquifer system contain water under confined conditions. Within the intermediate aquifer system, confining units are generally more extensive than water-bearing units.

While not used as a water source by the Winter Park water system, the intermediate aquifer system is used as a water source for domestic self-supply [i.e., private wells] in Duval, Clay, and Orange counties.

- C. Floridan Aquifer System.** The Floridan aquifer system is one of the world's most productive aquifers. The rocks, primarily limestone and dolomite that comprise the Floridan aquifer system underlie the entire state, although this aquifer system does not contain potable water at all locations. Water in the Floridan aquifer system occurs under confined conditions throughout most of SJRWMD.

The Floridan aquifer system is subregionally divided according to the vertical occurrence of two zones of relatively high permeability. These zones are called the Upper and Lower Floridan aquifers. A less permeable limestone and dolomitic limestone sequence generally separates the Upper and Lower Floridan aquifers. This layer is referred to as the intermediate semiconfining unit or aquifer, as described above.

The Floridan aquifer is artesian, meaning that the water is confined under pressure by geologic formations. The Florida aquifer which underlies all of Florida and parts of Alabama, Georgia and South Carolina ranges from 150 to 1,500 feet below the land surface. Within Orange County, the Floridan aquifer has two major producing zones that are separated by a relatively impermeable layer. The upper producing zone extends from about 150 to 600 feet down. The lower producing zone



ranges between 1,100 to 1,500 feet. The municipal water supply wells for Winter Park use the lower Floridan aquifer.

### Recharge Potential

Groundwater within the aquifer returns to the surface through natural springs or through man-made wells. While natural forces may take hundreds of years for groundwater to emerge through springs, wells can remove water from an aquifer in minutes. Water percolating from the surface replaces groundwater that returns to the surface. The replenishment of groundwater by percolation is referred to as natural recharge. If groundwater is pumped from an aquifer at a rate faster than it can be replaced by natural recharge, then groundwater supplies decline.

Population growth and urban development within east-central Florida has adversely affected the ability of groundwater supplies to meet future demands. First, urban development in east-central Florida has reduced natural land cover and increased impermeable surfaces, such as roads, buildings, and parking lots. Second, population growth has increased the demand for water, resulting in greater reliance on groundwater supplies. Urban development and population growth have also combined to cause greater risk to contamination of groundwater supplies. Release of contaminants into an aquifer recharge area can make it unusable or threaten water quality, which will cause water treatment costs to rise. Protection of aquifers from unacceptable contamination and loss of recharge is essential to the security and availability of existing and future water supplies.

**Recharge Rates.** The rate of recharge varies based on soil characteristics, sub-surface geological strata composition, and presence of any sub-surface confining layer. A confining layer is a layer of low hydraulic conductivity (relative to adjacent geologic materials) that is not expected to be used as an aquifer. As these natural conditions vary across east-central Florida, some areas possess better natural recharge capabilities than others. To reduce potential contamination to aquifers and to assist in the preservation of open space for areas where natural recharge rates are highest, the SJRWMD has evaluated and mapped groundwater recharge capabilities and recharge areas across the region. A recharge area is a place where an absence of a confining layer allows water is able to seep from the ground surface to an aquifer.

An area's groundwater recharge capability is assessed according to the inches of water that percolate downward to an aquifer over a year. The natural land cover within and adjacent to Winter Park has been identified as having good to high recharge. Most areas within or adjacent to Winter Park have a potential recharge at a rate of 8 to 12 inches per year. Map 4-3 illustrates potential recharge rates identified for Winter Park.

**Regional Aquifer Protection.** Understanding that the Floridan aquifer likely holds insufficient water supplies to meet future needs, the SJRWMD has initiated several programs specifically designed to protect groundwater quality and recharge potential, conserve groundwater supplies, and reduce long-term dependency on the Floridan aquifer.

In 2000, the SJRWMD adopted its first long-term water supply plan. The District Water Supply Plan (2000) evaluates the long-term water needs for its jurisdictional area, including east-central Florida. To foster intergovernmental participation to implement strategies to conserve water supplies and protect water quality within the aquifer system underlying east-central Florida, the SJRWMD established the East-Central Florida Water Supply Planning Initiative. The goal of this initiative is to find regional

solutions for the region's anticipated groundwater supply deficiencies. Winter Park should maintain active participation in this effort.

The SJRWMD Water Supply Plan also proposes several other programs or projects that address the projection of aquifers. Major proposed or active initiatives are summarized below.

- A. **Eastern Orange and Seminole Counties Regional Reuse Component of the Eastern 1-4 Corridor Water Project.** This project is proposed to provide an effective use of large quantities of reclaimed water, which are available in eastern Orange and Seminole counties and which otherwise would be discharged to the St. Johns River. This project places emphasis on system interconnections to transport reclaimed water from areas of surplus to areas of need. As a majority of reclamation activity within eastern Orange and Seminole Counties occurs through the Iron Bridge Reclamation Facility, which treats the majority of wastewater for Winter Park's wastewater system, this project could benefit the City. Currently the SJRWMD proposes project partnerships that involve cooperation with the City of Orlando, Orange County, the Orlando Utilities Commission, Seminole County, the City of Oviedo, and the University of Central Florida.

Project RENEW is a potential partnership between OUC, Altamonte Springs, Winter Park, Maitland, and SSNOCWTA to re-route water to the high recharge areas in Apopka as a regional solution to the growing demand on the Floridian aquifer.

- B. **Aquifer Protection Plan.** SJRWMD proposes to prepare an Aquifer Protection Plan. The SJRWMD wants to join with FDEP and local governments to identify and protect surficial aquifers, the Floridan aquifer in areas where confining beds are thin or absent, as well as associated recharge areas.

The intent of this plan is to integrate existing aquifer protection efforts with additional initiatives required to adequately protect the surficial and Floridan aquifers. Strategies that should be addressed as part of the aquifer protection plan include:

- C. **Alternative Water Sources.** SJRWMD should jointly work with local governments to investigate specific strategies to retain and use storm water and reclaimed water to reduce existing or potential loss of recharge to reasonable levels and to potentially make more water available for potable or irrigation supply. Alternative water supply sources have been identified in the SJRWMD 2005 District Water Supply Plan. Pursuant to Senate Bills 360 and 444, the City will be required to incorporate traditional and alternative water supply projects selected from the SJRWMD District Water Supply Plan or proposed by the City, reuse and conservation projects, and a ten year work plan for building public, private, and regional water supply facilities which are necessary to meet water needs. The City's water supply facilities work plan is incorporated into this plan.
- D. **Land Acquisition.** The SJRWMD should identify strategic land acquisitions needed to implement these recharge strategies. SJRWMD will include lands identified to be strategic for recharge enhancement as a priority for land acquisition.
- E. **Wellfield Protection.** SJRWMD will continue its wellhead protection technical assistance program to provide timely delineations and implementation assistance to requesting local governments.

- F. Conservation Programs.** As part of the consumptive use permit process, the SJRWMD will continue to require local governments and water utilities to prepare and implement water conservation plans.
- G. Comprehensive Plans and Water Conservation.** As part of the process for amending or updating local government comprehensive plans, the SJRWMD will be requiring cities and counties to demonstrate that infrastructure and water supply are available to meet future growth and development. If water supply is not available under a consumptive use permit, then the local government will need to identify the water source that is proposed to serve new demand.
- H. East-Central Florida Water Supply Planning Initiative.** The purpose of this initiative is to foster participation from local governments in the decision-making and planning process to find and prioritize regional water supply solutions. Winter Park should continue participation in this intergovernmental involvement program.
- I. Strategic Reclaimed Water Assistance Project.** SJRWMD's consumptive use permitting rules currently require that water users use reclaimed water for irrigation whenever feasible. Winter Park may be required to expand current reclaimed water applications to obtain additional groundwater allocations from the SJRWMD. Water demand estimates prepared in this element indicate that water demands placed on the City's water system within the next ten years will not exceed groundwater allocations allowed under the City's consumptive use permit.

**Local Aquifer Protection.** While programs have been implemented or initiated by the SJRWMD to address aquifer protection on a regional basis, similar programs can be or have been initiated by Winter Park to protect the aquifer beneath the City.

