CITY OF WINTER SPRINGS

COMPREHENSIVE PLAN
CONSERVATION

Amended
July 25, 2023 | Ordinance 2023-03
Chapter V | Conservation Element

PREPARED BY
CITY OF WINTER SPRINGS
COMMUNITY DEVELOPMENT DEPARTMENT

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A. GOALS, OBJECTIVES, AND POLICIES

GOAL 1: To protect, maintain, and conserve the natural resources of Winter Springs for continued environmental quality and the well-being of all citizens.

Objective 1.1: ***Air Quality.*** The City shall maintain and enhance air quality.

Policy 1.1.1: Obtain a revised list of any identified air pollution generators in the City from the Department of Environmental Protection on an annual basis.

Policy 1.1.2: The City of Winter Springs shall continue to abide by the guidelines of the Florida Department of Environmental Protection for air quality.

Policy 1.1.3: Continually incorporate land use and transportation strategies to reduce greenhouse gas emissions, in cooperation with the Metropolitan Planning Organization (MPO), Seminole County, and the adjacent municipalities. This shall include, but not be limited to, identification of land use densities and building intensities (critical mass) and transportation programs to promote viable multimodal transportation. Where densities and intensities are sufficient to support transit, the City shall support its implementation.

Policy 1.1.4: Continue to utilize the most fuel-efficient vehicles in their class or category, to the extent practical, as the City replaces vehicles within its fleet.

Policy 1.1.5: Participate in air quality public information programs and encourage alternative forms of transportation.

Objective 1.2: ***Groundwater Resources.*** The City shall, use best management techniques to conserve and protect groundwater resources for potable water usage.

Policy 1.2.1: Continue to adhere to the Florida Department of Environmental Protection's wellhead protection standards. (Cross Reference: See Future Land Use Element, Policy 1.2.6)

Policy 1.2.2: Enforce the installation of water conserving devices in all new construction, such as water conserving commodes, showerheads, faucets, etc., as required by the Florida Building Code. Promote the use of water conservation systems, such as, but not limited to; Florida WaterStar Program, and the use of Florida Friendly Landscape design.

Policy 1.2.3: Continue to expand the City's water reclamation system to non-residential and residential uses, which may utilize large quantities of non-potable water and shall continue efforts to expand its wastewater reuse service areas.

Policy 1.2.4: Promote the use of best management techniques such as; the use of Florida native landscaping with the prohibition of nonnative, invasive plant species, "green roofs", cisterns, water gardens, porous pavement, as appropriate which will result in the conservation of water, educational programs and publications, the use of Waterwise and Water sense practices and products, and Florida WaterStar programs which include low or no water landscaping, the use of solid waste compost, efficient irrigation systems with rain sensor and Smart Watering Application Technologies. Restrictions should also be implemented into the City's code of ordinances, especially regarding nonnative invasive species. No invasive exotic (nonnative) species should be planted and those which are encountered on property maintained by the City must be removed. (Cross Reference: See Infrastructure Element, Policy 5.2.1)

Policy 1.2.5: Reduce the City's dependence upon the Floridan aquifer through the implementation of the Water Supply Work Plan as adopted in Resolution 2022-11.

Policy 1.2.6: Review and update the Water Supply Work Plan every 5 years within 18 months after the St. John's River Water Management District approves an updated regional water supply plan, which would be the latest Central Florida Water Initiative Regional Water Supply Plan (CFWI RWSP), or as needed, including a minimum 10-year planning period to ensure that projected potable water demands are considered. (Cross Reference: See Intergovernmental Coordination Element, Policy 1.1.6)

Policy 1.2.7: To conserve potable water supplies, the City will consider adoption of regulations requiring water conservation devices in new developments and requiring low impact development (including landscape that is slow growing, drought tolerant, and water wise) for all developments, which shall encourage water conservation as well as decrease the use of potable water supplies for non- potable water uses.

Policy 1.2.8: The City shall consider innovative programs and water conservation practices and technology such as UF IFAS H2OSAV (Water Savings, Analytics & Verification) to evaluate water consumption patterns and the effectiveness of water conservation programs and devices for public and private development.

Policy: 1.2.9: The City shall assist customers to reduce their water use through outreach activities and supporting educational efforts, which shall include information regarding Florida Friendly Landscape, and the adoption of Smart Water Application Technology, whenever feasible.

Policy: 1.2.10: The City shall require new development in reclaimed water service areas

to connect to the reclaimed water network and encourage existing development to connected where feasible.

Policy 1.2.11: The City shall adjust potable water level of service standards over time to account for per-unit demand reductions resulting from conservation measures and the increased availability of reclaimed water.

Policy 1.2.12 The City shall cooperate with SJRWMD during declared water shortage emergencies by conserving water resources and assisting with enforcement of water shortage emergency declaration, orders, and plans (Rule 40C-21, F.A.C., SJRWMD water shortage plan).

Objective 1.3: ***Surface Water.*** The City shall protect surface water from all known and identifiable pollution sources.

Policy 1.3.1: Require that run-off from new developments does not directly enter natural surface waters. Maintain provisions for on-site detention and retention in the City's Code of Ordinances.

Policy 1.3.2: Identify, on an annual basis, those components of the City's drainage system that may be contributing to the overall degradation of surface water quality, and develop a priority listing for the refurbishment and/or installation required and incorporate the priorities into the Capital Improvements Schedule.

Policy 1.3.3: Protect surface water bodies through implementation of the Lake Jesup Basin Management Action Plan, the City's Total Maximum Daily Loads (TMDL) Master Plan, and the conditions of the City's National Pollutant Discharge Elimination System NPDES permit. The Total Maximum Daily Load (TMDL) is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards.

Policy 1.3.4: The City's Code of Ordinances shall include provisions for Low Impact Development (LID) practices to provide for site design, engineering, and stormwater management practices (i.e., retrofits; reduction of run-off; mitigation of flood impacts; and on-site absorption, capture, and reuse of rain water) that conserve and protect natural resource systems, reduce infrastructure costs, and mitigate potential environmental impacts. In general, the LID approach includes practices that:

- Encourage preservation of natural resources;
- Allow development in a manner that helps mitigate potential environmental impacts;
- Reduce cost of stormwater management systems;
- Use a host of management practices to reduce runoff; and
- Reduce pollutants into the environment.

Policy 1.3.5: Require that all projects include erosion and sediment control practices throughout the construction process in conformance with NPDES permit requirements and other state and local regulations; and protect areas susceptible to soil erosion and siltation after project completion by requiring seeding, sodding, or other control methods deemed effective by the City.

Policy 1.3.6: In new and redevelopment, encourage natural diversion of stormwater to recharge areas (e.g., through tree retention, bioswales, natural topographic features, etc.) rather than to surface waters to minimize the quantity, quality, and rate of stormwater flowing into surface waters, prevent environmentally destructive alterations, both qualitative and quantitative, and to ensure natural preservation and enhanced water quality.

Policy 1.3.7: Ensure that lands routinely using the application of fertilizers pesticides, herbicides and fungicides comply with the City's fertilizer ordinance, and that periodic monitoring takes place in soil and neighboring surface waters.

Policy 1.3.8: Encourage and educate residents and businesses on the importance of proper use of landscaping chemicals and best management practices application for effective conservation efforts.

Policy 1.3.9: Maintain a maintenance program for the public stormwater management system to ensure proper functioning and expected pollutant removal efficiency.

Policy 1.3.10: The City shall maintain standards for buffering and screening along surface waterbodies, as found in the Land Development Code. These standards shall include minimum planting areas or setbacks for trees, and other design standards such as the retention of ground cover, and the use of low impact development.

Policy 1.3.11 The above policies shall be applicable to Objectives 1.4 and 1.5.

Objective 1.4: ***Wetland Protection.*** Wetlands and the natural functions and values of wetlands shall be conserved and protected from activities, which alter their physical and hydrological nature. Land uses incompatible with the protection of wetlands shall be directed away from those areas. Implementation activities to ensure the protection and preservation of these areas shall be included within the Code of Ordinances.

Policy 1.4.1: Continue to protect the natural functions of wetlands through the Conservation Overlay on the Future Land Use Map and the Conservation Land Use category, as defined in the Future Land Use Element.

Policy 1.4.2: Review during the development review process with heightened scrutiny and as a priority for protection, environmental areas having regional

significance as determined by the Johns River Water Management District (SJRWMD) and Florida Department of Environmental Protection (FDEP).

Policy 1.4.3: Preserve the natural upland buffer of wetlands, consistent with the SJRWMD's restrictions which require a fifteen (15) feet minimum buffer from the edge of wetlands with an average buffer required that is no less than twenty-five (25) feet. Where a wetland is unavoidably impacted by development, the development shall be subject to the mitigation requirements of the pertinent regulatory agency.

Policy 1.4.4: Require, as needed, additional upland buffers to ensure the preservation of natural systems, and their possible use for treated effluent disposal and stormwater management systems. Such standards shall be included within the Code of Ordinances. Upland buffers should have equal protection as wetlands and use techniques such as minimum vegetation strip width, encroachment for hydrologic connection of drainage, extension of buffers, etc.

