PUBLIC FACILITIES ELEMENT
DATA, INVENTORY AND ANALYSIS

CHERISH AND SUSTAIN WINTER PARK'S EXTRAORDINARY QUALITY OF LIFE

PLAN OUR GROWTH THROUGH A COLLABORATIVE PROCESS THAT PROTECTS OUR CITY'S TIMELESS SCALE AND CHARACTER

ENHANCE THE WINTER PARK BRAND THROUGH A FLOURISHING COMMUNITY OF ARTS AND CULTURE

BUILD AND EMBRACE OUR LOCAL INSTITUTIONS FOR LIFELONG LEARNING AND FUTURE GENERATIONS

Public facilities include potable water, wastewater, reclaimed water, solid waste, drainage, and natural groundwater aquifer recharge. Pursuant to the requirement of 163.177(6)(f), F.S., this section provides an inventory and analysis of the existing potable water, sanitary sewer, reclaimed water, 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.

Much of the data for this element was obtained from a 2004 Winter Park Bond Issue Engineering Report for its water and wastewater utility services. This 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 SJRWMD Consumptive Use Permit No. 7624, Florida Department of Environmental Protection (Orlando office), Orange County, the City of Orlando, the City of Altamonte Springs, and WastePro® USA.

Wastewater Sub Element

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 PFE-4-01 delineates the areas within the City's jurisdictional boundaries, and the utility service area, 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 2016 provided service to approximately 20,800 accounts and a population of 67,300 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 system consists of approximately 880,206 feet of sewer lines, 3,901 manholes, and 103 pumping stations with 293,569 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 2023, the City's general sewer service had a combined daily service capacity of 9.002 million gallons per day (MGD) by using five different wastewater treatment plants. The wastewater treatment plant owned by Winter Park treats approximately 12.7% of the total sewer system treatment capacity, with the majority of the capacity provided through wholesale agreements with other governments.Table 4-4 shows the treatment capacity for each facility.

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 collection systems – the West, East, and Central Districts.

Boundaries for the wastewater service area and its three districts are delineated on Map PFE-4-01. 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 & Service Area Characteristics

	EAST SYSTEM	WEST SYSTEM	CENTRAL SYSTEM	GWSA[1]
Area (square miles)	N/A	N/A	N/A	22
Accounts	N/A	N/A	N/A	20,715
Customers (population)	N/A	N/A	N/A	67,256
General Service Area	Unincorporated areas east of city limits	Unincorporated areas west of city limits	Incorporated Winter Park	N/A
TREATMENT FACILITY				
Iron Bridge Regional Treatment Plant	X		X	
Altamonte Springs Regional Water Reclamation Facility		X	X	
Orange County Utilities	X			
McLeod Road Sewage Treatment Plant		X		
Winter Park Estates Water Reclamation Facility	X			

Source: Winter Park Utilities 2023. 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 largely functions independently Each system stands on its own for collection and transmission to a treatment facility. Within each of the three service systems, the collection system consists of gravity sewer lines, lift stations, and force mains (pressurized sewer lines). The City's collection facilities for the entire general service area consists of approximately 880,206 feet of sewer lines, 3,901 manholes, and 103 pumping stations with 293,569 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 the cities of Orlando, Maitland and Casselberry, and Orange and Seminole counties to form a regional transmission authority to fund, install, and maintain transmission lines to send wastewater flows to the Iron Bridge treatment facility. The South Seminole-North Orange County Wastewater Transmission Authority (SSNOCWTA) 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 & 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 & 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 Department. 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 polyethylene (HDPE) pipe.
4. The Ranger Lift Station is currently failing because of age and use. The City will repair and update this station.
5. Five remaining CAN type lift stations are to be converted to submersible stations for safety and reliability reasons.
6. South Seminole North Orange County Wastewater Transmission Authority transmission system 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.

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, 2023.

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 approximately 7,800.

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 1.15 million gallons per day (MGD) but is limited to processing .615 MGD at this time due to the capacity of currently available reclaimed water spray sites. Future planned expansion of reuse into residential neighborhoods will increase the disposal capacity for reclaimed water. In 2022, the facility treated an average of 0.477 MGD.

2. **Disposal** An effluent storage facility consists of two holding ponds with a combined capacity of 3.2 million gallons and a 3.0 million gallon ground 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, Glen Haven Cemetery, and Brookshire Elementary School, all of which are located within Winter Park's corporate limits. Table 4-3 lists the permitted daily effluent reuse volumes that can be sent to each site in 2015.

Table 4-3: Effluent Reuse Sites & Permitted Reuse Flows 2015

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, 2016.

3. **Biosolids** Sludge, or biosolids, collected at the Winter Park Estates facility is pumped via a SSNOCWTA 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 approximately 50 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 FLA10819-006 that expires on January 7, 2024. The current permit limits the WWTP to an annual average daily flow of 1.15 MGD. A new permit FLA010819-007-DW1P will expire on January 7, 2034, and is under review by FDEP.
   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)	% OF TOTAL FLOW FROM CITY WASTEWATER SERVICE AREA (2003)
CITY-OWNED FACILITIES			
Winter Park Estates Water Reclamation Facility	Winter Park	1.150	12.78%
RESERVED CAPACITY			
Regional Wastewater Reclamation Facility[1]	Altamonte Springs	0.713	7.93%
Iron Bridge Regional Treatment Plant	Orlando	5.962	66.23%
Conserv II Reclamation Facility (McLeod Road WWTP)	Orlando	1.000	11.11%
Orange County Utilities	Orange County	.176	1.95%
TOTAL SEWER SYSTEM CAPACITY		9.002	100.00%

[1] Source: Altamonte Springs Interlocal Agreement.
All other data provided by Winter Park Utilities, 2023.

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. Approximately 70% of the daily wastewater flows generated within Winter Park's GWSA were treated at the Iron Bridge Facility in 2023. 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 annual average daily flow of 5.962 million gallons per can be transmitted to the Iron Bridge Regional Reclamation Facility.

2. **Conserv II Reclamation Facility** Located on McLeod Road in southwest Orlando, the Conserv II WWTP treated about 11% of the wastewater generated within the GWSA in 2023. 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 2023, approximately 6.5% of the total wastewater flow within the GWSA received treatment at Altamonte Springs' RWRF.
   With a permit capacity of 25 mgd, the RWRF has approximately 16 mgd of capacity available in 2016 for additional wastewater demand.
   The City's current contract with the City of Altamonte Springs stipulates that a maximum of 713,52gallons per day of wastewater can be transmitted to the Regional Wastewater Reclamation Facility. The City of Winter Park and Altamonte Springs are working on a revision to the existing contract to account for additional wastewater flow generated by the Fairbanks Avenue gravity sewer and the development occurring in the Lee Road/SR17-92 area.
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[1]**	**SERVICE VOLUME (GALLONS PER DAY)**
Hunters Ridge Apartments	Residential	N/A	61,250
University/Goldenrod Shopping Center	Commercial	N/A	35,000
Laural Springs, Fontana & Sutton Place Apts.	Residential	N/A	80,000
TOTAL			**176,250**

Source: Winter Park Utilities, 2016.
[1] All wholesale agreements include an automatic renewal.