- A. Wellfield Protection.** The City currently does not have a wellfield protection ordinance. The current land development Code was updated in October 2001. This version of the City's Land Development Code reserves Section 58-160 for a future wellfield protection ordinance. The City should prepare and adopt a wellfield ordinance to reduce potential risk of contamination at public well sites.

Approximately half of the City's well sites are located within the city limits. The other half are located in unincorporated Orange and Seminole County. The City currently does not have an interlocal agreement with Orange County or Seminole County regarding wellfield protection for wells located within unincorporated areas of the Winter Park water system. To further protect wellfield sites, the City should establish an interlocal agreement with Orange County to address wellfield protection from potential contamination and to reduce risks from vandalism or terrorists acts.

Orange County has adopted through Ordinance Number 00-25 a zone of protection area extending 400 feet in radius from each public potable water well located in the unincorporated area. The first 200 foot radius nearest to a well is established as a zone of exclusion. No regulated business listed in the County's Interim Aquifer/Wellhead Protection Ordinance is allowed within the zone of exclusion.

- B. Stormwater/Drainage Standards.** The City has adopted stormwater standards equal to or more restrictive than those applied by the SJRWMD. A stormwater utility fee imposed on all

development within the City generates revenue for capital improvements to the stormwater system. The City has also coordinated with the SJRWMD to jointly fund stormwater improvements that improve water quality within surface waters. Examples of such projects include the Green Cove Road stormwater retrofit project (year 2003) and the McKean Circle stormwater retrofit project (2003). Both projects received funding assistance from the SJRWMD.

- C. **Water Quality in Lakes.** The Lake Division of the Public Works Department is responsible for monitoring and maintaining water quality within the numerous lakes scattered throughout Winter Park. Interconnected by canals to form a chain-of-lakes, the largest lakes flow into Lake Howell Creek, which flows into Lake Jessup and, ultimately, to the St. Johns River. Several surface water projects or programs have been implemented over the past two decades to improve water quality within lakes. Examples of such programs and projects include a lake front vegetation protection ordinance, tree and vegetation planting within littoral zones, and water quality filtration projects.

## **SOLID WASTE SUB-ELEMENT**

### **Introduction**

Garbage and trash are generated by population and development within Winter Park. To protect the health and safety of residents and property, solid waste collection and disposal services are provided to the City's residents and businesses. Prior to 1999, the City of Winter Park provided a comprehensive solid waste collection programs for all residents and businesses not requiring a containerized trash pick up. Those residential and commercial customers requiring containerized trash collection services individually contracted with waste collection businesses. For waste collected by the City, collection services were provided by the City's Sanitation Division, which had as many as 15 employees and nine garage service trucks.

In 1999, the City transferred waste collection services from its Sanitation Division to Waste Management, Inc., a licensed waste collection business. With the elimination of the Sanitation Division in 1999, the City entered into a contract with Waste Management of Orlando, Inc., (hereafter Waste Management) to provide residential solid waste and yard collection services, residential curbside recycling collection, and commercial solid waste collection. The service area for solid waste collection is the corporate limits of Winter Park.

The City's contract with Waste Management expires April 30, 2009. Waste Management's local operation facilities and offices are located in Orlando.

### **Regulatory Analysis**

In 1988, the Florida Legislature passed the Solid Waste Management Act (SWMA) requiring Florida's counties to reduce the amount of solid waste disposed at landfills. The SWMA forced county solid waste management programs to achieve a reduction of 30% in the weight of solid waste being sent to landfills by December 31, 1994. To achieve this goal, all construction and demolition debris, and most newspaper, aluminum cans, glass and bottles must be separated and made available for recycling. Separation of plastics, other metal, other paper and yard trash is also encouraged by the Act.

The Solid Waste Management Act also prohibits disposal of certain materials at Class I landfills. Solid waste materials that cannot be permanently disposed at landfills are yard waste, tires, white goods (major appliances), batteries, used oil and oil based paints.

To meet the requirements and goals established by the SWMA of 1988, Winter Park established a solid waste program that separates garbage, large and bulky items such as white goods, recyclables, and yard waste. Separation of these materials for handling and disposal were continued after the City transferred waste collection services from its now absent Sanitation Division in 1999 to Waste Management.

Used oil and hazardous wastes must also be properly separated and disposed. Orange County administers programs addressing the collection and proper disposal of used oils and hazardous wastes.

### Solid Waste Collection

Solid waste collection is mandatory for all residential and non-residential development within Winter Park. All solid waste collection services are provided by Waste Management, according to service requirements stipulated within its contract with the City. Solid waste collection is organized according to garbage, yard trash, and recyclables. Service is provided to customers classified as either residential or commercial services.

**Garbage Collection.** Curbside waste collection is provided twice per week to single family residences within the City. Multiple family residences and commercial establishments also receive collection service twice per week but collection occurs from containers located within the site unless City containers are issued and used. Waste Management is also responsible for picking up all garbage at city-owned facilities.

For large or bulky waste that cannot be accommodated by trash containers, single family residential customers are given designated dates during the year when such items are collected by Waste Management at no additional charge. A fee may be charged for collection of large or bulky items discarded outside of the designated dates.

While Waste Management provides the waste pick up services, the City handles customer billing and fee collection.

According to Waste Management's Orlando office, an average of 10,500 tons are collected from residential customers and 7,100 tons from commercial customers per year within the City of Winter Park.<sup>1</sup> Combining the tonnage from the two customer sources, an annual average of 17,600 tons (or 39,424,000 pounds) are collected within the City, not including recyclables and yard waste. Based on a 2002 population of 25,852, an average of 1,525 pounds per year are generated on a per capita basis. Table 4-24 lists the current and estimated future solid waste generated within the City from all land uses. Future estimates are based on a per capita rate applied to anticipated future population. The Housing Element provides methodology explaining how future population is derived.

**Table 4-24**  
**Annual Tonnage of Solid Waste Collection**

Year	Population	Existing Level of Service (Pounds per Person) <sup>1</sup>	Total Pounds	Total Tons <sup>2</sup>
2002	25,852	1,525	39,424,000	17,600
2010	27,440	1,525	41,846,000	18,681
2015	28,104	1,525	42,858,600	19,133
2020	28,768	1,525	43,871,200	19,585

<sup>1</sup> Equivalent to 4.2 pounds per capita per day.

<sup>2</sup> Based on 2,240 pounds per ton.

Source: Solin and Associates, Inc., 2003.

<sup>1</sup> Source: Waste Management, Inc., (Orlando office) e-mail response request, dated May 22, 2003, to information request.

**Yard Waste Collection.** Lawn debris and other yard waste are collected once a week from residential dwellings and commercial establishments by Waste Management. This collection service also includes the pick up of discarded Christmas trees. According to Waste Management, the City averages 3,400 tons per year in yard waste collection.<sup>1</sup>

**Collection of Recyclables.** Recyclable materials include newspapers, glass bottles, metal cans (aluminum and de-labeled tin), plastic containers and other similar material that are capable of being recycled. Special containers are used to separate recyclables from garbage and yard trash. Waste Management provides recycling collection services for single family residential dwellings at the curbside on public streets or from other specifically defined locations approved by the City. A recycling program also includes a public awareness program jointly developed by the City and Waste Management. The purpose of the public awareness program is to encourage residents to separate and separately store recyclables from garbage until pick up by Waste Management.

The volume or tonnage of recyclable material collected by Waste Management was not available.

**Hazardous Waste and Petroleum Collection.** Waste Management is not responsible for the pick up of hazardous wastes, batteries, and oils. Winter Park residents can take household hazardous waste, including paints, oils, batteries, fluorescent lamps, pesticides, herbicides, and cleaners, to the household hazardous waste facility at the City's property located at 1409 Howell Branch Road, the Orange County landfill, or to the transfer station located at LB McLeod Road. Certain automobile repairs shops or quick-lube oil change centers may also accept used oils at no charge. In addition, from time to time Orange County organizes special dates and locations for the collection of household hazardous waste. Recognizing that some senior or disabled citizens are unable to travel to the County landfill or transfer center, the Orange County Environmental Protection Division sponsors a program that picks up household hazardous wastes from their homes. Eligible Winter Park residents may use this program.