Policy 1.4.5: Require dedication (by or on behalf of the owner of the property) to the City and/or appropriate regulatory agency, a conservation easement (pursuant to Section 704.06, F.S.) for all post-development flood prone areas, preserved habitat (with agency approved management plan incorporated, if applicable for listed species), post-development upland buffers, and wetland areas (including created mitigation areas) as a limitation to future development and disturbance. These areas shall also be shown on the Future Land Use Map – as Conservation. The easement agreement shall include management requirements which help to preserve, restore, and/or maintain native ecosystems. The easement may require the periodic removal of nonnative, invasive plant material within the conservation area by the easement dedicator, to the extent practicable.

Policy 1.4.6: Incorporate existing isolated wetlands into development projects as appropriate, provided the wetlands remain protected and their natural functions are not impaired.

Policy 1.4.7: Apply the following mitigation measures if direct impact upon wetlands cannot be avoided:

- Mitigation will be allowed based upon demonstration of no net loss of wetland functions.
- Comply with the wetland protection standards of federal, state, regional, and county agencies.
- Minimize impacts through innovative design layouts.
- Compensate for impact by enhancing other degraded wetlands on-site, restore natural functions of other wetlands on-site, create new wetlands on-site, or perform off-site mitigation.

Policy 1.4.8: Encourage mitigation through restoration of degraded wetlands on-site.

Policy 1.4.9 The land development code shall provide for greater wetland protection and restoration measures and incentives for developers to incorporate wetlands into site design and prevent degradation or filling of these resources.

Objective 1.5: ***Flood Plains and Floodways.*** The City shall ensure long-range protection of functions of the remaining flood plains and floodways.

Policy 1.5.1: Protect access to floodways for stream management by requiring a drainage easement.

Policy 1.5.2: Maintain regulations against development within the flood plains and floodways in the City's Code of Ordinances to prevent flooding.

Policy 1.5.3: Require that there is no new net encroachment in the flood plain or floodways without compensating storage.

Policy 1.5.4: Require that no hazardous materials or wastes be stored within the 100-year flood plain.

Policy 1.5.5: Design new and replacement sanitary sewer systems to minimize or eliminate infiltration of floodwaters into the water supply systems and discharge from the systems into floodwaters.

Policy 1.5.6: Locate on-site waste disposal systems to avoid impairment to them or contamination from them during flooding.

Policy 1.5.7: Require new septic systems if allowed to be used under the City's sewer regulations to be located outside of the 100-year flood plain.

Objective 1.6: ***Wildlife and Listed Species Protection.*** The City shall appropriately use and protect wildlife and wildlife habitat.

Policy 1.6.1: Develop an ordinance containing provisions for the review of developments adjacent to lakes and wetlands and other natural areas for their impacts upon these natural systems.

Policy 1.6.2: Require as part of the development review process, that prior to development approval, proposed development must coordinate with all appropriate agencies and comply with the U.S. Fish and Wildlife Service and the Florida Fish and Wildlife Conservation Commission Rules as well as other applicable Federal and State laws regarding protection of endangered and threatened wildlife.

Policy 1.6.3: Protect endangered and/or threatened wildlife and environmentally sensitive areas by the following procedures:

a) Prohibit development within any established or proposed conservation or wildlife habitat easement; however, allow the transfer of development rights for the easement area.

b) Regulate the following activities in environmentally sensitive areas, or in areas with endangered and/or threatened wildlife to ensure that such areas are preserved:

1) The removal, excavation, or dredging of soil, sand, gravel, minerals, organic matter, or materials of any kind;

2) The changing of existing drainage characteristics, sedimentation patterns, flow patterns, or flood retention characteristics;

3) The disturbance of the environmentally sensitive area's water level or water table by drainage, impoundment, or other means;

4) The dumping or discharging of material, or the filling of an environmentally sensitive area with material;

5) The placing of fill or the grading or removal of material that would alter topography;

6) The destruction or removal of plant life that would alter the character of an environmentally sensitive area or wildlife habitat; and

7) The conduct of an activity that results in a significant change of water temperature, a significant change of physical or chemical characteristics of environmentally sensitive area water sources, or the introduction of pollutants.

Objective 1.7: ***Biological Diversity.*** The City shall encourage the preservation of the rich biological diversity of the plant and animal life in the area.

Policy 1.7.1: Complete an area-wide evaluation by 2025,to identify regionally environmentally significant areas that should be set aside as protected conservation lands, protected by easements or other measures.

Policy 1.7.2: Encourage with incentives, natural resource and open space protection and require sound land stewardship management practices to restore, preserve, and/or maintain native ecosystems within conservation areas.

Policy 1.7.3: Require the use of Florida native, drought tolerant landscape material in all parks and at City facilities, where applicable based upon the use of the facility. This includes any linking pathways between parks and open spaces to interconnect the ecosystems throughout the city.

Policy 1.7.4: Pursue grant funding for acquisition of properties identified as regionally ecologically significant.

Objective 1.8: ***Energy Conservation and Sustainability.*** The City shall support sustainability and encourage energy conservation in an effort to improve air quality, increase energy conservation, reduce non-renewable energy use, potable water use, and use of non-renewable or toxic materials, and to promote healthy lifestyles.

Policy 1.8.1: Encourage energy efficient land use patterns and other environmentally-friendly development practices through the Land development code (e.g. multimodal vertically integrated mixed-use development, LEED, Green Globes, Florida Green Building Coalition standards, Low Impact Development, Energy Star, WaterSense, Green Infrastructure and Florida Water Star).

Policy 1.8.2: Incorporate incentives in the City's Land Development Code and fee structure to encourage developers of subdivisions, site plans, and building plans to best use natural heating and cooling, natural light, solar energy, street lights, rainwater management, intelligent buildings/community design, as well as incorporation of the natural topography and native noninvasive vegetation.

Policy 1.8.3: Consider energy use, potential vehicle miles traveled (VMTs), multimodal options, existing infrastructure, and housing and employment options when making land use and infrastructure investment decisions and promote research and technical support to enhance the basis for decision-making concerning natural resources, sustainability practices, and resilience efforts.

Policy 1.8.4: Consider applying for Florida Green Building Coalition Local Government status.

Policy 1.8.5: Utilize sustainable practices in City operations and facilities such as recycling, purchase energy efficient, recycled, or otherwise "green" products (where available, practical and economical), energy efficient vehicles and maintenance practices.

Policy 1.8.6: Encourage community gardens in appropriate locations within existing and new residential subdivisions developments.

Policy 1.8.7: Encourage and support the development and implementation of alternative energy sources and technologies (e.g., solar electricity, rechargeable stations, renewable energy in power plants, etc.) to the extent that such projects are practical and financially feasible

Policy 1.8.8: Educate the public on daily energy conservation practices and home energy saving methods and implementation options, and encourage participation in energy programs.

Policy 1.8.9: Consider conducting a municipal operations greenhouse gas inventory and develop emissions reductions strategies and goals according to inventory results.

Policy 1.8.10: Educate and encourage residents to properly recycle and use practical methods to reduce waste and reuse materials (e.g., food scraps, fabric, cardboard, etc.)

Policy 1.8.11: When directed and scheduled by the City Commission, the City shall, through collaboration with community input, develop a sustainability plan to identify appropriate and feasible mechanisms to achieve the reduction of the City's carbon footprint, provide for alternative energy sources, promote conservation practices and other applicable strategies, measurements, goals and targets.

Policy 1.8.12: The City of Winter Springs shall coordinate with Seminole County Government and adjacent communities to identify, encourage, and implement renewable energy alternatives and other county-wide sustainability initiatives and sustainable growth patterns.

Policy 1.8.13: The City shall support increasing the number of car charging stations within the city limits as is feasible.

Objective 1.9: *Tree Protection & Canopy Expansion.* The City shall prioritize the protection of and expansion of the tree canopy in an equitable & sustainable manner.

Policy 1.9.1: Maintain Tree City USA status, making the commitment to managing and expanding public trees.

Policy 1.9.2: Require right-of-way street trees for new and redevelopment through the City's Land Development Code.

Policy 1.9.3: Incorporate Green Infrastructure techniques (e.g., rain gardens, tree boxes, bioswales, green streets and alleys, green parking, urban tree canopy, and land conservation) to reduce and treat stormwater at its source and provide environmental, social, and economic benefits through the City's Land Development Code.

Policy 1.9.4: Conserve energy through the mitigation of heat island effects by integrating strategies (e.g., green mitigation for parking space improvements and social gathering locations, tree gateways, building-integrated vegetation, shade canopies, reflective roofing) into the City's Land Development Code.

B. INTRODUCTION

1. Purpose

The purpose of the Conservation Element is to promote the conservation, use, and protection of natural resources. This Element of the Winter Springs Comprehensive Plan identifies and analyzes sources of surface and groundwater, wetlands, flood plain, air quality, valuable minerals, soil erosion, dominant vegetative and wildlife communities, listed vegetative and wildlife species, and the potential for conservation, use, and protection of these vital resources.