Current Wastewater Demand In 2016, the City served approximately 14,334 single-family, multi-family, and commercial sewer customers within the City limits, and approximately 9,076 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 10 Sewer & Water Customers by Volume		
Customer[1]	**Land Use Type**	**Volume[1] (x1000 gallons)**
City of Winter Park	Institutional	64,757
Adventist (Florida Hospital)	Institutional	61,020
Rollins College	Institutional	44,460
ZMG Property Mgmt Div, LLC	Multi-family Residential	21,999
Azure Winter Park	Multi-family Residential	21,748
Winter Park Towers Retirement Center	Institutional	20,698
Orange County	Institutional	20,668
Solis FL Owner LLC	Multi-family Residential	20,594
BCore MF Lakeside LLC	Multi-family Residential	16,349
Summerlin at Winter Park	Multi-family Residential	14,852
TOTAL		**304,967**

[1] Source: Winter Park Annual Comprehensive Financial Report, Sept. 2022
[2] Customers served by Orange County Utilities, as shown in Table 4-5

Future Wastewater Demands Winter Park's GWSA covers a region within the Orlando metropolitan area that is urban in character and substantially developed. 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 less than 200 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), and most recent Consumptive Use Permit, 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 & Capacity Needs

YEAR	GWSA POPULATION	AVERAGE ANNUAL DAILY FLOW	2000 SYSTEM DESIGN CAPACITY	CAPACITY SURPLUS (NEEDS)
		(mgd)	(mgd)	(mgd)
2010	61,819	6.3	8.3	2.0
2016	67,256	6.5	8.3	1.8
2021	72,847	6.5	8.3	1.8
2027	78,598	6.5	9.0	2.5

Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2016 and 2021.

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, the total annual wastewater flows generated from outside

the City are slightly lower than those generated from within the City's incorporated boundaries. Table 4-9 summarizes wastewater flows for the three-year period from fiscal year 2013 to 2015.

Table 4-9: Wastewater Flows by Jurisdictional Area

SUB AREA	FY 2013	FY 2014	FY 2015
TOTAL FLOWS (x1000)			
Inside City	958,266	966,853	968,105
Outside City	859,372	829,233	859,201
PERCENT OF TOTAL FLOWS (x1000)			
Inside City	52.7%	53.8%	53.0%
Outside City	47.3%	46.2%	547.0%

C. Capacity Needs The City purchased an additional 300,000 GPD of capacity from Al;tamonte Springs to account for growth in that subsystem**.** Based on anticipated demand for wastewater flows projected, sufficient capacity is available on a system-wide basis through year 2035. Re-rating of the Iron Bridges WRF and Conserv II WRF may provide 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 PFE-4-01. 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 Approximately 1,630 single family homes or businesses within the City are served by septic tanks. An additional 3,651 homes or businesses within the utility service area 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 served by septic tanks. These are concentrated primarily along Lee Road and Fairbanks Avenue. Gravity sewer has been extended on Fairbanks Avenue between SR 17-92 and I-4, and is available for commercial businesses currently served by septic tanks. A small diameter force main has been constructed along portions of Lee Road, between SR 17-92 and I-4 on the south side of the road, and is also available for connection by commercial businesses.

The City is evaluating options for lower cost alternatives to extending gravity sewer into areas served by septic tanks. Small diameter low-pressure systems may be an attractive option that makes use of the customer's existing septic tank, and uses small diameter pipe that can be drilled in rather than the standard costly and difficult open cut gravity systems. The availability of State and Federal grant funding or cost sharing will be researched to further reduce the cost to customers.

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 CE-5-02) with locations where septic tanks are used (Map PFE-4-01) 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 PFE-4-01 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 o law 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 theses 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, impacts to the natural environment that have occurred in recent years as a result of failures in sanitary sewer systems have been largely limited to major hurricanes such as Ian and Nicole**.** The City has also contracted several lake water quality studies that support the findings of the State regarding no significant adverse impact to surface water from septic 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. New septic tanks and not allowed in areas served by centralized sewer systems.

C. Private Lift Stations New policies and ordinances have been approved to better monitor and regulate operation and maintenance of commercial private lift stations within the utility service area. Private residential lift stations are exempt from these new City rules and regulations.

POTABLE WATER SUB ELEMENT

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 Martin Luther King Jr. Park irrigation system. The population served by the water system was approximately 68,000 consumers in 2022.

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 six active raw water wells that draw from the Floridan aquifer to service three interconnected water treatment plants. The City also has 2 standby wells and one storage/repump facility. 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 October 2025. Total water flows averaged 10.39 mgd average in 2022. 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 at Martin Luther King Park are for irrigation use only.

Population served by the water service system was approximately 67,256 in year 2016 with approximately 29,308 of this total representing population residing inside Winter Park's city limits. Approximately 57% of the population served by the City's water system is located outside city limits while 43% 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 approximately 1,300 feet below the 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 Martin Luther King 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[1] PERMIT NUMBER	PERMIT EXPIRE DATE	MAX YEARLY PERMITTED WITHDRAWAL	AVG. DAILY PERMITTED WITHDRAWAL	USE	AREA SERVED
Winter Park Water System	7624	Oct 12, 2025	4,635.5 mg	12.7 mg	public supply	22 square miles
Winter Park Golf Course	3394	20 years from date of issuance	45.000 mg	N/A	golf course & common area irrigation	38.0 acres
MLK, Jr. Park Irrigation System	60174	Oct 6, 2039	0.951 mg	N/A	urban landscape irrigation	18.60 acres
TOTAL PERMITTED WITHDRAWALS	**N/A**	**N/A**	**4681.451 mg**	**N/A**	**N/A**	**N/A**

[1] CUP – Consumptive Use Permit.
Source: SJRMWD Consumptive Use Permit Applications.

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 three water treatment plants. Well locations are illustrated on Map PFE-4-02. 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 Martin Luther King Jr. 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 Wynore 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 PFE-4-05.

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.

Between 2004 and 2006 the City completed improvements to all of its water treatment facilities. The new Swoope Ave WTP completed in 2004 uses ozone for removal of H_2S 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 was converted to a storage and 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 can be adjusted with sodium hydroxide to prevent corrosion of piping with the distribution system. At the present time, the change from gas to liquid chlorine has resulted in a target pH that does not require adjustment with sodium hydroxide.

Table 4-13: Design Capacities for Water Treatment Plants & Associated Facilities

	SWOOPE AVENUE	WYMORE ROAD*	MAGNOLIA AVENUE	ALOMA AVENUE	TOTAL
FIRST YEAR OF OPERATION	2004	1955	1957	2007	
TREATMENT CAPACITY	11.4 mgd	0.0 mgd	7.4 mdg	10.0 mgd	28.8 mgd
CONNECTED WELLS	2	2*	2	2	6
TOTAL WELL CAPACITY	11.5 mgd	9.4 mgd	9.4 mgd	11.5 mgd	32.4 mgd
ONSITE STORAGE	1.9 mg	2.3 mg	1.5 mg	1.9 mg	7.6 mg
SERVICE PUMPS	4	4	4	4	16
SERVICE PUMP CAPACITY	16.4 mgd	10.8 mgd	16.4 mgd	18.9 mgd	62.5 mgd

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 dozens of regulated and un-regulated contaminants.

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 2022, 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 2022, 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 on the City's website.

Ongoing System Improvements The City has completed several improvement projects including a 17 MW solar panel array on the Aloma WTP ground storage tank, and modifications to the ozone contact methodology at all three treatment facilities. The city is also evaluating several cost saving/sustainability projects to reduce power and chemical use at the water treatment facilities. Projects being evaluated include emergency generator heat pump block heaters and high efficiency pump motors. These evaluations are in the early stages but the technology looks promising pending the results of our return on investment analysis.