**Level of Service.** Based on average annual tonnage of solid waste collected and transported to landfills for disposal, the City's level of service for solid waste collection and disposal is 1,525 pounds per year per person, equivalent to an annual daily average of 4.2 pounds per capita. The level of service does not include recyclables and yard waste collected separately from garbage.

### Solid Waste Disposal

Waste Management is responsible for disposing all collected solid and yard waste collected in Winter Park at a solid waste disposal facility approved by the Florida Department of Environmental Protection. According to Waste Management, the majority of solid waste is transported to the Orlando Transfer Station. As of 2002, recyclables are sent to Recycle America Orange. Yard waste is transported to designated yard waste sites at Keene Road landfill.

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<sup>1</sup> Source: Waste Management, Inc. May 2003.

## STORMWATER SUB-ELEMENT

**Introduction.** The primary purpose of the Stormwater Drainage Sub-Element is to review the city's existing Stormwater Management Program and to establish goals, activities, and policies to protect future water quality and ~~quantity~~ prevent flooding. The City has made a commitment to excellence in this area.

Winter Park remains one of the leading communities in Florida in addressing the impacts of stormwater drainage. This is done in part through our stormwater utility funded program to improve stormwater drainage both in terms of improvement to remedy localized flooding problems but also in funding stormwater drainage improvement projects to improve the water quality of drainage into the lakes within Winter Park. The City also has one of the most comprehensive stormwater drainage ordinances that actively require stormwater retention retrofit on properties undergoing redevelopment and renovation. The City also actively enforces the requirements for permitting by the St. Johns River Water Management District as a prerequisite for all new construction and redevelopment projects as required by state statute. As a result, there are no significant changes or revisions necessary to the text of this sub-element from the 1990 Comprehensive Plan, to the adopted level of service standards or to the goals, objectives or policies for this drainage sub-element.

**Major Natural Surface Water Features.** The City of Winter Park has ~~2314~~ lakes either wholly or partially within its boundaries. The "Chain of Lakes" is composed of five of the largest lakes flowing through town and are connected to Howell Branch Creek, which flows ultimately to the St. Johns River. This Chain of Lakes was responsible for the early settlement of the area and is considered the area's most valuable natural resource. Because these lakes are a vital amenity to City residents, City officials have recognized the need to halt the continued degradation of water quality which urbanization has caused over the years.

City lakes are the ultimate discharge point for the majority of all stormwater runoff. In years past, storm drainage was taken to the nearest lake as fast as possible with little regard to water quality or land use impacts. The City has broadened its Stormwater Management Program to consider not only flood control, but water-quality enhancement, conservation and aquifer recharge. This is being accomplished utilizing innovative approaches to design, construction, maintenance ~~—~~ and ~~—~~ funding of ~~—~~ stormwater management.

**Regulatory History.** Since 1974, the City has required all new commercial development to store the first one inch of runoff in surface water retention storage. ~~Above ground s~~Note: ordinance requires a full one inch of runoff, not the runoff from the first one inch of rain which usually results in the retention storage of considerably less volume. Surface water retention is specifically preferred~~required~~ because the City noted that too often underground systems were permitted then forgotten. The City feels that over time underground systems tend to clog with a corresponding decrease in usable retention volume and a decrease in lake protection. In 1989, the City expanded the Stormwater Management ordinance to include a "retrofit" requirement for all existing commercial developments that applied to the City for a Building Permit. The intent is to bring the ~~many existing~~many properties existing ~~into~~into ~~current code guidelines.~~current code guidelines. This ~~new~~new ordinance requires projects to retrofit for ~~runoff~~ retention of one inch of stormwater runoff if ~~construction costs exceed 50 percent of existing building value.~~The ordinance also requires residential properties to construct on-site surface stormwater management systems. The new ordinance also requires residential properties to construct on-site surface stormwater management. The City requires Low Impact Development (LID) techniques to be implemented in site



designs for properties being developed or redeveloped. Lake front properties must have one inch of stormwater retention while other residential properties must direct runoff into landscaped areas and not directly out into the street. All residential properties, new or retrofit, are captured when owners apply for a Building Permit. In 2006 the City passed an ordinance that requires all private developers having to design and construct underground stormwater treatment systems to enter agreements with the City. The agreement requires the developer to inspect those underground systems regularly and report those activities annually to the City. All commercial and residential properties, new or retrofit, are captured when owners apply for a Building Permit.

In January 1990, the City implemented a Stormwater Utility which bills all property owners based on the amount of impervious coverage of the property. The utility gives credits for properties which meet current standards and encourages retrofit for those that do not. The utility provides a guaranteed source of revenue to fund the stormwater program which includes the capital improvement projects plan, and all stormwater management, operations, and maintenance activities.~~lake enhancement programs and projects.~~

The City of Winter Park was settled because of the excellent drainage afforded to the area. The lake shores have high banks with a positive flow through the Chain into the Howell Branch Creek. Unlike Orlando and most of Orange County, the City of Winter Park has only seven drainage wells which occur next to non-chain lakes and low areas.

The City's policy concerning drainage wells is to maximize the benefits of aquifer recharge and flood control while minimizing the potential for aquifer contamination.

The City of Winter Park has been "fully" developed for many years. Past storms have indicated that adequate drainage is supplied to all but a few small areas of the City. Therefore, the City's overall goals are to require retrofit of all properties as these sites are redeveloped, improve drainage at the few problem sites, and undertake major lake-enhancement projects starting with larger drainage pipe systems and watersheds.

The City of Winter Park is proud of its multi-faceted approach of lake-enhancement activities which include revegetation of private and public shorelines, applied weed control, watershed management, code of ordinances, and stormwater management projects. The City is committed to the its continued aggressive stormwater and lakes management of programs stormwater runoff and lakes.

### Stormwater Regulatory Framework

**Federal Laws.** Federal laws have been the primary force behind much of the state and local initiatives to protect the environment. Many laws have a direct impact on stormwater quantity and quality while others have an indirect impact.

**The Water Pollution Control Act** (Clean Water Act) was instrumental in the 1970's for implementing several programs to assess the environmental impacts from wastewater treatment (Section 201), and point and non-point sources (Section 203). The law also established objectives for water pollution abatement (Section 101) and standards for water quality of effluent discharge for sewage treatment plants (Section 301). Of primary importance, was the establishment of the National Pollution Discharge Elimination System (NPDES) permit (Section 402) which requires permits for all stormwater discharges

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~~into the Municipal Separate Storm Sewer Systems (MS4) of polluted waters. —In addition, it laid out dredge and fill and wetland responsibilities for ERA and the Army Corps of Engineers (Section 404).~~

**The Safe Drinking Water Act** sets standards for drinking water quality. The law also sets out to protect potable water sources by implementing state wellhead protection programs and controlling underground injection of polluted waters. Additional protection of Aquifers is accomplished through the "Sole Source Aquifer" designation.

**The National Flood Insurance Program** delimits areas of the 100 and 500-year floodplain. The program requires sound land-use planning to minimize potential flood damage.

**State Laws.** The primary legislation which regulates or impact drainage in Florida is contained in Chapters 163, 298, 373, 376, 380, and 403 of the Florida Statutes. Many are direct responses to the federal laws outlined in the previous section.

**Chapter 163: Intergovernmental Programs; Local Comprehensive Planning Act:** requires each local government to adopt a comprehensive plan. This plan must contain required elements, studies, and surveys. A drainage and aquifer recharge element is one of the required elements.

**Chapter 298, the Drainage and Water Control Act** is the enabling legislation for the creation of the Water Management Districts. The SJRWMD's duties and powers are discussed below under the Florida Administrative Code section.

**Chapter 373, the Water Resources Act** is an important piece of legislation. This act provides for the conservation, protection, and management of state waters. It provides the legislation for the creation of the Florida Department of Environmental Regulation (FDER), the Water Management Districts (WMD) and pertinent County and City programs. In addition, Section 373.451 established the Surface Water Improvement and Management Act (SWIM). This legislation is resolving and correcting surface water pollution problems. In addition it contains the State Water Resource Plan, provides for the Permitting of Consumptive Uses of Water, the Regulation of Wells, and the Management and Storage of Surface Waters.