2. Environmental Setting

Winter Springs is located in Seminole County, in east-central Florida. The City is bordered to the north by Lake Jesup and is situated entirely within the Middle St. Johns River Drainage basin. Winter Springs possesses an abundance of natural resources including clean air; wetland and upland forests, which provide habitat for wildlife; uncontaminated groundwater, recreational opportunities, open space, and storage of floodwaters, all of which contribute to the well-being of the City and its inhabitants.

C. INVENTORY AND ANALYSIS

1. Surface Water

The City lies within three primary drainage basins served by, Gee Creek, Soldier Creek (a.k.a. Soldier's Creek), and Howell Creek, all of which extend well beyond the City's corporate limits. The Gee Creek and Soldier's Creek drainage basins are situated in the western sector of the City, while the Howell Creek drainage basin is situated in the eastern sector. Gee Creek, Howell Creek, and Soldier's Creek drain into Lake Jesup, which in turn, flows into the St. Johns River. The St. Johns River flows northward where it enters the Atlantic Ocean. These primary drainage basins are depicted in Map IV-E-2 of the Drainage Element of this Comprehensive Plan. The City's major water features are depicted in Map I-5 of the Future Land Use Element.

In 2007, Seminole County and its municipalities approved an interlocal agreement to significantly streamline intergovernmental cooperation and funding opportunities to address the issue of Total Maximum Daily Load (TMDL) for impaired water bodies without creating a new entity or superseding the authority of individual jurisdictions. TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards. A Basin Management Action Plan (BMAP) was completed for Lake Jesup in 2010 and with subsequent progress reports and amendments. A BMAP sets to accomplish reducing the pollutants in the lake to achieve water quality standards set by DEP and will result in improving its value and vitality as a natural resource and recreational area.

Information from Seminole County concerning water quality for Gee Creek, Howell Creek, and Soldier's Creek can be found using the links below:

- Howell Creek water quality and impairment status
- www.seminole.wateratlas.usf.edu/waterbodies/rivers/1009/

- Gee Creek water quality and impairment status
- www.seminole.wateratlas.usf.edu/waterbodies/rivers/1008/
- Soldiers creek water quality and impairment status
- www.seminole.wateratlas.usf.edu/waterbodies/rivers/1024/

The Lake Jesup BMAP (story map), along with a link to the most recent BMAP amendment can be found here:

fdep.maps.arcgis.com/apps/MapSeries/index.html?appid=d1d823f6476846c590ab792ab60adc24

2. Wetlands

Wetlands are defined as transitional areas between the open waters of streams, lakes and the adjacent uplands. They are characterized by vegetation and animal life that is uniquely adapted to the natural fluctuations of wet and dry conditions. Wetlands provide many important functions such as providing vital fish and wildlife habitats, and acting as storage areas for excess surface water. They also improve water quality by performing the same function as a settling pond. Impurities enter the wetland and are filtered through the vegetation. As the water travels through the wetland, toxins and nutrients are removed, allowing the filtered clean water to exit the wetland. This protects the rivers from overloading with nutrients. In addition, the soil is stabilized which, in turn, prevents erosion. However, much of this natural, ordered system of surface water purification is quickly disappearing due to urban encroachment.

A fair amount of wetland habitat still exists in the Winter Springs area and is scattered throughout the City. Though most of this wetland habitat is found along the shores of Lake Jesup, a significant portion extends into the center of the City. The majority of the City's wetlands are of the Palustrine nature. A Palustrine system includes any nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, and all such wetlands that occur in tidal areas where salinity due to ocean derived salts is below 0.05%. In addition, diminutive areas of Lacustrine wetland can be found along Lake Jesup's southern shore. A Lacustrine wetland is, by definition, lake-associated and may include freshwater marshes, aquatic beds, and lakeshores. The Palustrine wetlands within the City consist of: hydric hammocks and hardwood swamps, with small areas of cypress, bayhead, and wet prairie, while the minute section of Lacustrine wetland consists of water and shallow marsh. Map I-6 located in the Future Land Use Element depicts wetlands within the Winter Springs area, while wetland vegetative cover is represented on Map I-7 also located in the Future Land Use Element.

3. Flood Plain

The City participates in the National Flood Insurance Program (NFIP) administered by the Federal Emergency Management Agency (FEMA).

The 100-year flood plain in Winter Springs is predominately limited to the shorelines adjacent to Lake Jesup, Little Lake Howell, Lake Talmo, and the riverine flood plain of

Soldier's Creek, Gee Creek, Bear Creek, and Howell Creek. Policies are included to enable the long-range protection of the City's flood plain areas.

Encroachment on flood-prone areas can occur as a result of artificial fill associated with development activity. Encroachment takes away the floodwater holding capacity of an area, resulting in an increase in flood hazards beyond existing flood-prone areas. In order to ensure public health and safety and minimize flood hazard to public and private property, it is recommended that net encroachment within the flood plain be prohibited.

According to the City's Code of Ordinances, a development permit is required before construction or development begins. When new construction and substantial improvements do occur in areas of special flood hazards, they shall be constructed with materials and utility equipment resistant to flood damage and shall be constructed using methods and practices that minimize flood damage. Additional requirements require a minimum elevation above the flood plain for the lowest floor elevation, as well as electrical, heating, ventilation, plumbing, air conditioning equipment, and other service facilities.

Hazardous materials can be dangerous when located in flood prone areas, as floodwaters can diffuse spills to surface waters and aquatic populations. Therefore, policies require that no hazardous materials or wastes be stored within the 100-year flood plain. In addition, new and replacement sanitary sewer systems are required to be designed to minimize or eliminate infiltration of floodwaters into the water supply systems and discharge from the systems into floodwaters. On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding. No new septic tanks can be located within the 100-year flood plain, as this can contribute to surface water quality problems. Existing septic systems within the flood plain should be removed and connection made to the City's sanitary sewer service, when possible.

Special flood hazard identified by the Federal Emergency Management Agency (FEMA) are as follows[1]:

Zone A:
Zone A is part of the special flood hazard area and the flood insurance rate zone that corresponds to the 1-percent annual chance flood plains that are determined in the Flood Insurance Study by approximate methods of analysis. Because detailed hydraulic analyses are not performed for such areas, no Base Flood Elevations or depths are shown within this zone. Mandatory flood insurance purchase requirements apply.

Zone AE and A1-A30:
Zones AE is part of the special flood hazard area and are the flood insurance rate zones that correspond to the 1-percent annual chance flood plains that are determined in the Flood Insurance Study by detailed methods of analysis. In most instances, Base Flood Elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone. Mandatory flood insurance purchase requirements apply.

Zone AH:
Zone AH is part of the special flood hazard area and the flood insurance rate zone that corresponds to the areas of 1-percent annual chance shallow flooding with a constant water-surface elevation (usually areas of ponding) where average depths are between 1 and 3 feet. The Base Flood Elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone. Mandatory flood insurance purchase

requirements apply.

Zones B, C, and X:
Zones B, C, and X are the flood insurance rate zones that correspond to areas outside the 1-percent annual chance flood plain, areas of 1-percent annual chance sheet flow flooding where average depths are less than 1 foot, areas of 1-percent annual chance stream flooding where the contributing drainage area is less than 1 square mile, or areas protected from the 1-percent annual chance flood by levees. No Base Flood Elevations or depths are shown within this zone. Insurance purchase is not required in these zones.

4. Air Quality

The City has a very limited amount of air pollution. This can be attributed to the minimal existence of air pollution sources found within the City. FDEP's Air Pollution Inventory System monitors point sources of air pollution, which are stationary and usually industrial; and area sources, which are combined emissions of many small stationary sources in an area. According to the FDEP, Winter Springs has three active point sources, in proximity to Winter Springs, but not under the City's jurisdiction. These are Preferred Materials, Inc. located on S.R. 419 which manufactures asphalt, Premix Marbletite, which manufactures cement products and is located in a county enclave on Old Sanford Oviedo Road, and Maschmeyer Concrete Co. of Florida, Inc. located on Ronald Regan Blvd in Casselberry . There are four active area sources which include dry cleaning operations and a crematorium. The locations of these point and area sources closest to the City are identified in Map V-I. An inventory of each active point and area air pollution source is provided in Table V-1.