Water Distribution System

In 2023, the water distribution system covering the 22 square mile service area consisted of 560 miles of water distribution lines, 1,837 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 three 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 24,360 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

DIAMETER	(inches)	6-8	10-12	16	20	24	30	36
LENGTH	(feet)	1,087,768	221,556	33,644	1,659	4,284	220	60
	(miles)	206	42	6	0.3	1.0	0.04	0.01

Source: Winter Park Water & Wastewater Utilities GIS, 2023.

Water Demand & 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 2022, the average daily flow for the entire Winter Park water system was 10.4 mgd. The top ten water users within the water service represent approximately 10% of the total annual demand for water. Table 4-6 lists the historic water flows for the Winter Park water system from 2009 to 2015. The top ten water and sewer users for year 2022 are listed in Table 4-6.

Table 4-15: Historic Water Flows				
YEAR	WATER TREATMENT PLANT			AVERAGE DAILY DEMAND (mgd)
	Swoope Ave	Magnolia Ave	Aloma Ave	
	Flow[1] (mgd)	Flow (mgd)	Flow (mgd)	
2016	4.0	2.8	3.4	10.2
2017	4.2	2.8	3.5	10.5
2018	4.1	2.7	3.2	10.1
2019	4.2	2.8	3.4	10.4
2020	4.1	2.9	3.6	10.6
2021	4.2	2.9	3.7	10.9
2022	4.2	2.9	3.3	10.4

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[1]	AVERAGE DAILY DEMAND	
		AVERAGE DAILY FLOW[2]	AVAILABLE CAPACITY
	(mgd)	(mgd)	(mgd)
2009	11.9	10.2	1.7
2013	12.0	10.6	1.4
2018	12.2	10.1	2.1
2022	12.7	10.4	2.3
2025*	12.7	10.6	2.1

[1] Average annual daily groundwater withdrawal allowed by Consumptive Use Permit No. 7624, as issued by the SJRWMD.

[2] Source: Winter Park Water & Wastewater Utilities actual flow numbers.

* Projected based on 2% growth rate

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	AVG. DAILY DEMAND		MAX. DAILY DEMAND	
		AVG DAILY FLOW[1]	AVAILABLE CAPACITY	MAX. DAILY FLOW[2]	AVAILABLE CAPACITY
	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
2009	28.8	10.2	18.6	18.4	10.4
2013	28.8	10.6	18.2	19.1	9.7
2018	28.8	10.1	18.7	18.2	10.6
2023	28.8	10.4	18.4	18.7	10.1
2028*	28.8	11.2	17.8	20.2	8.6

[1] 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.

[2] Based on a peaking factor of 1.8.

* Projected based on 2% annual growth rate

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	AVG. DAILY DEMAND		MAX. DAILY DEMAND	
		AVG DAILY FLOW[1]	AVAILABLE CAPACITY	MAX. DAILY FLOW[2]	AVAILABLE CAPACITY
	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
2007	62.5	10.2	52.3	18.4	44.1
2013	62.5	10.6	51.9	19.1	43.4
2018	62.5	10.1	52.4	18.2	44.3
2023	62.5	10.4	52.1	18.7	43.8
2028*	62.5	11.2	51.3	20.2	42.3

[1] Source: Winter Park Water & Wastewater Utilities actual flow numbers.

[2] Based on a peaking factor of 1.8.

* Projected based on a 2% annual growth rate

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 if 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.

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 2022	SUB-AREA	TOTAL SERVICE AREA
INSIDE CITY	Commercial	1,830	13.9%	7.8%
	Multi-Unit	311	2.4%	1.3%
	Public Authority	237	1.8%	1.0%
	Residential	10,812	82.0%	45.9%
	Sub-total	13,190	100.0%	56.0%
OUTSIDE CITY	Commercial	1,161	11.2%	4.9%
	Multi-Unit	560	5.4%	2.4%
	Public Authority	62	0.6%	.3%
	Residential	8,565	82.8%	36.4%
	Sub-total	10,348	100.0%	44.0%
TOTAL SERVICE AREA		23,538	N/A	100.0%

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 2013 to 2015, water flow inside the city limits was 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 2013 and 2015, the incorporated area of the water service area consumed 59.7% to 60.7% 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 higher levels than outside the City.

Table 4-21: Water Flow Volumes by History & Distribution

SUB-AREA	FY 2020	FY 2021	FY 2022
FLOWS (x 1000)			
Inside City	2,251,097	2,229,215	2,186,753
Outside City	1,296,905	1,321,456	1,352,827
Total Flow	3,548,002	3,550,671	3,539,580
PERCENT OF TOTAL FLOWS			
Inside City	63.4%	62.8%	61.7%
Outside City	36.6%	37.2%	38.3%

Future Water Demands 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 AVENUE	WYMORE ROAD	MAGNOLIA AVENUE	ALOMA AVENUE	TOTAL DEMAND
2010	61,819	4.3	N/A	2.9	4.0	11.2
2016	67,256	4.3	N/A	3.0	4.1	11.4
2021	72,847	4.3	N/A	3.0	4.1	11.4
2027	78,598	4.4	N/A	3.1	4.2	11.7

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					
YEAR	ACTUAL/PROJECTED DEMAND	TREATMENT DESIGN CAPACITY	AVAILABLE TREATMENT CAPACITY	SJRWMD GROUNDWATER SUPPLY[1]	AVAILABLE SUPPLY CAPACITY
	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
2009	10.6	28.8	18.2	11.9	1.3
2013	9.8	28.8	19.0	12.0	2.2
2018	10.1	28.8	18.7	12.2	2.1
2022	10.4	28.8	18.4	12.7	2.3
2028	11.2	28.8	17.6	12.7	1.5

[1] Groundwater supply based on average daily allocation granted by the SJRWMD consumptive use permit.

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

A. 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 1.150 million gallons per day (MGD) but is limited to processing 0.615 MGD at this time due to the capacity of currently available spray sites. Future planned expansion of reuse into residential neighborhoods will increase the disposal capacity for reclaimed water. Treated effluent is distributed for reuse as irrigation at the Cady Way athletic fields, Interlachen Golf and Country Club, Winter Pines Golf Course, Glen Haven Cemetery, and Brookshire Elementary.

B. 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.

Winter Park is evaluating system improvements to divert additional flow to the Winter Park Estates Water Reclamation Facility to increase the amount of reclaimed water the facility can produce. In conjunction with these collection system improvements, the city is planning to expand the reclaimed water distribution system into limited residential areas to reduce the amount of potable water that is used for landscape irrigation. Approximately

Seventy percent of the daily wastewater flows generated within Winter Park's GWSA were treated at the Iron Bridge Facility in 2022. Iron Bridge operates as a physical, chemical, and biological sewage treatment plant with reuse discharge to artificial wetlands in Christmas, FL, the Little Econlockhatchee River and to reclaimed water systems for irrigation. Conserv II WWTP treated roughly 13% of the wastewater generated within the GWSA in 2022. Conserv II plant has a permitted capacity of 25 mgd and operates as an activated sludge sewage treatment plant providing effluent to residential and commercial properties, and spray irrigation and freeze protection for orange groves in West Orange and Lake County.

In 2022, 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.

C. The City of Winter Park has adopted a water conservation rate structure for it 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 (PWRCAs). 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 are 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 cause 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:

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.

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.