**Chapter 380, the Land and Water Management Act** was enacted to establish land and water management policies to guide and coordinate local decisions relating to growth and development. The law sets up areas of critical state concern, sets the policies and procedures for Developments of Regional Impacts, the Florida Quality Developments Program, and the appeal procedure through the Florida Land and Water Adjudicatory Commission.

**Chapter 403, the Environmental Control Act** is another important statute which has direct impact on stormwater management. Facts of this Act set water quality standards and policies for pollution Control, Resource Recovery and Management, Environmental Regulation, Drinking Water, and Permitting Activities in Wetlands.

**Florida Administrative Codes.** The Florida Administrative Codes (F.A.C.) are the implementing legislation to the Florida Statutes. These rules and regulations guide the local governments and private entities through the development process.

**Chapter 64E-6, F.A.C.** enables the county health departments (which are an extension of the Florida Department of Health) to regulate septic tanks and private wells.

**Chapter 62** is an important F.A.C as it relates to drainage and aquifer recharge, public wastewater treatment facilities, public water treatment systems, and reclaimed water systems. This chapter provides the rules and regulations of the FDEP and the SJWMD. It gives the Department the power to invoke building moratoriums if wastewater plants are not operating efficiently. The legislation requires permits for stormwater management systems and for dredge and fills activities in any waters of the state including wetlands. Section 62-302 sets surface water quality standards.

Sections 62-600, Domestic Wastewater Facilities, Section 62-601, Domestic Wastewater Treatment Plant Monitoring, Section 62-620, Wastewater Facility and Activities Permitting, regulate wastewater treatment permitting and monitoring. Sections 62-312, Dredge and Fill Activities, requires FDEP permits for dredge and fill. Water treatment facilities are covered under Section 62-550, Drinking Water Standards, Monitoring, and Reporting, and 62-555, Permitting, Construction, Operation, and Maintenance of Public Water Systems. Reclaimed water facilities are addressed under Section 62-610, Reuse of Reclaimed Water and Land Application. Hazardous waste is covered by Section 62-730.

Chapter 40, F.A.C., addresses the administration of the Water Management Districts. The main duties of the WMD'S are to approve stormwater management systems, issue consumptive use permits and to give technical assistance. Wetland jurisdictional claims are also a part of their duties in approving stormwater management plans. Section 62-340, Delineation of the Landward Extent of Wetlands and Surface Waters, establishes definition and wetland delineation methodology for wetlands, while Section 62-345, Uniform Mitigation Assessment Method, addresses the mitigation requirements for wetland impacts. Winter Park is located within the jurisdictional area of St. Johns River Water Management District. Each District's rules are contained in Chapter 40, F.A.C. These rules contain the criteria by which the Districts regulate water resources and drainage in their basins.

**City Ordinances.** City codes and regulations applicable to stormwater management and drainage are inventoried below. The below regulations and standards do not include those established within the Goals, Objectives and Policies of City of Winter Park Comprehensive Plan.

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**Chapter 23-A-58, Section 58** begins the "Stormwater Management" ordinance of the City Code of Ordinances. This code establishes stormwater management requirements for all new construction as well as a "retrofit" provision for development and renovation throughout the City. In order to achieve the benefits of stormwater management, the City of Winter park requires the provision of the on-site stormwater retention for all new construction of buildings and parking lots. The requirement for new development is the retention on-site of the first inch of runoff from all impervious surfaces. Furthermore, the retention must be supplied as surface water volume such as grassed swales or retention ponds. Stormwater requirements also apply to all building projects whose construction value exceeds fifty (50) percent of the assessed value of the improvements detailed on the most current property tax assessment roll. Building renovations phased over a two-year period are combined to determine applicability of the fifty (50) percent threshold criteria.

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All the stormwater management requirements for development and redevelopment of properties within, single-family districts include some method of on-site retention for the building, parking, and driveway

areas. These methods include, but are not limited to, the provision of swales and other retention areas, the sloping of parking areas and drives to landscaped areas versus directly to the street, the guttering of building runoff to landscaped open areas where setbacks limit the amount of pervious area available and other such methods which provide opportunities for the percolation of stormwater.

**Chapter 5823 B is Section 58** also includes the City Ordinance that creates the Stormwater Utility with adopted service charges and method of computation of such fees. Each of the 10,000+ parcels within the City is charged a user fee for use of the City-wide stormwater management system. This fee is based on the amount of impervious surface on a parcel of land. Credit is given to commercial property that has a well-maintained retention system. All fees are deposited to the Stormwater Fund which is specifically dedicated to fund costs to maintain the existing drainage systems and to construct new capital improvement projects aimed at stormwater runoff abatement.

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**Chapter 3458, Section 22-211** is the "Floodplain Protection" ordinance. All construction, filling, and alteration are prohibited within the floodways of the City. Floodways of the City include the Howell Branch Creek and all canals that connect lakes together. Furthermore, all construction is further regulated within the 100-year floodplain. All fill within the 100-year floodplain is prohibited and only recreational type structures such as docks, gazebos, boardwalks, etc are allowed by conditional use within the floodplain.

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**Chapter 1147, Section 619** is the "Lakeshore Protection" regulation. The City of Winter Park has an on-going Lake Enhancement Program that includes the planting of native aquatic vegetation and trees along City owned shoreline. The Ordinance encourages private home owners to also revegetate their property by regulating the amount of "weeds" that may be removed. True "weeds" may be removed by permit only when more desirable native vegetation is replaced along most of the shoreline. This ordinance is in line with the Rules and Policies of the Florida Department of Environmental Protection. Seawalls and retaining walls are regulated. Vertical seawalls are discouraged in favor of slanted riprap type erosion control.

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### Inventory, Maintenance and Existing Programs

A complete set of Stormwater Maps can be found in the Public Works Department ~~at City Hall of the City~~. These maps ~~are maintained on GIS and~~ depict all drainage pipelines, inlets, manholes and lake outfalls. Pipe sizes, surface lid elevations and invert elevations are given. The Public Works Department routinely updates these GIS maps when new areas are annexed and when projects modify existing configuration. The maps are considered accurate and have been maintained as such. These maps ~~will behave been~~ consolidated ~~this coming year~~ to meet ~~the EPA-FDEP~~ NPDES Phase I Stormwater Permit Application requirements.

There are approximately a half dozen localized problem spots that exist in street or intersection areas where flooding occurs after heavy rainfalls. ~~While other problem drainage situations occur from time to time, they are primarily the result of clogged stormwater inlets. The other half dozen These locations continue to be~~ are candidates for capital improvement projects.

The City of Winter Park also has seven drainage wells that continue to exist in isolated circumstances. These are located adjacent to the small land locked lakes of Lake Mendsen (2), Lake Midget, Lake Francis, and Lake Knowles, The other two are located within Ward Park and near North Park and

Denning Avenues. The purpose of these drainage wells is to act as overflow outlets during periods of extreme rainfall for these isolated drainage basins that have no connection to the primary drainage system.

Winter Park contains a portion of Orange County's primary drainage system of the Howell Branch Creek drainage basin. The primary drainage system is the route of drainage essential for stormwater control during an extreme rainfall event such as a hurricane. The route of stormwater from parts of Orlando to the St. John's River takes it through Winter Park's Lakes Sue, Virginia, Osceola, and Maitland.

~~In the past decade, the two tightest choke points of the Orange County primary drainage system in Winter Park have been improved. These were new bridges constructed at the Howell Branch Creek sections on Sterling Avenue and Temple Trail. These new bridge sections replaced restrictive culverts with more free, open flow sections. As a result, currently there are no other primary Stormwater drainage improvements planned for Orange County within Winter Park.~~

Winter Park, along with most other jurisdictions in Florida, has implemented the flood control program initiated by the U.S. Corps of Engineers and the H.U.D. Flood Insurance Administration, Winter Park adopted floodplain regulations consistent with their requirements in 1979. The flood elevations for the major lakes in Winter Park are listed ~~in the attached table on the City's website.~~

The areas in Winter Park subject to flooding from a hurricane or some other 100-year storm are the properties adjacent to the lakes and streams of the City. Due to the historical 50 foot lake and street setback, there are **only three or four houses** that are built low enough to be threatened by lake flooding based on the flood insurance elevations. All new construction is required to be above the necessary 100-year floodplain elevations.