Table V - 1: Inventory of Permitted Point and Area Sources of Air Pollution

Facility Name	AIRS ID Number	Facility Address	Jurisdiction
Point Sources			
Preferred Materials, Inc.	1170019	655 SR 419	Seminole County
Premix Marbletite	117037	325 Old Sanford Oviedo Rd.	Seminole County
Maschmeyer Concrete Co. of Florida, Inc.	1170004	1601 S. Ronald Reagan Blvd.	City of Casselberry
Area Sources			
Star Brite Cleaners	1170066	1301 West SR 434	City of Winter Springs
Red Bug Dry Cleaners	1170073	5275 Red Bug Lake Rd*	Seminole County
Classic Touch Cleaners	1170360	180 West SR 434	City of Winter Springs
Compassionate Cremations, Inc.	1170414	1255 Belle Ave.	City of Winter Springs

*Satellite location for pick-up and delivery in the Winter Springs Town Center Source: FDEP Orlando Air Resources Division, July 2019

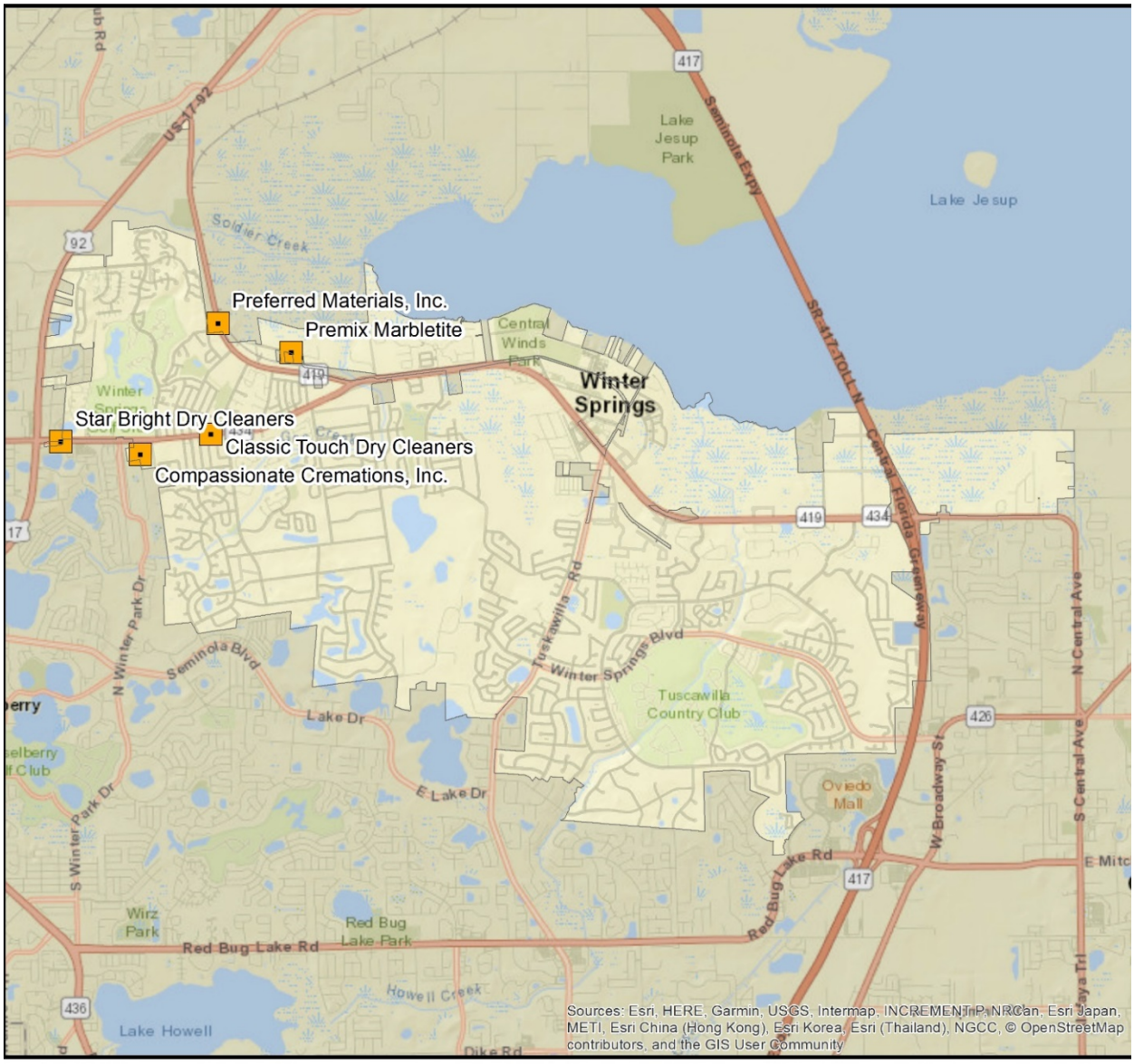
The quality of ambient air, which is the outside air we breathe, is monitored by the FDEP. Currently, there are no ambient air monitoring stations in Winter Springs, but there is one in Seminole County located at Seminole State College of Florida. This station (site) is FDEP maintained and includes one ozone, one coarse particulate, and one set of fine particulate monitors. Fine particulates or PM2.5 are particles which are 2.5 micrometers in diameter or less. Coarse particulates or PM10 are particles greater than 2.5, but less than or equal to 10 micrometers in diameter. At the present, FDEP does not conduct ambient air monitoring for Carbon Monoxide, Nitrogen Dioxide, or Sulfur in Seminole County. These pollutants are likely present in Winter Springs, but well below the National Ambient Air Quality Standards, according to the FDEP. While there is no ambient monitoring for Lead, it is practically nonexistent in Florida. An assessment of these pollutants is provided below.

a. Carbon Monoxide

Carbon monoxide is emitted by motor vehicle exhaust. Exhaust emissions from automobiles pose a threat of increased carbon monoxide emissions. However, existing traffic patterns within the City are such that large concentrations of traffic seldom accumulate for long periods of time. This helps to negate the possibility of large concentrations of carbon monoxide from forming.

Map V - 1: Monitored Air Pollutant Sources

Permitted Air Pollutant Sources within Winter Springs
City of Winter Springs



Source: FFDEP Orlando Air Resources Division, July 2019

Map Print Date: 7/2019

b. Lead

While lead is found naturally in the environment, it is the man-made lead which is most prevalent. Legislation from the U.S. Environmental Protection Agency (EPA) has reduced the amount of lead allowed in gasoline to the point that the maximum allowable level of lead in gasoline stands at 0.1 grams per gallon. According to the FDEP, lead as an air pollutant is practically nonexistent in the State of Florida except in areas that have lead smelters or process batteries. Therefore, Winter Springs should face no substantial problems with lead.

c. Nitrogen Dioxide

The threat of nitrogen dioxide forming in heavy concentrations in Winter Springs is relatively low due to the traffic patterns of the city, and also to environmental legislation. The prime contributor of nitrogen dioxide to the atmosphere is the high temperature fuel combustion engine. Under legislation from the Federal Clean Air Act, new model cars are required to be equipped with catalytic converters. These converters act as a filter of car exhaust, thereby helping to prevent the further proliferation of nitrogen dioxide. Mandates for clean fuels also contributed to reduction in nitrogen dioxide formation.

d. Ozone

On March 12, 2008, the U.S. Environmental Protection Agency EPA changed the National Ambient Air Quality Standard (NAAQS) for the pollutant ozone (O_3), the principal component of smog. The primary (health-protective) standard was changed from 0.08 parts per million (ppm) to 0.075 ppm. The secondary (public welfare-protective) standard was also set at 0.075 ppm. Compliance with the standards is based on the three-year average of the annual fourth highest maximum daily 8-hour concentration. With these new standards Seminole County is compliant; however, it shares the same Metropolitan Statistical Area (MSA)with Orange County, which currently exceeds the new 0.075 ppm standard.

Ozone is considered to be a problem for highly urbanized areas. The City, while not highly urbanized, could still be affected by ozone in the future through the growth of the Orlando area as indicated by Orange County's current ozone exceedance. Ozone is borne in the air and formed through reactions between nitrogen oxides and volatile organic compounds. The worst ozone conditions are hot, calm winded days. During this type of weather, the atmosphere becomes extremely heated causing increased reactions and levels of ozone to grow. Without wind the ozone remains in a concentrated area causing further pollution problems.

e. Sulfur Dioxide

Human made sources of sulfur dioxide represent about one third (1/3) of all measurable amounts. Most is emitted through coal fired or oil- fired electric generation plants. The City's power plant, Duke Energy Florida, Inc., though not within corporate City limits, is a fossil-fueled plant that uses oil, coal, or gas in the generation of electricity. Sulfur dioxide is also generated in small quantities by combustible engines. However, as stated earlier, negligible levels produced by automobiles are present in Winter Springs.

f. Particulate Matter (PM_{10} and $PM_{2.5}$)

There are two manmade classifications of particulate matter. They are fine (PM_{10}) and coarse ($PM_{2.5}$). Sources of PM_{10} include motor vehicle emissions, power generation, combustible engines, and sources produced from some industrial activities. Sources of $PM_{2.5}$ include dirt from unpaved streets, dry topsoil from agricultural fields, and dust from construction or mining. Human made emissions, which contribute to the overall levels of particulate matter, are very minimal in relation to the naturally occurring matter. However, fine particles are most closely associated with health effects. Human made sources of this pollutant are now being controlled by new technologies, such as inertial separators and wet collection devices and other air pollution control devices and processes.

g. Overall Ambient Air Quality

The overall air quality within Winter Springs is expected to remain good in the future. Fortunately, more stringent standards imposed by the EPA and new technologies are such that the generation of severe pollution problems has been curbed considerably. The foremost concern for Winter Springs will be the encroachment of the Orlando Urban Area, and those pollution problems associated with highly urbanized areas.