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 posses 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 PFE-4-03 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 & 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.

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:

A. **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 is participating in the Central Florida Water Initiative (CFWI) planning sponsored by cooperating water management districts. The City's water supply facilities work plan is incorporated into this plan.

B. 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.

C. Wellfield Protection SJRWMD will continue its wellhead protection technical assistance program to provide timely delineations and implementation assistance to requesting local governments.

D. 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.

E. Comprehensive Plans & 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.

F. 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.

G. 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 terrorist 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 Lakes 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 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 contracted 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 expired April 30, 2009. Waste Management's local operation facilities and offices are located in Orlando.

In 2009 the City rebid the contract for solid waste collection and disposal and selected Waste Pro of Florida, Inc. (hearafter Waste Pro) a liscensed waste collection business, to provide residential solid waste and yard collection services, residential curbside recycling collection, and commercial solid waste collection.

In 2016, the contract was rebid again and the City again selected Waste Pro of Florida, Inc. to provide the above referenced solid waste collection services.

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, and subsequently to Waste Pro in 2009.

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 Pro, 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 currently 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 Pro is also responsible for picking up all garbage at city-owned facilities. Provisions are built into the contract with Waste Pro to allow for a change to once per week curbside waste collection if the City feels the change is in the best interest of the City in regards to sustainability cost or other reasons.

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 Pro at no additional charge. A fee may be charged for collection of large or bulky items discarded outside of the designated dates.

While Waste Pro provides the waste pick up services, the City handles customer billing and fee collection for residential and the majority of commercial accounts. Certain large commercial containers are billed by Waste Pro.

According to Waste Pro in 2015 10,018 tons of Class 1 solid waste were collected from residential customers, and 16,224 tons from commercial customers within the City of Winter Park. Combining the tonnage from the two customer sources, and annual average of 26,242 tons (or 52,484,000 pounds) are collected within the City, not including recyclables, construction debris, and yard waste. Based on a 2016 population of 29,308, an average of 768 pounds per year of residential solid waste are generated on a per capita basis, not including yard waste or recycling. The Housing Element provides methodology explaining how future population is derived.

Yard Waste Collection Lawn debris and other yard waste are collected once a week from residential dwellings and commercial establishments by Waste Pro. This collection service also includes the pickup of discarded Christmas trees.

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 Pro 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 Pro®. The purpose of the public awareness program is to encourage residents to separate and separately store recyclables from garbage until pick up by Waste Pro. Should additional materials become considered recyclable, the City reserves the right to add or subtract materials from the list of recyclables at their discretion.

The 2016 contract provides for the replacement of small recycling bins with large 64 or 96 gallon carts for residential single stream recycling. The purpose of providing larger carts for every resident is to further the state's goal of increasing diversion rates for recyclables. The current residential diversion rate is between 30 and 40 percent, while the state's goal is 75 percent by the year 2030.

Hazardous Waste & Petroleum Collection Waste Pro is not responsible for the pickup of hazardous wastes, batteries, and oils. Once a year, Winter Park residents can take household hazardous waste (HHW), including paints, oils, batteries, fluorescent lamps, pesticides, herbicides, cleaners, and e-waste to the household hazardous waste event at the City's property located at 1409 Howell Branch Road. Certain automobile repairs shops or quick-lube oil change centers may also accept used oils at no charge.

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 768 pounds per year per person, equivalent to an annual daily average of 2.1 pounds per capita. The level of service does not include recyclables and yard waste collected separately from garbage.

Solid Waste Disposal

Waste Pro 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 Pro, since 2009, the majority of solid waste, recyclables, and yard waste has been transported to the Orange County land fill. Effective November 1, 2016, residential and commercial solid waste and yard waste will be transported to the Seminole County land fill. Recyclables will continue to be transported to Recycle America in Orange County.

The City reserves the right to modify collection methods, and disposal locations, to best meet their needs and sustainability goals.

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. 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 in 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 a result, there are no 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 14 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. 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 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 properties into current code guidelines. This new ordinance requires projects

to retrofit for runoff retention of one inch if construction costs exceed 50 percent of existing building value, The new ordinance also requires residential properties to construct on-site surface stormwater management. Lake front properties must have one inch 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 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 stormwater and 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 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, ordinances, and stormwater projects. The City is committed to the continued aggressive management of 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 discharges 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.

Chapter 23 A is 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 he 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.

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 23 B is 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.

Chapter 31: Section 22 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.

Chapter 7: Section 19 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.

Inventory, Maintenance & Existing Programs

A complete set of Stormwater Maps can be found in the Public Works Department at City Hall. These maps 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 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 be

consolidated this coming year to meet EPA 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 locations continue to be 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.

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.

The City funds the use of a vactor-like truck that has responsibilities to clean and maintain inlets, manholes, and drainage pipe. Contractors are hired on occasion to clean drain lines of heavy build-up of sand. Many of the drainage systems throughout the City are starting to deteriorate due to age and repairs and replacement are conducted on a yearly basis to keep abreast of this situation.

Over the past several years the city has 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 veil 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.

Street sweeping is a fully funded City program that sweeps all City streets weekly. 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 sweeping during the heavy leaf fall that occurs for 8-12 weeks during early spring. Leaf traps with 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.

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.

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.

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 as cost-share program to assist funding of stormwater improvement design and construction. Recent cost-share projects involving the City and SJRWMD are described below.

WATER SUPPLY FACILITIES WORK PLAN

prepared by the City of Winter Park Water & Wastewater Utilities Department
November 2016

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 PFE-4-02.

The City will be submitting a renewal application for the Consumptive Use Permit expiring in October, 2025 beginning in late 2023. The application will include detailed water use projections, water conservation programs, population projections and requested allocations for the permit planning period.

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 unincorporated Orange County customers, 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 4-24. 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.

Table 4-24: In City & Outside City Demands

YEAR	IN CITY POP.	OUTSIDE CITY POP.	IN CITY DEMAND	OUTSIDE CITY DEMAND	PROJECTED TOTAL DEMAND	SJRWMD PERMITTED SUPPLIES	CONSERV. & REUSE
2010	28,434	33,385	4.6	6.6	11.2	11.9	.6*
2016	29,308	38,048	4.9	6.5	11.4	12.0	.95*
2021	30,750	42,097	5.1	6.3	11.4	12.2	.95*
2027	31,934	46,664	5.3	6.4	11.7	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 effect 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 2015, that totaled 5.35 mgd. Of that 0.34 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, Glen Haven Cemetery, and Brookshire Elementary School.

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 though 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 & 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 1.15 million gallons per day (MGD) but is limited to processing .615 MGD at this time due to the capacity of currently available spray sites. Future planned expansion of reuse into residential neighborhoods will increase the disposal capacity for reclaimed water. Treated effluent is distributed for reuse as irrigation at

the Cady Way athletic fields, Interlachen Golf and Country Club, Winter Pines Golf Course, Glen Haven Cemetery, and Brookshire Elementary School.