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The City funds the use of a ~~vacuum or t-like~~ truck that has responsibilities to clean and maintain inlets, manholes, and drainage pipes. Contractors are hired on occasion to clean drain lines of heavy build up of sand. ~~Many of the d~~Drainage systems throughout the City ~~are starting to showing signs of deterioration~~ due to age ~~and are repaired~~ and/or replaced ~~ment are conducted~~ on a yearly basis ~~to keep abreast of this situation.~~

~~Over the past several~~During the early stages of treating stormwater runoff ~~years~~ the city ~~has~~ ~~con~~constructed leaf traps at the end of outfall pipes where they discharge into the lakes. These leaf traps are considered the first phase of pollution control of drainage pipes for Lake Enhancement Program. Leaf traps are constructed of green plastic coated chain-link fence for stability and trash control with a textile fabric to catch leaves. Sufficient numbers of lake workers are funded to clean all traps within two days after rain events. Research conducted by a nearby University professor indicates that early leaf removal helps nutrient control by removing the organic leaf material as well as nutrients, phosphorus and nitrogen, that are leached from the leaves upon soaking in lake water. It has been estimated that perhaps 10-15 percent reduction of N, P and organic-C can be accomplished with quick and thoroughly cleaning of leaf traps.

The leaf traps work ~~well~~ for 90 percent of storms. Of course, in Florida, it rains hard occasionally and larger storms will blow over certain traps. The repair and constant up-keep of all traps is funded and pursued to maintain good performance of traps.

Starting in the early 2000's the City began replacing leaf traps with large structures designed and constructed to remove all floating pollutants, solids, and sediments from stormwater runoff before discharging to lakes. The structures include Nutrient Separating Baffle Boxes, Continuous Deflective Separation structures, and some smaller baffle structures designed and constructed with City staff. These structures have varying efficiency rates for removal of harmful nutrients from stormwater runoff. They are all constructed at the street level allowing for easy access with vacuum trucks significantly reducing maintenance time and efforts compared to the leaf traps at the lake shore stormwater outfalls.

The City has 14 stormwater outfalls that are treated with alum injection. Alum is very effective for the removal of Phosphorus (P) from stormwater runoff. The alum stations are maintained regularly by staff trained in the technology of alum treatment.

Street sweeping is a fully funded City program that sweeps all City streets biweekly. Pollution control benefits include removal of sand, grit, and dust that reduces sediment volume to the lakes with a corresponding reduction of heavy metals and phosphorus. Regular schedules are augmented by hiring a contractor to increase e-sweeping frequencies during the heavy leaf fall that occurs for 8-12 weeks during early spring. Leaf traps, liquid solid separation structures, and with i increased street sweeping are reducing to a minimum the amount of dead leaves washed to lakes by stormwater runoff.

### Existing Level of Service

Level of Service (LOS) is defined as the capacity per unit of demand for a public facility, usually expressed in terms of a per capita per day or land use unit per day. However, stormwater runoff measurements are not expressed this way, but can be expressed by a design storm condition. This requires the selection of a storm frequency and duration factor as is the five year/three hour storm. This then translates into rain intensity per hour over so many hours to yield a rain volume. Thus a five year/three hour storm produces 2-6 inches of rain per hour for three hours to yield 7-8 inches of rain for the storm. If this storm was then used for design criteria, the project under consideration would be designed to retain, detain or convey the volume of rain and resulting runoff. The City of Winter Park has been developed under two different sets of design criteria. Most of Winter Park was developed before stormwater management unless were incorporated into the current permitting system of the State and Local agencies. A few small sub-divisions and some renovation of existing commercial property have been built under current guidelines of the City and SJRWMD. All future development and renovation will be by permit from the City and SJRWMD.

Old guidelines did not require any on-site retention or detention of runoff. As can best be established conveyance systems were designed for the two year/ one hour storm when flowing full. The ten year storm was calculated to surcharge manholes up one foot while the 25 year storm caused surcharging to within one foot of the top of manholes. The 50 year storm would cause some flooding of yards and structures in low lying areas.

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Few guidelines require the on-site surface water retention of the first one inch of run-off and meet SJRWMD guidelines for conveyance in pipes. Most property is already developed, so as properties are "retrofitted" more and more retention is developed in the watersheds of the City. Future conveyance capacities of old systems will improve with the added retention volumes throughout the watershed.

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As a result, the level of service standard adopted by the City for new development or redevelopment is for the design of drainage facilities and the retention and treatment of the first inch of stormwater, consistent with the requirements of Section 62-302, F.A.C. However, in certain circumstances, the City's stormwater regulations may require that this be accomplished in excess of these standards by excluding the use of underground retention facilities or may require properties to comply with these standards, where not required by these State rules, when undergoing redevelopment wherein the Stormwater Board of Appeals may allow the accomplishment of this level of service off-site.

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**Stormwater Improvements Coordination with SJRWMD.** The City regularly coordinates with the SJRWMD to pursue joint participation in stormwater improvement projects. To assist local governments, the SJRWMD has established a cost share program to assist funding of stormwater improvement design and construction. Recent cost share projects involving the City and SJRWMD are described below.

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## WATER SUPPLY FACILITIES WORK PLAN

**Introduction.** The St. Johns River Water Management District has determined that traditional water supply sources will not be sufficient to meet demands of the growing population and the needs of the east central Florida area. The Florida Legislature enacted bills in 2002, 2004 and 2005 to more effectively address the state's water supply situation by improving the coordination between local land use planning and water supply planning. The focus of the 2002 legislation was to add requirements to Chapter 163, Florida Statutes (F.S.) for local governments to prepare 10-year water supply facilities work plans and to incorporate certain portions of the work plans into their comprehensive plans. This legislative change emphasized the need for local work plans to consider the applicable regional water supply plans prepared by the water management districts. In 2004, the Legislature further amended Chapter 163 to give local governments until December 1, 2006, to prepare the 10-year water supply facilities work plans.

In 2005, the Florida Legislature enacted Senate Bills 360 and 444. The legislation significantly changed Chapters 163 and 373, F.S. to improve the coordination of water supply and land use planning. The legislation strengthened the statutory linkage between the regional water supply plans prepared by the water management districts and comprehensive plans prepared by the local governments.

This Water Supply Facilities Work Plan (WSFWP) provides the City of Winter Park's response to strengthening the linkage between land use planning and water supply planning. The time frame for this WSFWP is twenty years (2008-2028) consistent with the comprehensive plan.

### Background Data

The City of Winter Park is the only entity responsible for water supply within its jurisdictional area and has a consumptive use permit for the period from 2005 to 2025 to withdrawal water from the lower Floridian Aquifer. The permit number is 7624 and the expiration date is October 12, 2025. Table 4-17 provides the permitted withdrawal capacity and the projected demand through 2025. The City of Winter Park service area is depicted on Map 4-2.

The City's water system serves retail customer groups both inside and in the contiguous areas outside the City limits. All water capacity is distributed on a retail basis. While the City of Winter Park provides water capacity to Orange County Utilities, water capacity is reserved under a retail agreement. The City of Winter Park does not have any wholesale water agreements with any of its water customers or with other utility providers. The City of Winter Park coordinates with Orange County in determining future population projections and land uses within the unincorporated area the City serves. No new agreements are needed to continue to provide potable water service to those areas.

The demand projections identified in Table 4-17 are lower than those presented by the SJRWMD to the Central Florida Coordination Area Cooperators group. The population projects used by the City of Winter Park to develop the water demand projections are based on a reevaluation of those projections based on recent trends in development and in the opinion of the City represent a more realistic projection of future conditions. Those projections are also consistent with the projections used in other elements of this plan.

The population and demand projections for the service area within the City limits and the service area outside the City limits are shown on Table 4-25. In addition, the amount provided by conservation, reuse and traditional supplies is provided. The status of the alternative supplies is discussed in the next paragraph.