5. Hazardous Waste

The City is fortunate to have no hazardous waste sites within corporate limits; likewise, there are no hazardous waste cleanup sites in the City. However, there are nine documented sources of hazardous waste generators in Seminole County, many of which are also hazardous waste cleanup sites. Monitoring and overseeing cleanup services are operated by the Seminole County Environmental Services Department with coordinated efforts by Seminole County Fire Department, the State of Florida, and various Federal agencies who monitor the process as required by law. For these services, the hazardous waste generator would be charged as required by law, or a disaster declaration would be requested and funding could be available through State and Federal agencies. The FDEP keeps a listing of all hazardous materials, their amounts, storage methods and disposal methods for small industrial operations within the County. Locally, the Seminole County Environmental Services Department conducts compliance assistance visits (CAVs) at businesses and government facilities that potentially generate hazardous waste or other regulated wastes, investigates citizen complaints related to environmental issues involving either businesses or private households, and responds to major spills and releases to ensure they are cleaned up and remediated properly. Seminole County conducts annual site visits as required by the State of Florida for those businesses that meet or exceed the threshold planning quantity of any Extremely Hazardous Substance as required by Section 302 of the Emergency Planning and Community-Right-to-Know Act (EPCRA). In addition, the owner/occupant is required to submit documentation to the State and the Local Emergency Planning Committee via E-Plan (https://erplan.net/eplan/home.htm) on the Hazardous Materials at or above the required thresholds. This information is sent to the applicable local fire departments. Any hazardous waste generator that meets the hazardous waste threshold as established by the State Emergency Response

Commission is required by law to notify the Seminole County Environmental Compliance, Assistance and Pollution Prevention Program (ECAP3) Team. ECAP3 exists to protect the citizens, employees, environment and County Landfill from exposure or contamination due to improper management and disposal of hazardous waste or other regulated waste. Further information on programs for disposal of hazardous waste by the Seminole County Environmental Services Department is included in the Infrastructure Element, Solid Waste Sub-Element.

6. Soil Erosion

According to the U.S. Department of Agriculture (USDA) Soil Conservation Service, there are no major soil erosion problems in the Winter Springs area. However, it should be noted that sudden impairment to watersheds occurred as a result of the 2004 hurricane activity and 2007 tornado activity and aid for the installation of emergency watershed protection measures to relieve hazards and damages to the watershed were provided to the City by the USDA Natural Resources Conservation Service (NRCS). With heavy rain and strong winds from Hurricane Matthew, Hurricane Irma, and Hurricane Ian, Gee Creek and Howell Creek experienced intense flooding and hence erosion. Along Gee Creek, 2 homes and North Winter Park Drive were threatened to wash away due to the erosion and along Sheoah Creek, a condominium was also vulnerable to erosion and flooding. A 1-million-dollar project was initiated to protect these banks from further erosion using an Emergency Watershed Protection Funding from the Department of Agriculture in the form of a Natural Resources Conservation Services grant that funded 75% of the construction cost. The other portion was paid for the Stormwater Utility Fee residents contribute to through their stormwater bill. Erosion problems in Howell Creek may also be due to the land alteration, which has resulted in unstable stream side-slopes and loss of flood plain vegetation, which may result in sedimentation and water quality problems. Erosion and sedimentation problems are predominately due to wind and stormwater runoff over sandy, uncovered soils during construction activity or other clearing activities. Bank erosion in Howell Creek has been noted in residential areas and has been exacerbated by recent hurricane activity as well as by normal daily waterflow in the creek itself.

In order to minimize erosion and sedimentation associated with development activities, the USDA Soil Conservation Service recommends that all developers be required to utilize best management techniques for erosion control. Landscaping plans are recommended to be required for all industrial, commercial, and multi-family residential development. It is also recommended that all new development, other than infill of existing single-family residential lots that are served by regional systems, should include methods of stormwater retention which ensure post-development water run-off rates do not exceed pre-development runoff rates.

7. Soils and Vegetative Communities

Soils provide several resource functions including drainage, stormwater filtration, water storage, aquifer recharge, and ground stabilization. Map I-9 of the Future Land Use Element depicts soil types within the City.

According to the data provided by United States Department of Agriculture, Soil Conservation Service, the dominant soils in the developed areas within the City consist of Urban Land-Astatula-Apopka and Urban Land-Tavares-Millhopper soils which are characterized by being well-drained soils that are sandy throughout and contain a loamy

sub-soil at a depth of 40 inches or more and are generally found in upland areas. Only a few areas of native vegetation exist in these soil types since they are well suited for the development of houses, large buildings, shopping centers, golf courses, and other urban uses. The dominant native vegetative communities found in these soil types consist of bluejack oak, live oak, and turkey oak. The understory includes chalky bluestem, Indian grass, panicum, pineland threeawn, and annual forbs.

Soils located in the undeveloped areas of the City including flatwoods, sloughs and depressions include the Myakka-Eau Gallie-Urban Land and St. Johns-Malabar-Wabasso soil types. In the flood plain, depressions, creeks and swamps the Nittaw-Felda-Floridana and Pompano-Nittaw-Basinger soil types are found. These soil types are all poorly drained and support vegetation such as slash pine, saw palmetto, cypress, and other water tolerant vegetation.

8. Dominant Animal Species within the Winter Springs Area

The Florida Fish and Wildlife Conservation Commission provides the data for Map V-2 Florida Strategic Habitat Conservation Areas (SHCA) obtained from Florida Natural Areas Inventory (FNAI). In 2009, the SHCA underwent a significant revision based on a new suite of species, updated datasets, new datasets not available when the original analysis was conducted, and improved analytical techniques. A population risk assessment was conducted for 62 focal vertebrate species, of which 34 were shown to have additional protection needs in Florida. The SHCA identify important remaining habitat conservation needs on private lands for these 34 terrestrial vertebrates. The SHCA are prioritized based on global and state natural heritage ranks as shown in Map V-2 for the vicinity of Winter springs. Areas in the City primarily consist of Priority 3 and Priority 5 with some Priority 2 east of the 417 and in the northwest area boarding the City. The Lake Jesup Conservation Area Land Management Plan, notes that the site provides habitat for both fish and wildlife, including species such as wood stork, bald eagle, Florida sandhill crane and the American alligator. The FNAI is the primary source for information on Florida's conservation lands. National parks, state forests, wildlife management areas, local, and private preserves are examples of the managed areas included in the Florida Managed Areas.

9. Listed Plant and Animal Species within the Winter Springs Area

July 2019, ecological reports by the Florida Natural Areas Inventory and the Biodiversity Matrix were used to identify listed vegetative and wildlife species which are likely to exist in the Winter Springs area, due to the existence of suitable habitat. While the database is the most comprehensive source of information available on the locations of rare species and other significant ecological resources, it is not always based on site-specific surveys. The report notes that 'based on available information the area appears to be located on or very near a significant region of scrub habitat, a natural community in decline that provides important habitat for several rare species within a small area.'

The two tables below indicate threatened and endangered species in the Winter Springs area. Table V-2 shows those species with documented occurrences and notes the state and federal status. Table V-3 lists species and natural communities likely to occur in the site based on suitable habitat and/or known occurrences in the vicinity, as well as species that have the potential to occur based on the known or predicted range of the species. While a number of animal species have the potential of occurrence, these have not all

been confirmed by direct observation.

Table V - 2: Listed Animal and Plant Species Documented in or Near Winter Springs, 2019.