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. Approximately 70% of the daily wastewater flows generated within Winter Park's GWSA were treated at the Iron Bridge Facility in 2015. 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 2015. 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 2015, approximately 6.0% 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, and will adjust sprinklers and controllers for customers free of charge

15. The City of Winter Park promotes water conservation at the City sponsored "Earth Day"
16. The City participates in the SJRWMD annual "Water Conservation Month Proclamation"

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

1. Provide approximately .40 mgd of wastewater to regional reclaimed water systems by 2025.
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.
3. Continue 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 ongoing program is expected to save approximately 7 million gallons annually. 4. 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.
4. Water conservation educational programs. 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. **Provide approximately .40 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
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.**
   Agreements with other water supply entities: Required FY2010

Feasibility studies: FY 2011
Facilities and financial plans: FY 2011
Facilities design, permitting, and construction:
Funding: Utility Department budget or bond revenues

3. **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.
4. **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: Ongoing
   Facilities design, permitting, and construction: Ongoing
   Funding: Utility Department operating budget for water conservation: $10,000± on an annual basis.
5. **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, $15,000± on an annual basis
6. **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
7. **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
8. **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

9. **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
10. **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

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 12.7 mgd in 2025. 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 .40 mgd of reclaimed water that will be used in the City of Winter Park to reduce potable water demand.
4. Provide an additional .1 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. 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.

8. Water conservation fixture. The City will offer a toilet rebate program for exchange of inefficient toilets and washing machines with EPA approved fixtures.
9. 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.
10. 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.
11. 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.
12. 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. 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 2015, that totaled 5.35 mgd. Of that 0.34 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.

ELECTRIC UTILITY SUB ELEMENT

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 PFE-4-06 delineates the areas that are served by electric utility.

Current Electric Demand In 2022, the City served approximately 12,304 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 4-25.

Table 4-25: Top Ten Utility Customers by Units	
CUSTOMER[1]	**KILOWATT/HOUR**
Rollins College	23,438,023
Adventist Health Systems (WPMH)	21,109,833
Orange County Public Schools	11,018,920
City of Winter Park	9,710,784
Publix Markets	8,875,675
Century Link	8,160,595
Mayflower Retirement Center	6,487,582
Presbyterian Retirement Center	5,428,992
250 Park Avenue Trustee (BOA)	3,012,998
Alfond Inn	2,832,480
TOTAL	**100,075,882**

Source: City of Winter Park

Utility Demand Table 4-26 summarizes the historical electric kilowatt per hour sales. A review of demand from 2005 to 2022 indicates that utility demand has remained relatively flat over the past 10 years increasing or decreasing at an average of .01% or less each year.

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

Table 4-26: Historic Utility Sales Kilowatt per Hour (KWH) Winter Park Service Area	
YEAR	**KWH**
2013	413,266,307
2014	425,622,977
2015	443,710,349
2016	437,486,121
2017	424,821,271
2018	414,329,033
2019	425,487,481
2020	422,834,589
2021	422,033,827
2022	426,896,300
TOTAL	**4,256,488,255**
AVERAGE	**425,648,826**

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.

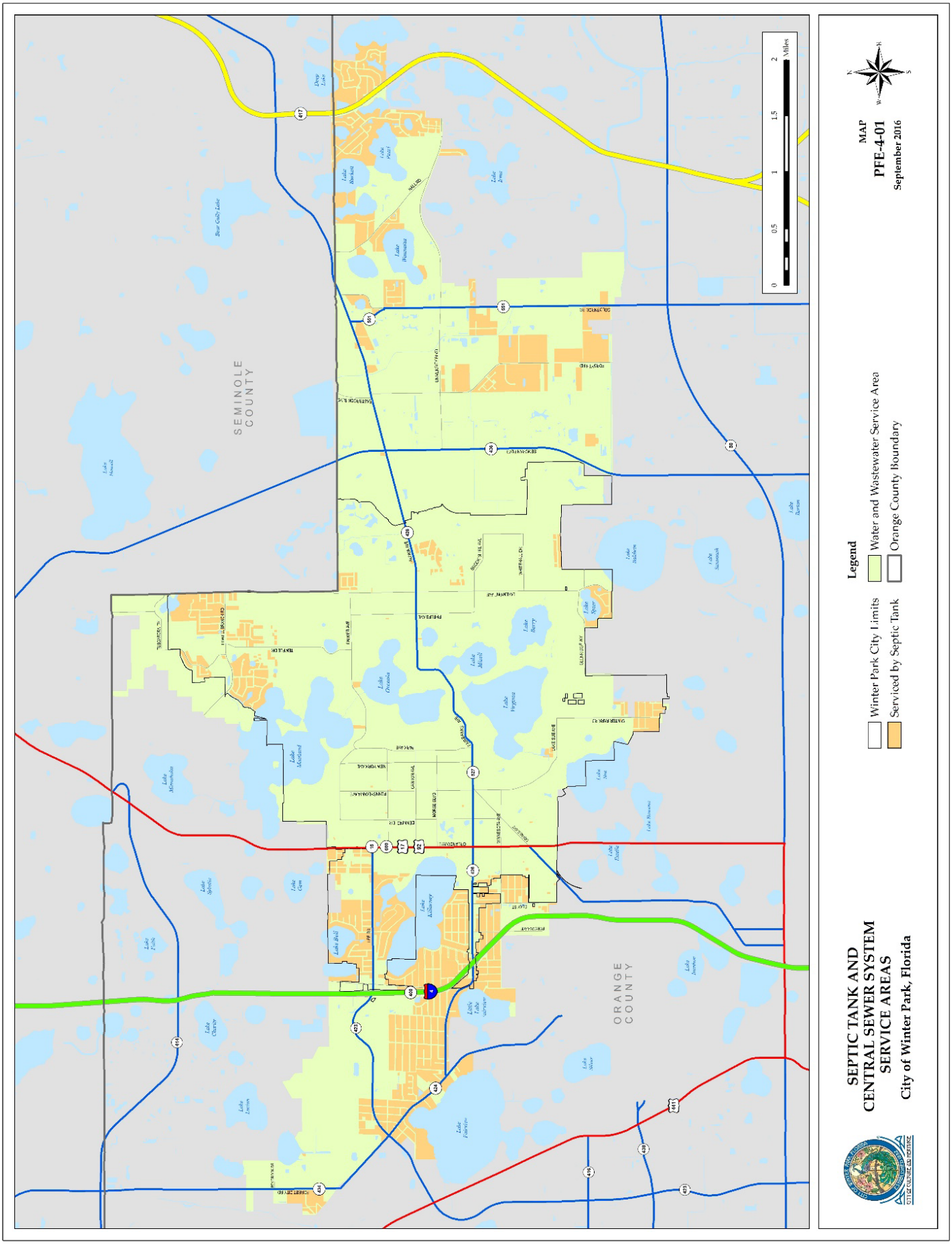
Table 4-27: Reliability Winter Park Service Area			
YEAR	**SAIDI**	**MAIFI**	**CAIDI**
2013	5.48	0.00	98.30
2014	14.00	0.00	100.33
2015	6.86	0.03	81.06
2016	4.91	0.00	121.94
2017	2.13	0.05	180.81
2018	1.77	0.02	127.58
2019	1.13	0.01	102.85
2020	2.98	0.01	112.98
2021	3.26	0.00	120.40
2022	4.75	0.00	97.51
AVERAGE	**4.73**	**0.01**	**114.38**

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.