<b>Table 4-25</b>							
<b>In City and Outside City Demands</b>							
Year	In City Population	Outside City Population	In City Demand	Outside City Demand	Projected Total Demand	SJRWMD Permitted Supplies	Conservation and Reuse
2008	28486	40309	4.6	6.6	11.2	11.9	.6*
2013	30000	39659	4.9	6.5	11.4	12.0	.95*
2018	31500	38567	5.1	6.3	11.4	12.2	.95*
2023	33000	38971	5.4	6.4	11.7	12.7	.95*
2028	34500	40132	5.6	6.6	12.2	12.7	.95*
*0.6 mgd of reuse is generated and reused in Winter Park. 100% of the remaining wastewater is							



reused by others. Expansion of the Winter Park water reclamation plant by an estimated .35 mgd, will expand reuse within the City of Winter Park. The .35 mgd will be utilized by the City of Winter Park in the future.

The effect of conservation and reuse is already accounted for in the per capita demand. The affect of future conservation practices on per capita demand is not known at this time.

The City of Winter Park is currently negotiating agreements for alternative water supply sources. The quality that will be supplied by those sources is unknown at this time. When the quantity is determined this table will be amended to reflect that amount.

The SJRWMD identified alternative water supplies in the District Water Supply Plan 2005. For the City of Winter Park the St. Johns River near Deland and the St. Johns River near Lake Monroe were identified. In 2008 two additional projects were identified – St. Johns River near SR 46 and St. Johns River near Yankee Lake. The City is currently working with the Seminole County and exploring the technical and institutional feasibility of developing the Lake Monroe alternative. If it is determined that this alternative is feasible, it will be added to the Capital Improvements Element. The City has indicated that it will participate in the preliminary design projects for the St. Johns River near Yankee Lake, as the City's Alternative Water Supply projects.

All of the wastewater collected by the City is reused. In 2006, that totaled 5.35 mgd. Of that 0.46 mgd was treated by the City and used within the City. The remainder was sent to facilities operated by Altamonte Springs, Orlando, and Orange County, where it was completely reused. Due to the way the reuse is accounted for by the State, Winter Park does not get any credit for that contribution. The City of Winter Park intends to maintain the interlocal agreements with those utilities. Those agreements and the Winter Park Estates Water Reclamation Facility, which is owned and operated by the City, will provide for 100% reuse of the City of Winter Park's waste water during the term of the WSFWP.

In addition to the very successful reclaimed water program, the City utilizes stormwater wells for irrigation purposes. The City has an active water conservation effort including a conservation rate structure, participation in water conservation educational programs, and landscape irrigation standards and restrictions.

The City has two existing water sources. The first is the lower Floridian Aquifer utilized for potable water purposes. The second is the Winter Park Estates Water Reclamation Facility which provides up to .615 mgd of reuse to the Cady Way athletic fields, Interlachen Golf and Country Club, Winter Pines Golf Course, and Glen Haven Cemetery.

Based on the data in Table 4-17, no additional sources of water including alternative water supply projects are required to serve existing or new development for the planning period of this work plan. No potable water projects are needed to maintain or improve service through 2028.

Within this comprehensive plan, the City of Winter Park has established an objective to reduce potential for contamination of groundwater aquifer through stormwater management practices and through management of land use activities that may threaten groundwater quality near wellfield sites. The Public Facilities Element Goals, Objectives, and Policies in the Natural Groundwater Aquifer Recharge Sub-Element addresses the protection of the water supply source.

### Conservation and Reuse

The City of Winter Park uses the following conservation and reuse programs to reduce potable water demand:

1. Operated as a complete mix/extended aeration treatment facility with chemical addition and tertiary filtration, the Winter Park Estates Water Reclamation Facility has a design capacity for 0.750 million gallons per day (MGD) but is limited to processing .615 MGD because of a lack of available onsite storage capacity and a scarcity of eligible sites for reuse irrigation. Treated effluent is distributed for reuse as irrigation at the Cady Way athletic fields, Interlachen Golf and Country Club, Winter Pines Golf Course, and Glen Haven Cemetery.
2. The City of Winter Park is a major contributor to the regional reuse systems in central Florida. The majority of the City's wastewater is treated at regional facilities owned and operated by other local governments. The City of Winter Park has reserved capacity in these facilities through wholesale sewer agreements with the City of Orlando, the City of Altamonte Springs, and Orange County Utilities. Over 70% of the daily wastewater flows generated within Winter Park's GWSA were treated at the Iron Bridge Facility in 2005. Iron Bridge operates as a physical, chemical, and biological sewage treatment plant with reuse discharge to the Little Econlockhatchee River and to reclaimed water systems for irrigation. Conserv II WWTP treated about 13% of the wastewater generated within the GWSA in 2005. Conserv II plant has a permitted capacity of 25 mgd and operates as an activated sludge sewage treatment plant providing effluent to spray irrigation and freeze protection for orange groves in West Orange and Lake County. In 2005, approximately 6.5% of the total wastewater flow within the GWSA received treatment at the Regional Water Reclamation Facility (RWRF) is owned and operated by the City of Altamonte Springs. Designed and permitted as a domestic wastewater treatment facility, the RWRF is an AWT facility with discharge directed to the Little Wekiva River and to the City's "APRICOT" reuse system. Only a relatively small area within the City's East Sewer System receives treatment from Orange County Utilities.
3. The City of Winter Park has adopted a water conservation rate structure for its utility system.
4. Chapter 58 of the Winter Park Code of Ordinances includes landscape regulations. Native and Florida Friendly plants are encouraged and small areas of turf less than 100 square feet or within an area with any one dimension less than three feet are not allowed. Organic mulch is required in plant beds and around individual trees in turf grass areas.
5. Chapter 102 of the Winter Park Code of Ordinances includes a section on water conservation for landscape irrigation. Included is a limitation for landscape irrigation to two days a week.
6. The City of Winter Park takes corrective action based on erratic meter readings.
7. The City of Winter Park maintains a budget for defective meter replacement.
8. The City of Winter Park calibrates production well meters once per year.

9. The City of Winter Park conducts a water system audit annually.
10. The City of Winter Park performs spot checks of customer compliance with SJRWMD's landscape irrigation restrictions and report violations.
11. The City of Winter Park conducts public tours of facilities.
12. The City of Winter Park operates informational booths that include water conservation literature
13. The City of Winter Park provides public service announcements and written notice to customers regarding SJRWMD
14. The City of Winter Park provides outdoor water audits for customers
15. The City of Winter Park promotes water conservation at the City sponsored "City Awareness Day"

The City of Winter Park proposes the following conservation and reuse programs to further reduce potable water demand:

1. Expand and/or re-rate existing Winter Park Estates Water Reclamation Facility to produce an additional .35 mgd of reclaimed water that will be used in the City of Winter Park to reduce potable water demand. This is expected to be completed in FY 2010 and will be funded through the City's five year capital improvement plan.
2. Provide approximately .30 mgd of wastewater to regional reclaimed water systems by 2025.
3. Explore the purchase of up to 2 mgd of reclaimed water from the Orlando Utilities Commission to replace potable water that is used for irrigation. This is expected to be completed in FY 2012 and will be funded through the City's five year capital improvement plan.
4. Install an automatic meter reader system (AMR). This system will allow for the red flagging of customers that use large amounts of water or who may have a new water leak needing repair and wasting valuable water. This program is planned to save .1 mgd. This is being funded through the Utilities Department budget.
5. Implement the Winter Park's Park Irrigation Efficiency System (PIES) program. Under this program, potable water that is used for irrigation in the City's parks will be replaced by surface water, stormwater, lower quality stormwater, or reclaimed water. This program is expected to save 0.7 mgd. This is expected to be completed in 2009 and will be funded through the Utilities and Park Department budgets.
6. Conservation rate structure. The City will periodically review the water conservation rate structure to identify ways to make it more effective. Due to the effect of the current conservation rate structure, the planned savings is unknown at this time.

7. Water conservation educational materials. The City will annually produce or purchase water conservation education materials such as brochures or posters to foster water conservation. Since the City has been doing this for several years, the planned savings is to maintain existing conservation practices. Additional savings are difficult to estimate at this time. This will be funded through the City's Utility Department budget.

### Tasks

The tasks have been identified to implement this Water Supply Facilities Work Plan. These tasks are intended to increase the use of reuse and alternative water supply sources, increase water conservation and improve the efficiency of the overall water supply system. Since the City of Winter Park has adequate water supply sources and facilities for the next five years as well as the long range planning period of this plan as shown in Tables 4-22, 4-23, and 4-25, none of these tasks are required to meet a system deficiency.