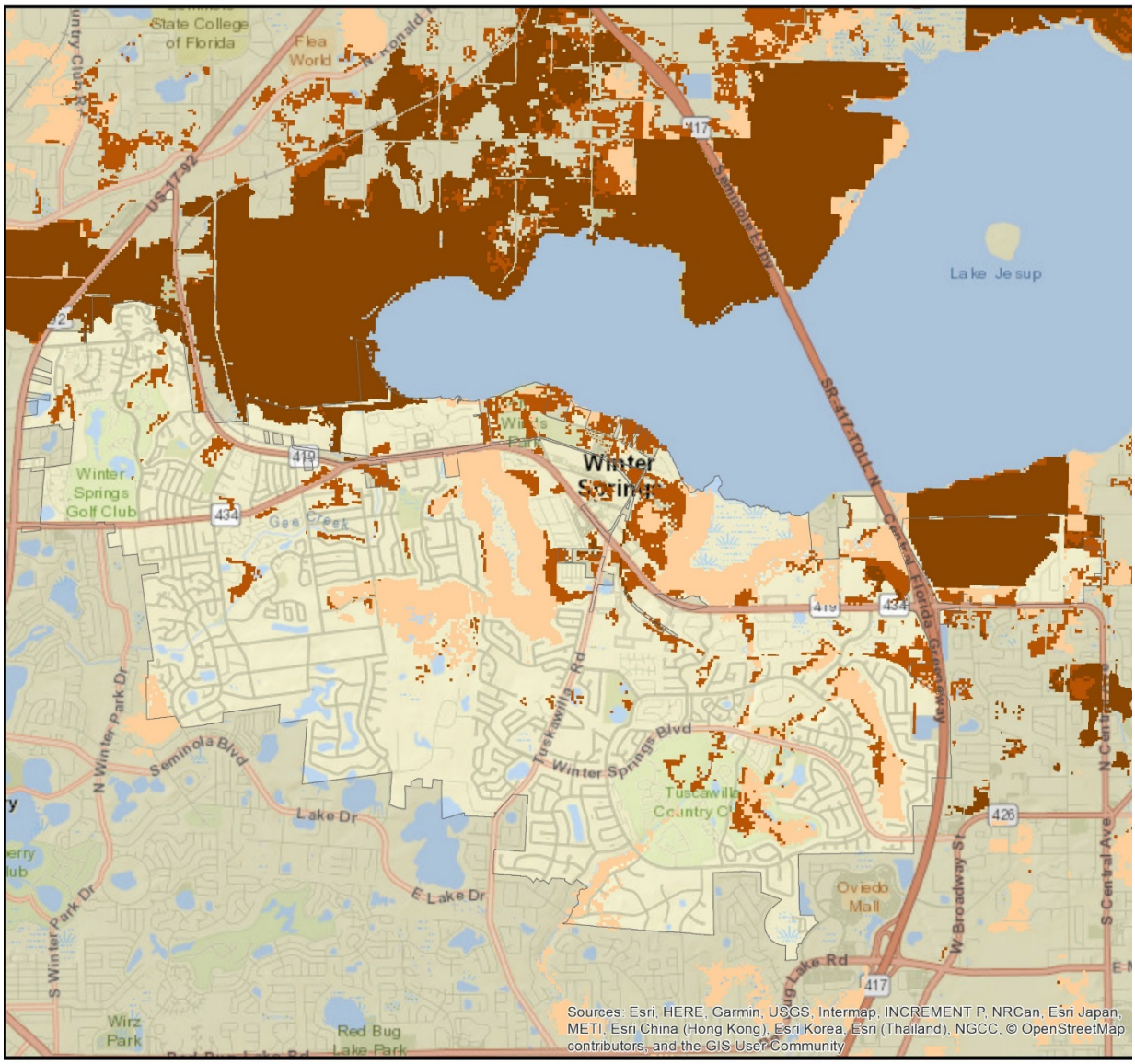
Species Type and Common Name	Florida Fish and Wildlife Conservation Commission	United States Fish and Wildlife Services
Reptiles		
Eastern Indigo Snake	Threatened	Threatened
Gopher Tortoise	Threatened	
Florida Pine Snake	Threatened	
Species Type and Common Name	**Florida Department of Agriculture**	**United States Fish and Wildlife Services**
Plants		
Hay Scented Fern	Endangered	
Florida Willow	Endangered	
Okeechobee Gourd	Endangered	Endangered

Source: FNAI Element Occurrences and Biodiversity Matrix, July 22, 2019.

Map V-3 identifies the element occurrences of animals and plants identified in the Florida Natural Areas Inventory, as well as federal, state, local and private conservation lands and rare species habitat. Map V-4 identifies species occurrences within the vicinity of Winter Springs including wading bird rookeries (1999), , black bear data and wildlife observations of listed species (in 2015). These elements indicate the documented presence of these animals in the area. Some species are not included in site specific listings by the Fish and Wildlife Research Institute (FWRI) staff, and only those reported are entered into their database. Map V-5 is a species occurrence map for the black bear, as those data points overwhelmed the other species data points. The City has experienced several bear nuisance calls between 1980 and 2018 as indicated by the red triangles in Map V-5.

Map V - 2: Strategic Habitat Conservation Areas

Strategic Habitat Conservation Areas
City of Winter Springs



Winter Springs City Limits
Priority 1- HIGHEST
Priority 2
Priority 3
Priority 4
Priority 5

0 0.35 0.7 1.4 2.1 Miles

N

Source: Florida Fish and Wildlife Conservation Commission-FNAI-2019

Map Print Date: 7/2019

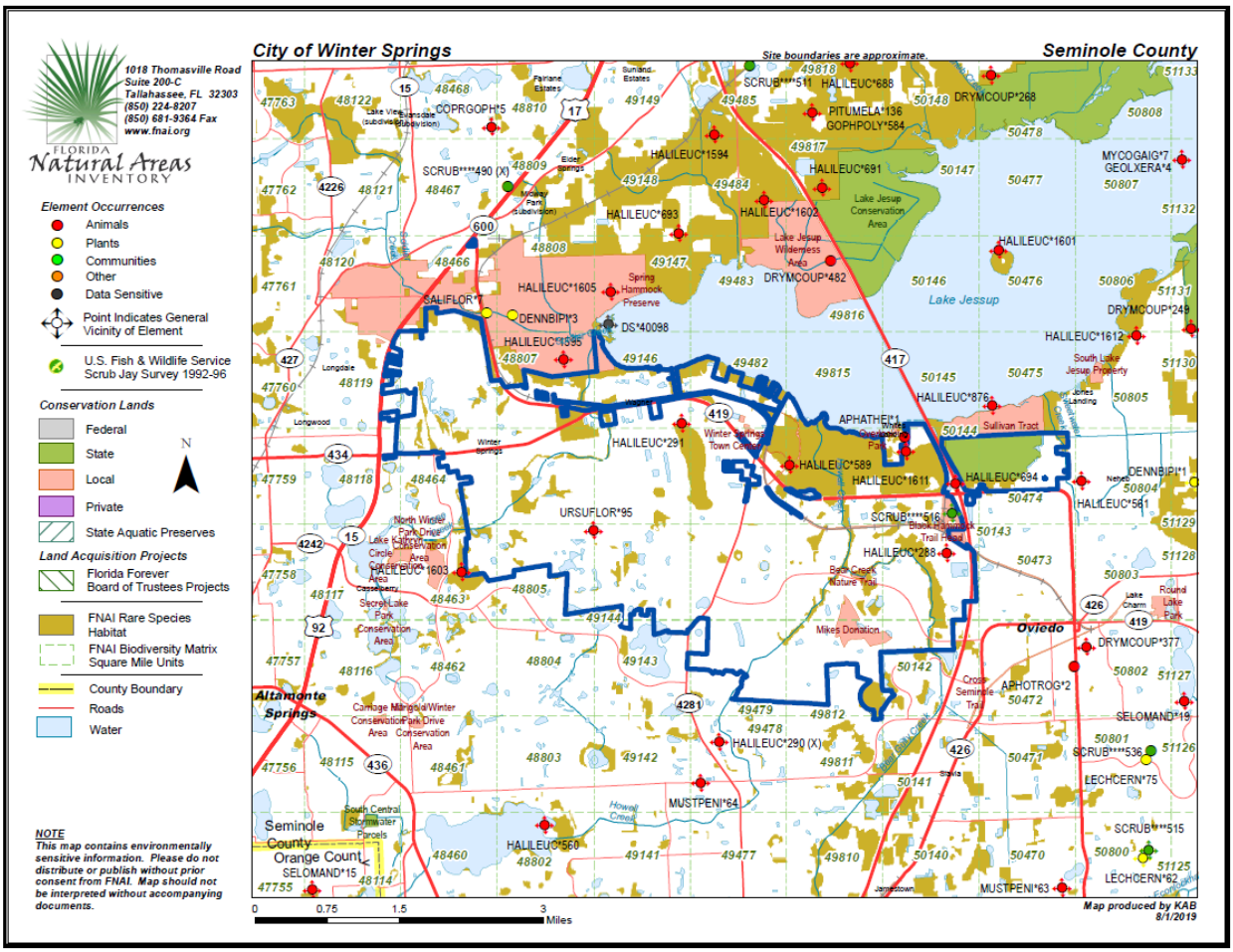
Table V - 3: Listed Plant and Animal Species Occurrence Likely or Potential in or Near Winter Springs, 2019.