PUBLIC FACILITIES MAP SERIES

1. PFE-4-01: Septic Tank and Central Sewer System Service Areas
2. PFE-4-02: Potable Water Wells & Wellhead Protection Areas
3. PFE-4-03: Groundwater Aquifer Recharge Ranges
4. PFE-4-04: Jurisdictional Drainage Boundaries and Drainage Features
5. PFE-4-05: Sewage Treatment Facilities and Service Areas
6. PFE-4-06: Electric Utility Distribution Area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Legend
Water and Wastewater Service Area
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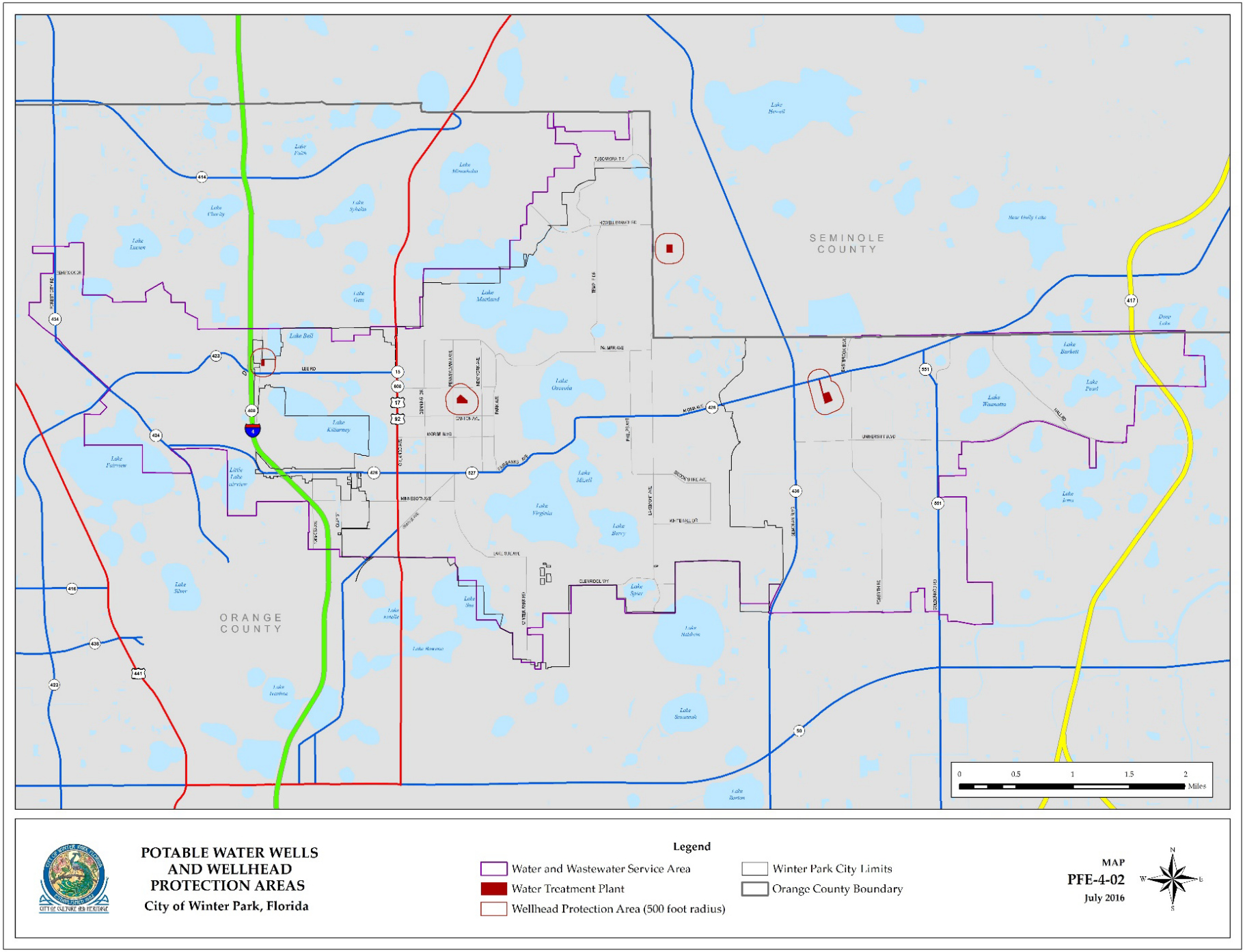
Winter Park City Limits
Serviced by Septic Tank
SEPTIC TANK AND
CENTRAL SEWER SYSTEM
SERVICE AREAS
City of Winter Park, Florida

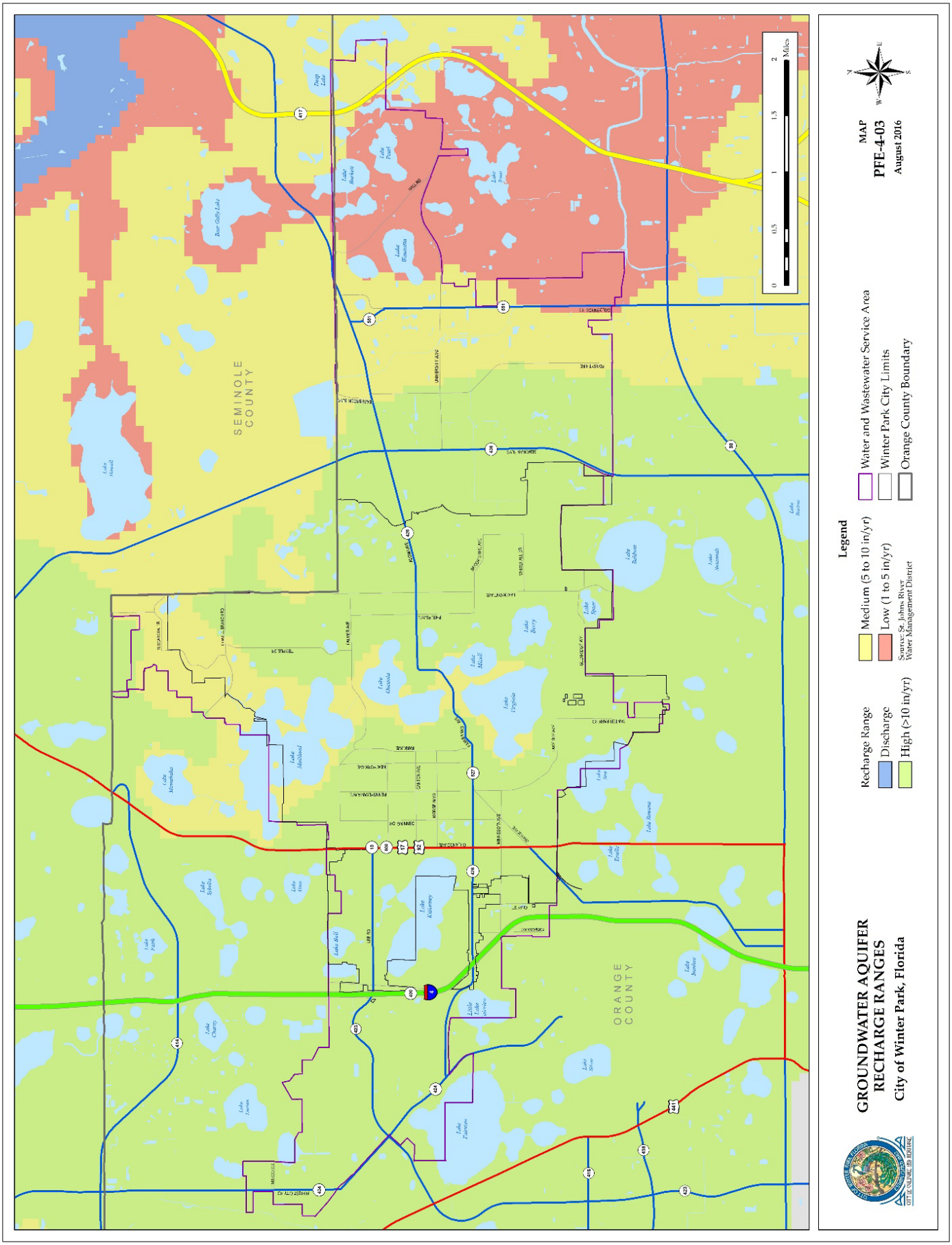


POTABLE WATER WELLS AND WELLHEAD PROTECTION AREAS
City of Winter Park, Florida

Legend

- Water and Wastewater Service Area
- Water Treatment Plant
- Wellhead Protection Area (500 foot radius)
- Winter Park City Limits
- Orange County Boundary