1. Expand and/or re-rate existing Winter Park Estates Water Reclamation Facility to produce an additional .35 mgd of reclaimed water that will be used in the City of Winter Park to reduce potable water demand.

Agreements with other water supply entities: Not applicable

Feasibility studies: FY 2008

Facilities and financial plans: FY 2009

Facilities design, permitting, and construction: FY 2010

Funding: To be included in City's five year capital improvements plan. Identified as "Expansion of reclaimed water system and/or alternative water sources for irrigation purposes" in the Capital Improvements Element Data Inventory and Analysis Capital Improvements Element Balance Sheet.

2. Provide approximately .30 mgd of wastewater to regional reclaimed water systems by 2025.

Agreements with other water supply entities: Existing

Feasibility studies: Not Applicable

Facilities and financial plans: Not Applicable

Facilities design, permitting, and construction: annual incremental increases.

Funding: Utility Department budget

3. Explore the purchase of up to 2 mgd of reclaimed water from the Orlando Utilities Commission to replace potable water that is used for irrigation.

Agreements with other water supply entities: Required FY2010

Feasibility studies: FY 2011

Facilities and financial plans: FY 2011

Facilities design, permitting, and construction: FY 2015

Funding: Utility Department budget or bond revenues

4. Identify partnerships with surrounding utilities such as Orange County, Orlando Utilities Commission, and Seminole County on regional water supply development projects to provide

wholesale water to the City of Winter Park. The estimated quantity of water to be produced is unknown at this time.

Agreements with other water supply entities: Not Applicable

Feasibility studies: Not Applicable

Facilities and financial plans: Not Applicable

Facilities design, permitting, and construction: On-going

Funding: Utility Department budget Identified as Regional Task Force to reduce withdrawals from Florida Aquifer in Capital Improvements Element Data Inventory and Analysis Capital Improvements Element Balance Sheet.

5. Install an automatic meter reader system (AMR).

Agreements with other water supply entities: Not Applicable

Feasibility studies: Not Applicable

Facilities and financial plans: Not Applicable

Facilities design, permitting, and construction: FY 2009/2010

Funding: Bonding or Financing

6. Implement the Winter Park's Park Irrigation Efficiency System (PIES) program.

Agreements with other water supply entities: Not Applicable

Feasibility studies: In house FY 2008/2009

Facilities and financial plans: FY 2009

Facilities design, permitting, and construction: FY 2009

Funding: Utility and Park Departments' operating budget, cost to be determined.

7. Water conservation fixture.

Agreements with other water supply entities: Not Applicable

Feasibility studies: Not Applicable

Facilities and financial plans: Not Applicable

Facilities design, permitting, and construction: FY 2009

Funding: Utility Department operating budget, \$25,000 on an annual basis

8. Conservation rate structure.

Agreements with other water supply entities: Not Applicable

Feasibility studies: Not Applicable

Facilities and financial plans: Not Applicable

Facilities design, permitting, and construction: Periodically

Funding: Utility Department operating budget

9. Water conservation educational materials.

Agreements with other water supply entities: Not Applicable

Feasibility studies: Not Applicable

Facilities and financial plans: Not Applicable  
Facilities design, permitting, and construction: Annually  
Funding: Utility Department operating budget

10. Continue to participate in regional water supply development projects planning and evaluation.

Agreements with other water supply entities: Not Applicable  
Feasibility studies: Not Applicable  
Facilities and financial plans: Not Applicable  
Facilities design, permitting, and construction: On-going  
Funding: Utility Department operating budget

11. Continue to enforce Chapter 58 of the Winter Park Code of Ordinances that includes landscape regulations.

Agreements with other water supply entities: Not Applicable  
Feasibility studies: Not Applicable  
Facilities and financial plans: Not Applicable  
Facilities design, permitting, and construction: On-going  
Funding: City General Fund budget

12. Continue to enforce Chapter 102 that includes a section on water conservation for landscape irrigation. Included is a limitation for landscape irrigation to two days a week.

Agreements with other water supply entities: Not Applicable  
Feasibility studies: Not Applicable  
Facilities and financial plans: Not Applicable  
Facilities design, permitting, and construction: On-going  
Funding: City General Fund budget

Tasks 1, 3, and 6 are capital improvement projects. However, each requires a feasibility study to determine their feasibility and the projected cost to complete. At this time it is not possible to estimate that cost. Without a projected cost, it is premature to include these tasks into the Capital Improvements Element.

### Sources

The City has identified the following source of water produced by traditional and alternative water supply development projects:

1. The Floridan Aquifer is permitted for 12.2 mgd in 2017. 100% of raw water produces finished water.
2. The Winter Park Estates Water Reclamation Facility provides up to .615 mgd of reuse water.

3. Expand and/or re-rate existing Winter Park Estates Water Reclamation Facility to produce an additional .30 mgd of reclaimed water that will be used in the City of Winter Park to reduce potable water demand.
4. Provide an additional .65 mgd of wastewater to regional reclaimed water systems by 2025.
5. Explore the purchase of up to 2 mgd of reclaimed water from the Orlando Utilities Commission to replace potable water that is used for irrigation.
6. Identify partnerships with surrounding utilities such as Orange County, Orlando Utilities Commission, and Seminole County on regional water supply development projects to provide wholesale water to the City of Winter Park. The City is currently working with Seminole County and exploring the technical and institutional feasibility of developing the Lake Monroe alternative. The City will participate in the preliminary design for the St. Johns River near Yankee Lake Alternative Water Supply projects. These programs further the Objective 4-5.1 and Policy 4-5.1.9.
7. Install an automatic meter reader system (AMR) by October 2008. This system will allow for the red flagging of customers that use large amounts of water or who may have a new water leak. This program is planned to save .1 mgd.
8. Implement the Winter Park's Park Irrigation Efficiency System (PIES) program. Under this program, potable water that is used for irrigation in the City's parks will be replaced by surface water, stormwater, lower quality stormwater, or reclaimed water. This program is expected to save 0.7 mgd.
9. Water conservation fixture. The City will make available at no cost low flow shower heads, aerators and toilet dams to customers who request them. This program is planned to save .1 mgd.
10. Conservation rate structure. The City will periodically review the water conservation rate structure to identify ways to make it more effective. Due to the effect of the current conservation rate structure, the planned savings is unknown at this time.
11. Water conservation educational materials. The City will annually produce or purchase water conservation education materials such as brochures or posters to foster water conservation. Since the City has been doing this for several years, the planned savings is to maintain existing conservation practices. Additional savings are difficult to estimate at this time.
12. Drought resistant landscaping. The City will continue to implement and enforce the Comprehensive Plan policies promoting water conservation including drought resistant landscaping. Since the implementation and enforcement of these policies are in effect at this time, the planned savings is to maintain existing conservation practices. Additional savings are difficult to estimate at this time.
13. Continue to participate in regional water supply development projects planning and evaluation.

## Reuse

The City of Winter Park currently produces up to .615 mgd of reuse water at the Winter Park Estates Water Reclamation Facility.

The City of Winter Park will develop the additional sources of reuse water:

1. Expand and/or re-rate existing Winter Park Estates Water Reclamation Facility to produce an additional .35 mgd of reclaimed water that will be used in the City of Winter Park to reduce potable water demand (Feasibility studies: FY 2008; Facilities and financial plans: FY 2009; Facilities design, permitting, and construction: FY 2010), and
2. Explore the purchase of up to 2 mgd of reclaimed water from the Orlando Utilities Commission to replace potable water that is used for irrigation (Feasibility studies: FY 2009; Facilities and financial plans: FY 2010; Facilities design, permitting, and construction: FY 2011). As part of this effort the City of Winter Park will determine the appropriate use of that reclaimed water and how that should be implemented. This will include such items as retrofitting neighborhoods with reuse lines, installation of meters for individual connections to the reuse system, increasing the use of reclaimed water in public areas owned by the City, and entering into partnerships with other utilities.