Species Type and Common Name	Occurrence: Likely / Potential	Florida Fish and Wildlife Conservation Commission	United States Fish and Wildlife Services
Birds			
Wood Stork	Likely	Threatened	Threatened
Florida Scrub-jay	Potential	Threatened	Threatened
Florida Burrowing Owl	Potential	Threatened	
Florida Sandhill Crane	Potential	Threatened	
Mammals			
Florida Mouse	Potential* *Species has been observed in the City according to	Species of Special Concern	
Sherman's Fox Squirrel	Potential	Species of Special Concern	
West Indian Manatee	Potential	Threatened	Threatened
Fish			
Bluenose Shiner	Potential	Threatened	
Plants			
Carter's Warea	Potential City staff notes that the range for this plant is likely not this far east.	Endangered	Endangered
Clasping Warea	Potential	Endangered	Endangered
Many-flowered Grass-pink	Potential	Threatened	
Chapman's Sedge	Potential	Threatened	
Piedmont Jointgrass	Potential	Threatened	

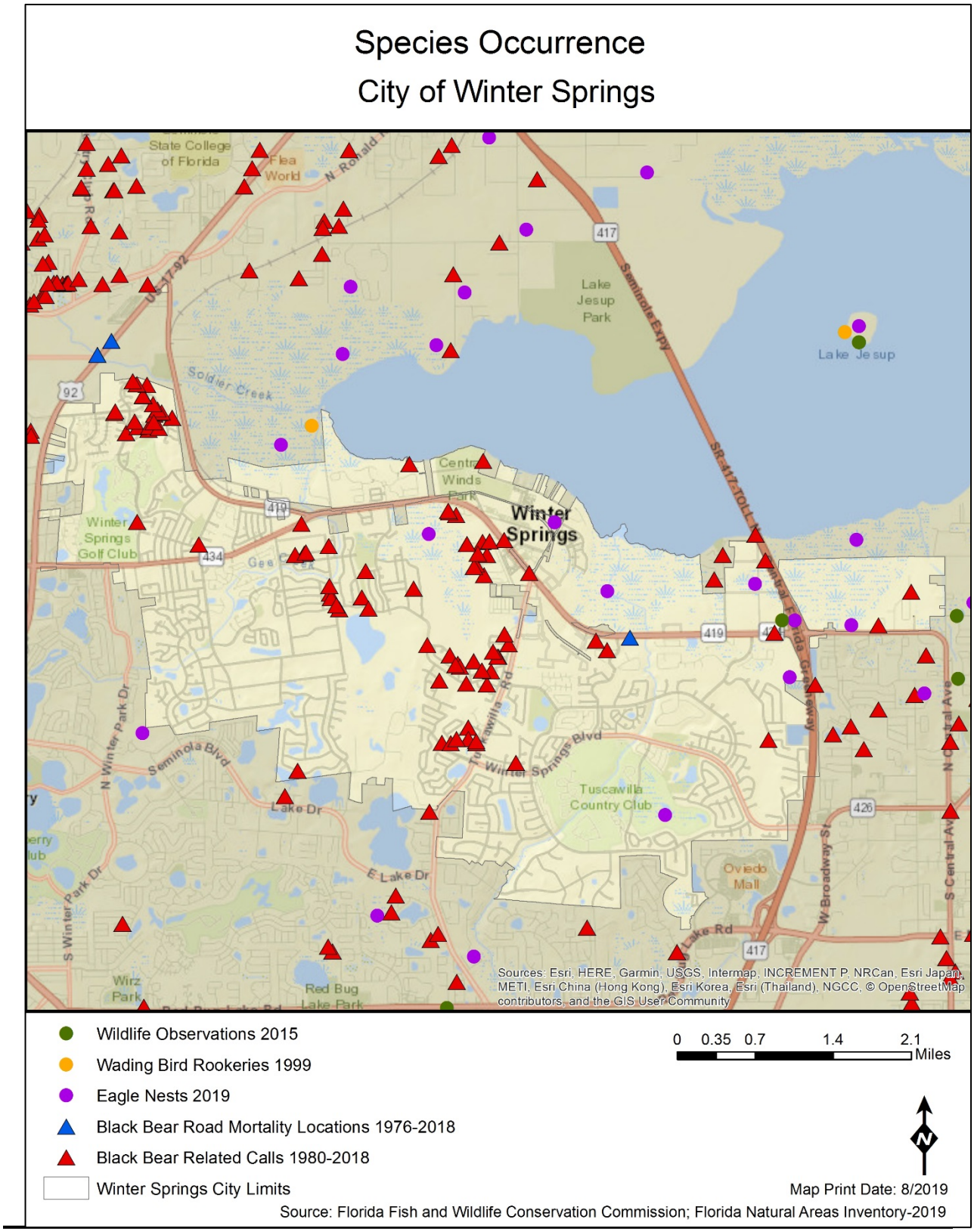
Hartwrightia	Potential	Threatened	
Nodding Pinweed	Potential	Threatened	
Florida Beargrass	Potential	Threatened	
Giant Orchid	Potential	Threatened	
Large-flowered Rosemary	Potential	Threatened	
Sand Butterfly Pea	Potential	Endangered	
Beautiful Pawpaw	Potential	Endangered	Endangered
Star Anise	Potential	Endangered	
Florida Spiny-pod	Potential	Endangered	
Celestial Lily	Potential	Endangered	
Cutthroat Grass	Potential	Endangered	
Ruguel's Pawpaw	Potential	Endangered	Endangered

Source: FNAI Florida Biodiversity Matrix, July 22, 2019; City of Winter Springs, July, 2019.

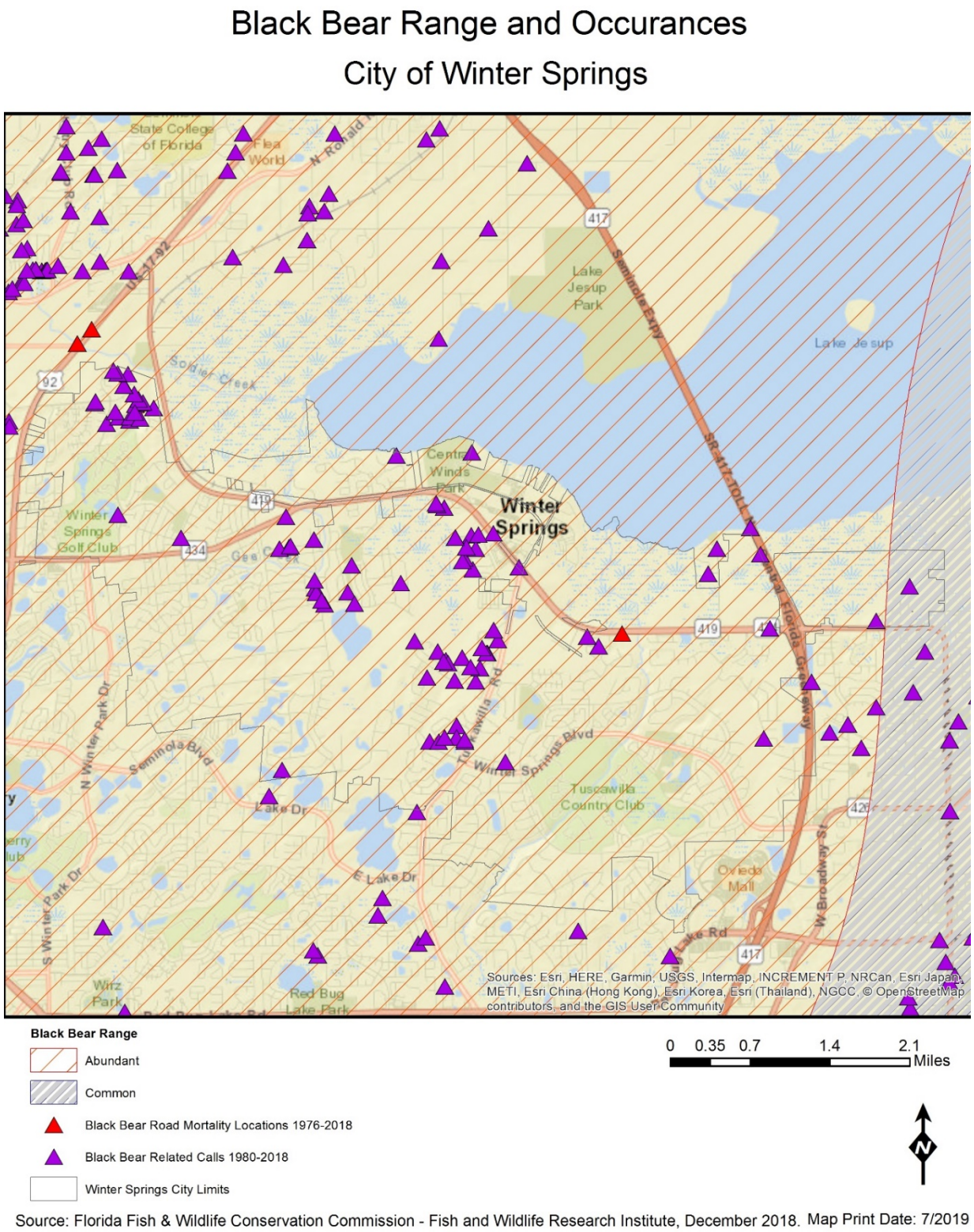
Map V - 3: FNAI Species Occurrences and Conservation Lands, 2019



Map V - 4: Various Species Occurrences, FNAI Inventory Areas, and Wildlife Observations, 2019



Map V - 5: Black Bear Occurrences



Source: Florida Fish & Wildlife Conservation Commission - Fish and Wildlife Research Institute, December 2018. Map Print Date: 7/2019

10. Commercial, Recreation and Conservation Uses of Natural Resources

a. Commercial

No large-scale operations for the extraction of commercially valuable minerals take place within Winter Springs. The same is true for other natural resources, which are susceptible to exploitation by industries such as forestry and commercial fishing.

The primary commercial exploitation of natural resources is development. Through land clearing, vast amounts of upland vegetative communities have been destroyed or altered. However, these upland plant communities are better suited to development than wetland areas, and do not pose as many governmental regulatory problems for developers as wetland areas do.