MAP
PFE-4-02
July 2016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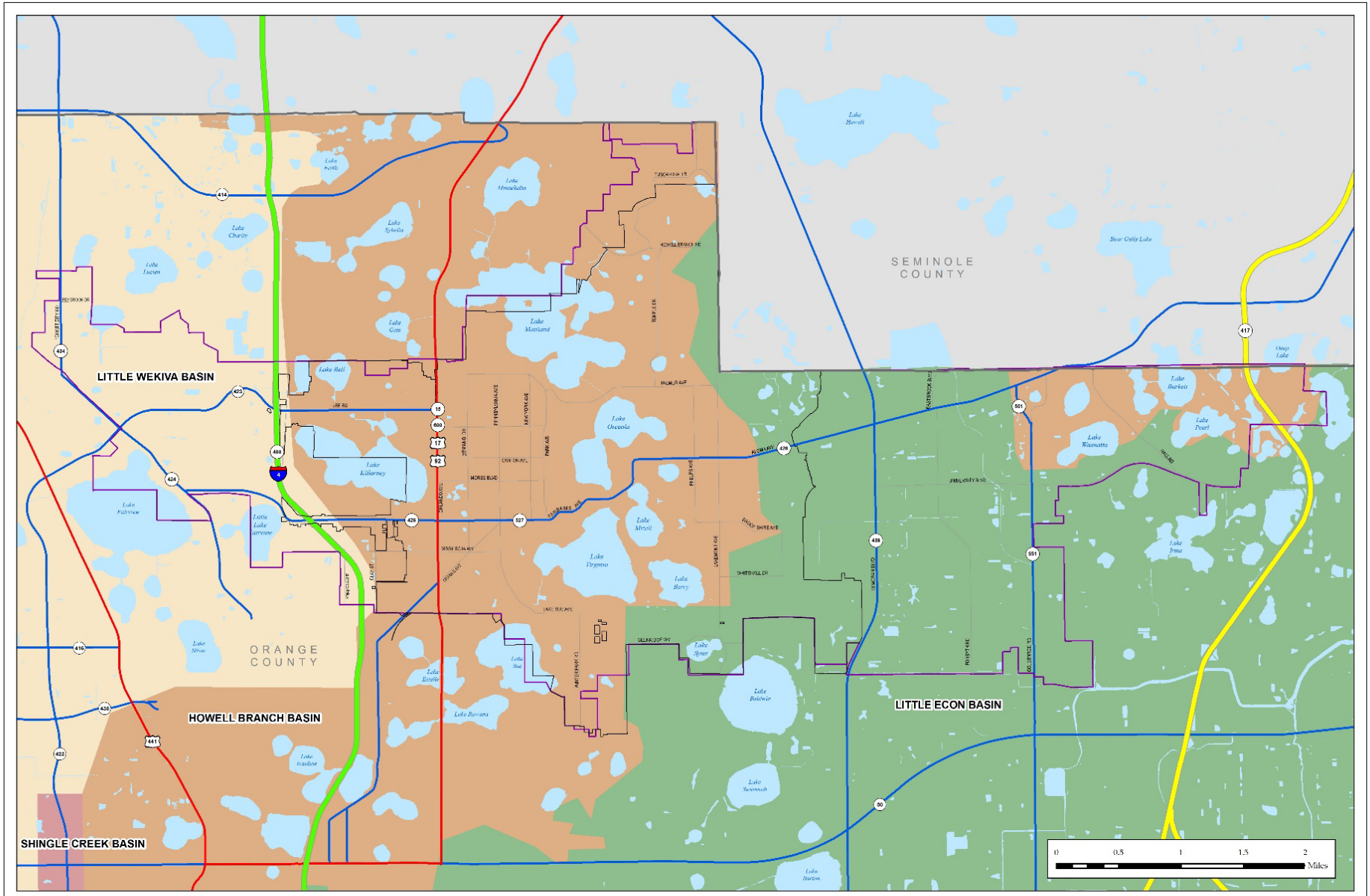
MAP
PFE-4-03
August 2016
Legend
Water and Wastewater Service Area
Winter Park City Limits
Orange County Boundary
Recharge Range
Discharge
High (>10 in/yr)
Medium (5 to 10 in/yr)
Low (1 to 5 in/yr)
Source: St. Johns River Water Management District
GROUNDWATER AQUIFER RECHARGE RANGES
City of Winter Park, Florida



JURISDICTIONAL DRAINAGE BOUNDARIES AND DRAINAGE FEATURES
City of Winter Park, Florida