At the end of the planning period, the City of Winter Park is projected to utilize 2.65 mgd of reuse water. These programs further the Objective 4-5.2 and Policy 4-5.2.1.

In addition, all of the wastewater collected by the City is reused. In 2006, that totaled 5.35 mgd. Of that 0.46 mgd was treated by the City and used within the City. The remainder was sent to facilities operated by Altamonte Springs, Orlando, and Orange County, where it was completely reused. Therefore, the City of Winter Park was responsible for 4.89 mgd of reuse water provided by the surrounding utilities. Due to the way the reuse is accounted for by the State, Winter Park does not get any credit for that contribution. The City of Winter Park projects that an additional .65 mgd of wastewater will be provided to the regional reclaimed water systems by 2025.

## ELECTRIC UTILITY SUBELEMENT

Introduction. In 1913, the City of Winter Park built its original electrical system. Fourteen years later, the City sold to a privately-held electric company, Duke Energy. In 1947, the city held a vote to repurchase the system, but failed and renewed its franchise with Duke for 30 years. In 1971, the city once again voted to renew the franchise agreement for an additional 30 years. At the sunset of this agreement, the City authorized a study to determine the viability of purchasing the electric utility. This was determined based on 'no out clause' for poor performance.

Reliability was the issue driving the interest in acquiring the electric facilities serving the city. Progress Energy had purchased the electric facilities owned by Florida Power Corporation in 2002, but the city experienced no improvement in reliability. The city engaged in three years of failed talks with the incumbent investor-owned utility, Progress Energy Florida. In 2003, the citizens of Winter Park voted (69%) to issue \$50 million in bonds and exercise the buyout option in its franchise agreement with Progress Energy. To facilitate the acquisition, the city built two substations and purchased the electric



distribution facilities serving Winter Park owned by Progress Energy. It took six years to accomplish the city's goal of owning and operating the electric utility serving the city.

In 2002-2003, the City and Progress Energy held an arbitration hearing to determine a final purchase price which was set at \$42.3 million. The City then moved to a bond referendum for purchase. In September 2003, 69% of voters elected to purchase the utility.

To date, the city's focus is on electric distribution only as the city does not provide power generation facilities.

**Self-sufficiency.** During the city's evaluation period, Progress Energy asserted several obstacles that would limit the city's potential in becoming successful. Some of these included reliability, revenue generation, maintaining competitive rates. To this end, the City of Winter Park Electric Utility has improved system reliability (SAIDI, MAIFI and CAIDI), maintaining competitive bond coverage with rates below both IOU and municipal state average.

Map 4-6 delineates the areas that are served by electric utility.

**Current Electric Demand.** In 2015, the City served approximately 12,292 single-family, multi-family, as well as 2,673 commercial utility customers within the City limits. 23% of utility revenue is generated from the ten customers listed in Table X.

Table 4-26  
Top Ten Utility Customers by Units

<u>Customer<sup>d</sup></u>	<u>Kilowatt/Hour</u>
<u>Rollins College</u>	<u>23,438,023</u>
<u>Adventist Health Systems (WPMH)</u>	<u>21,109,833</u>
<u>Orange County Public Schools</u>	<u>11,018,920</u>
<u>City of Winter Park</u>	<u>9,710,784</u>
<u>Publix Markets</u>	<u>8,875,675</u>
<u>Century Link</u>	<u>8,160,595</u>
<u>Mayflower Retirement Center</u>	<u>6,487,582</u>
<u>Presbyterian Retirement Center</u>	<u>5,428,992</u>
<u>250 Park Avenue Trustee (BOA)</u>	<u>3,012,998</u>
<u>Alfond Inn</u>	<u>2,832,480</u>
<b><u>Total</u></b>	<b><u>100,075,882</u></b>

Source: City of Winter Park

**Utility Demand.** Table 2 summarizes the historical electric kilowatt per hour sales. A review of demand from 2005 to 2015 indicates that utility demand has remained relatively flat over the past 10 years increasing or decreasing at an average of .05% or less each year.

Based on current electric utility consumption, only operational and maintenance investments are expected to keep up with energy demand.

Table 4-27  
Historic Utility Kilowatt per Hour (KWH) Sales  
Winter Park Service Area

<u>Year</u>	<u>KWH</u>
<u>2005</u>	<u>453,967,052</u>
<u>2006</u>	<u>432,967,312</u>
<u>2007</u>	<u>443,439,964</u>
<u>2008</u>	<u>442,593,393</u>
<u>2009</u>	<u>427,236,273</u>
<u>2010</u>	<u>439,004,150</u>
<u>2011</u>	<u>427,890,370</u>
<u>2012</u>	<u>415,951,080</u>
<u>2013</u>	<u>413,266,307</u>
<u>2014</u>	<u>425,622,977</u>
<u>2015</u>	<u>443,710,349</u>
<u>Total</u>	<u>4,765,649,227</u>
<u>Average</u>	<u>433,240,839</u>

**Level of Service.** The Level of Service (LOS) standard has been set at one that is consistent with the surrounding electric utility distribution providers. Generally metrics for LOS and reliability are measured on SAIDI, MAIFI, and CAIDI index systems. SAIDI (System Average Interruption Duration Index) is the average outage duration for each customer served. Essentially, it is the sum of all customer interruption durations divided by the total number of customers served. Electric Utility measures this number both monthly and annually. Some factors including

MAIFI (Momentary Average Interruption Frequency Index) is the average number of monetary interruptions that a customer would experience during a given period. Over the past 10 years, this value has dropped to nearly zero.

CAIDI (Customer Average Interruption Duration index) gives the average outage duration that any given customer would experience. It is measured in units of time, usually over the course of a year. It is calculated similar to SAIDI except that the denominator is the number of customers interrupted versus the total number of utility customers.

Table 4-28  
Reliability

Winter Park Service Area

<u>Year</u>	<u>SAIDI</u>	<u>MAIFI</u>	<u>CAIDI</u>
<u>2005</u>	<u>7.66</u>	<u>2.46</u>	<u>64.52</u>
<u>2006</u>	<u>8.39</u>	<u>1.67</u>	<u>87.71</u>
<u>2007</u>	<u>5.59</u>	<u>0.32</u>	<u>90.56</u>
<u>2008</u>	<u>4.68</u>	<u>0.24</u>	<u>77.28</u>
<u>2009</u>	<u>6.95</u>	<u>0.18</u>	<u>60.94</u>
<u>2010</u>	<u>6.03</u>	<u>0.01</u>	<u>87.24</u>
<u>2011</u>	<u>13.58</u>	<u>0.04</u>	<u>74.55</u>
<u>2012</u>	<u>4.82</u>	<u>0.04</u>	<u>97.66</u>
<u>2013</u>	<u>5.48</u>	<u>0.00</u>	<u>98.30</u>
<u>2014</u>	<u>14.00</u>	<u>0.00</u>	<u>100.33</u>
<u>2015</u>	<u>6.86</u>	<u>0.03</u>	<u>81.06</u>
<u>Average:</u>	<u>7.64</u>	<u>0.45</u>	<u>83.65</u>

**Initiatives.** To ensure continued improvements to reliability and provide cost-effective pricing to the public, the city has identified the following projects to be prioritized over the next five to ten years.

1. Continue the facilitation of hookups to the city's electric utility system for all development and redevelopment in the city.
2. Continue the implementation of the city's electric undergrounding program. To date, fifty-nine percent of electric distribution lines have been placed underground.
3. Continue the installation of new electric reading meters that provide net metering technology.
4. Promote the use of energy conservation installations.
5. Explore opportunities for cooperation with residents and the private sector for cost-effective and environmentally sensitive energy sources.
6. Explore opportunities for incentive programs and rebates to ensure positive economic environments for the city's residents and businesses.
7. Continue coordination with the City's Urban Forestry Division in the directional pruning of trees for improperly or inadvertently located vegetation in the right of way where appropriate.

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Public Facilities Map Series

Map 4-1: Septic Tank and Central Sewer System Service Areas

Map 4-2: Potable Water Wells & Wellhead Protection Areas

Map 4-3: Groundwater Aquifer Recharge Ranges

Map 4-4: Jurisdictional Drainage Boundaries and Drainage Features

Map 4-5: Sewage Treatment Facilities and Service Areas