Another minor commercial use of natural resources within the Winter Springs area is that of the numerous fishing guides located within the Seminole County area. However, sport fishing is a minor draw on natural resources of the lakes in the Winter Springs area, and it can be noted that fishing enthusiasts rely on recreational fishing methods for their catch, rather than netting or other commercial means. No large-scale commercial operations dependent upon natural resources are anticipated to locate within Winter Springs at this time.

b. Recreation

A large portion of the recreational and leisure activities of Winter Springs' residents revolves around the Lake Jesup lakefront area. Central Winds Park, the City's largest developed community park is located on Lake Jesup and provides abundant opportunities for resource-based activities. Amenities in these parks amenities include playgrounds, sand volleyball courts, a large multi-purpose field, numerous baseball and softball fields, lacrosse fields, and a fishing area. A passive area located on the west side of the park includes pavilions, picnic grills, horseshoes, and a nature trail. A pickle ball complex is also currently being designed and constructed. Wildlife known to inhabit the lakefront area includes American alligators and bald eagles, which can be observed from the park. In addition, Bear Creek Nature Trail, which parallels Bear Creek, provides a pleasant hiking trail which utilizes the creek and the natural vegetation for passive public recreation As well as the nature trail, this park is a popular picnicking location for Winter Springs' residents. Cross- Seminole Trail, a heavily used trail is discussed in further detail in the Recreation and Open Space Element. This 6-mile link of the regional trail network extends from Layer Elementary School to the Oviedo City Limits and connects many of the City's parks and schools with the Winter Springs Town Center and the regional trail network. The City has numerous parks and recreational areas which are detailed in the Recreation and Open Space Element.

c. Conservation

Conservation uses are activities or conditions within land areas designated for the purpose of conserving or protecting natural resources or environmental quality, including areas designated for such purposes as flood control, protection of quality or quantity of groundwater or surface water, flood plain management, commercially or recreationally valuable fish and shellfish, or protection of vegetative communities or wildlife habitats. Lake Jesup is one area, in particular, that should be preserved from the damaging effects of urbanization.

Lake Jesup is a hydrologically complex system with a large urbanized watershed. Not only does the land surrounding Lake Jesup provide public recreational opportunities, but the marshes that are a part of those lands help to maintain animal habitat, improve water quality, and also allow for the storage of large volumes of water during rainy periods, thus providing flood protection for surrounding communities. However, decades of wastewater effluent discharges directly into the lake, stormwater discharges from surrounding tributaries, the construction of berms that segregated the lake from parts of its flood plain, and a causeway that reduced the lake's connection with the St. Johns River have all taken a toll on the sensitive ecosystem. The discharges have left a legacy of algae, frequent fish kills, and a thick layer of muck more than 9 1/2 feet deep. The berm constructions further aggravated the problem by inhibiting the lake's ability to cleanse itself.

The Florida Department of Environmental Protection (FDEP), Florida Fish and Wildlife Conservation Commission (FWC), and St. John's River Water Management District (SJRWMD) worked together and endorsed implementation of strategies to address the excessive external nutrient loading and in-lake nutrient concentration components. The 2008, Lake Jesup Interagency Restoration Strategy outlines a strategy designed to meet restoration goals, provides a timetable for implementation, specifies agency responsibilities, and identifies specific restoration milestones to be used to trigger implementation of additional work as necessary. From this Strategy, there were several Basin Management Action Plans (BMAP) was completed for Lake Jesup in 2010 and progress reports of the BMAP from 2011-2015. A BMAP sets to accomplish reducing the pollutants in the lake to achieve water quality standards set by DEP and result in improving its value and vitality as a natural resource and recreational area. To see original 2010 BMAP and the amendment go to:

https://floridadep.gov/dear/water-quality-restoration/content/basin-management-action-plans-bmaps

d. Protection of Ground Water

The City draws its public supply of water from the Floridan aquifer. The City's most effective aquifer recharge areas are generally high, dry uplands with permeable soils and poor surface drainage. These are areas that are typically well suited for land development. Within the Winter Springs area, the Floridan aquifer receives moderate recharge in the central portion of the City and considerably higher recharge in the southwest portion of the City. As the upper zone is recharged, some leakage occurs, replenishing the lower zone as well. A map detailing the areas of greatest recharge is included in the Aquifer Recharge

Element. Great care should be taken to protect areas of groundwater recharge since development can compromise water quality. The City has three interconnected water treatment plants and eight public water wells, which supply the entire City. The potential for hazardous waste or pollutant contamination of the wells is greatly reduced by the fact that they are located within residential areas. To ensure that wellheads are exempt from contamination, the City adheres to all FDEP standards pertaining to wellhead protection. At the present, the City is not aware of any risk of contamination from hazardous waste or other groundwater pollutants.

11. Potential for Conservation, Use or Protection of Natural Resources

a. Conservation

The wetlands, surface water, ground water, and other natural resources which have been detailed within this Element are all worthy of being conserved. The future existence and integrity of these resources depends on the actions we, as citizens, take today. To assist in the conservation of natural resources, the City's Code of Ordinances strictly govern development. Specifically, wetlands should be protected through mitigation and transfers of density within a site from wetland areas to upland areas and, surface waters should be protected through drainage enhancements as identified within the Drainage Sub-Element of this Plan. An estimated 50 percent of the potable water supply is used for irrigation purposes. Realizing this, the City operates a water reclamation system with 1,808 residential customers, one golf course, the City'sparks, and public rights of way. Voluntary residential and commercial water conservation will be achieved through the City's participation in water conservation efforts of the St. Johns River Water Management District. These efforts include offering irrigation audits, monitoring and replacing water meters that aren't functioning properly, providing brochures kept in the City's public building and at the City's Special Events, notices on water bills, and expansion of the reclaimed water system. The City's Code of Ordinances will require the installation of water- saving plumbing devices including low-flow toilets, showerheads, and faucets within new developments.

b. Use

The uses of natural resources, whether for commercial or recreational purposes have been discussed previously within this Element. The Code of Ordinances should determine the extent to which natural resources may be used.

c. Protection

Protection of existing natural resources is important. Three areas or resources merit special protection. These three areas include:

- Wellhead fields,
- 100-year flood plain, and
- Wetlands.

Wellhead fields should be protected to ensure that the potable water supply for the City is protected from contamination. As directed by policy, the City adheres to wellhead protection provisions administered by the Florida Department of Environmental Protection. Map I-11 in the Future Land Use Element depicts the

location of wellhead protection areas.

The 100-year flood plain needs to be protected to help mitigate the damaging effects of flooding. Protection of these areas is assisted through the National Flood Insurance Program and The City's Code of Ordinances.

Wetlands protection has become an important issue to Florida residents. The protection of wetlands helps to ensure that Florida ground and surface waters remain environmentally intact, as well as preserving habitat for numerous species dependent on wetlands to survive. Winter Springs requires a 25' minimum upland buffer. These three natural resources are by no means the only ones to be protected. Development within areas determined to be ecologically sensitive requires additional analysis reports to be filed by the developer, so that City staff can ascertain the significance of the proposed impact.

12. Water Needs

a. Potable Water Sources

The City receives its potable water supply from the Floridan aquifer, within the Middle St. Johns (MSJ) groundwater basin. The natural quality of groundwater in this basin varies greatly depending on the location and the depth from which water is obtained. A major concern in this basin is saltwater intrusion in Seminole County. Although the County is located inland from sea, there are some patches of connate saltwater in the Floridan aquifer. The potable water in the aquifer is underlain by denser saline water. The potential exists for this saline water to migrate upward within the aquifer system in response to declines in the potentiometric surface. However, Winter Springs is located outside the areas in Seminole County that have chloride and sulfate concentrations of equal or greater than 250 mg/l. The FDEP has set a recommended limit of 250mg/l of chloride and sulfate for public water supplies. Therefore, it can be concluded that the Floridan aquifer underlying Winter Springs is of good water quality. Consequently, only aeration and chlorination treatment are required to provide the City with potable water.

The City's water system consists of three water treatment plants, which serve approximately 13,887 equivalent connections. Water is supplied to the three plants by eight potable water wells and the entire system is permitted to treat a maximum of 10.636 million gallons per day.

b. Potable Water Demand

Future water demand based on population projections is included within the Potable Water Sub-Element.

c. Reclaimed Water Demand

Future demand for reclaimed water and plans to expand the City's reclaimed water program is included within the Potable Water Sub-Element.

d. Agricultural Water Demand

Agricultural land uses within the City are minimal. Agricultural operations that utilize the City's potable water facilities are nonexistent, as are agricultural users that employ water from surface waters or from wells that require SJRWMD

consumptive use permits. Due to the increasingly urbanized nature of Winter Springs, the City's Future Land Use Mapdoes not include an agricultural future land use designation.

e. Industrial Water Demand

Industrial water demand, including reclaimed uses, has been expressed within the Potable Water Sub-Element of this Comprehensive Plan.