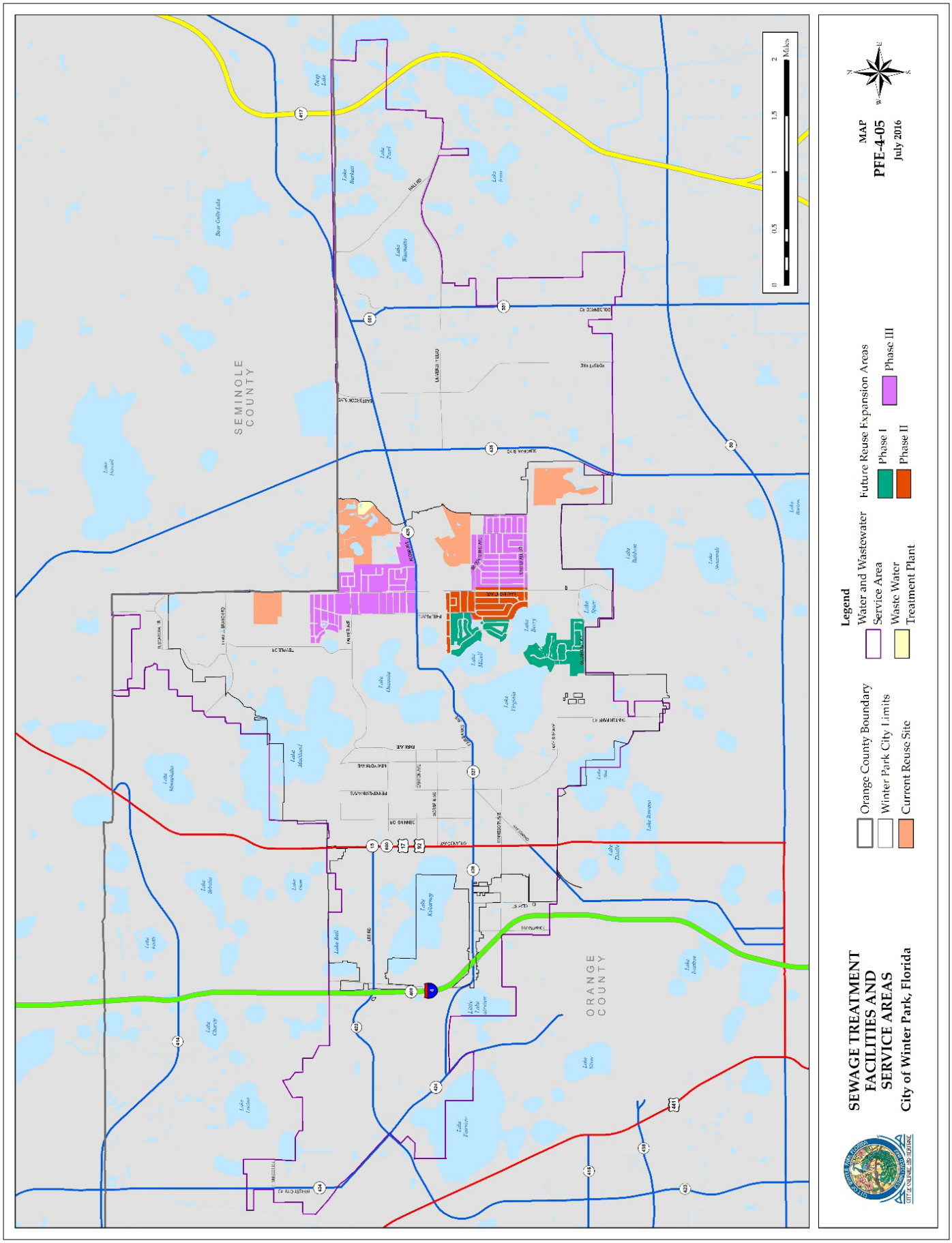
Legend

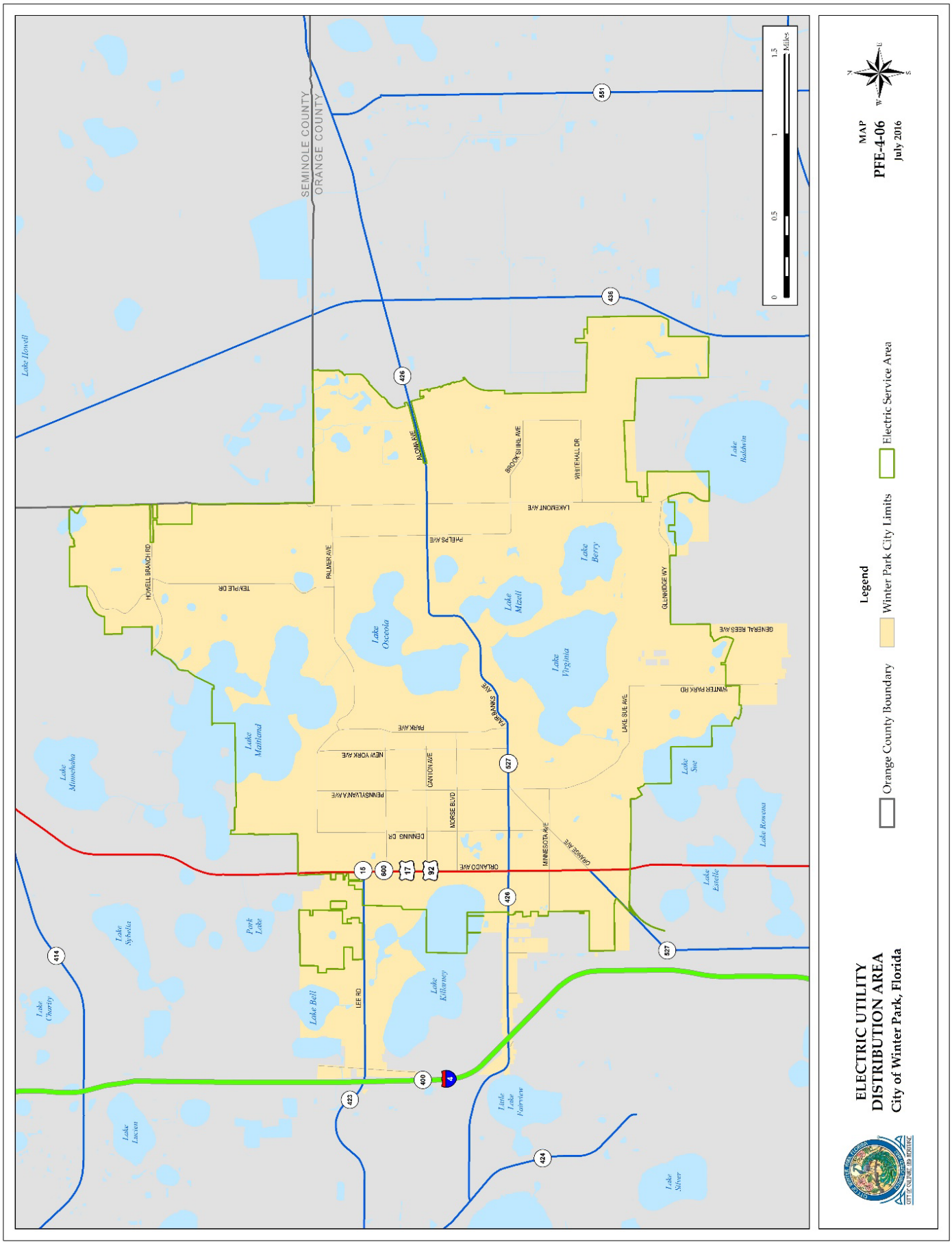
Drainage Basins
- Howell Branch Watershed
- Little Econ Watershed
- Little Wekiva Basin
- Shingle Creek Watershed

Source: St. Johns River Water Management District

- Water and Wastewater Service Area
- Winter Park City Limits
- Orange County Boundary

MAP
PFE-4-04
August 2016


SEMINOLE COUNTY
ORANGE COUNTY
0 0.5 1 1.5 2 Miles
MAP
PFE-4-05
July 2016
Legend
Water and Wastewater Service Area
Waste Water Treatment Plant
Future Reuse Expansion Areas
Phase I
Phase II
Phase III
Orange County Boundary
Winter Park City Limits
Current Reuse Site
SEWAGE TREATMENT FACILITIES AND SERVICE AREAS
City of Winter Park, Florida


ELECTRIC UTILITY
DISTRIBUTION AREA
City of Winter Park, Florida
MAP
PFE-4-06
July 2016
Legend
Orange County Boundary
Winter Park City Limits
Electric Service Area
SEMINOLE COUNTY
ORANGE COUNTY
Lake Howell
Lake Baldwin
Lake Berry
Lake Mizell
Lake Osceola
Lake Virginia
Lake Maitland
Lake Munchoba
Lake Sue
Lake Rowena
Lake Estelle
Lake Sybelia
Pork Lake
Lake Killarney
Lake Bell
Lake Cherry
Lake Lucien
Turtle Lake Fairview
Lake Silver
ALOMA AVE
BROOKSLINE AVE
WHITEHALL DR
LAKEMONT AVE
PHELPS AVE
PALMER AVE
HOWELL BRANCH RD
TEMPLE DR
GLENRIDGE WY
GENERAL REES AVE
WINTER PARK RD
LAKE SUE AVE
FAIRBANKS AVE
PARK AVE
NEW YORK AVE
PENNSYLVANIA AVE
CANTON AVE
MORSE BLVD
DENNING DR
ORLANDO AVE
MINNESOTA AVE
ORANGE AVE
LEE RD
0
0.5
1
1.5
Miles