V.
CONSERVATION

GREEN COVE Springs

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V. CONSERVATION ELEMENT

A. INTRODUCTION

The purpose of this element is to provide the necessary background for determining the needs for conservation, development, utilization, and protection of natural resources in the area. This includes air, water, soils, flood plains, rivers, harbors, forests, fisheries and wildlife, and other natural and environmental resources.

B. CONSERVATION COMPONENTS

1. Water Resources

Surface Water. Water resources in Green Cove Springs consist of surface and ground waters. Surface waters include the St. Johns River and Governors Creek, both of which have been identified as Class III waters. The St. Johns River is a major drainage system for Northeast Florida and Governors Creek drains a portion of Central Clay County.

The City of Green Cove Springs produces very little impact on the water quality of either surface or water body. Two-point sources, however, discharge effluent directly into the St. Johns River. The Green Cove Springs Wastewater Treatment Plant facility provides secondary treatment that is compatible with Class III waters.

The activities at Reynolds Industrial Park, along with the waterfront, could have a negative impact if not monitored.

Ground Water. Ground water resources consist of a shallow aquifer system and the deeper Floridan aquifer, which supplies drinking water for Green Cove Springs. The City also contains the Green Cove Spring which is a natural artesian pool discharging about 3.2 million gallons per day. The water from the Spring is moderately hard and has a hydrogen sulfide odor. The water quality of this ground water system does not indicate the intrusion of sea or brackish waters.

Recharge to the Floridan Aquifer does not occur in Green Cove Springs. It does, however, occur in southwest Clay County in the Keystone Heights lake region. In this area, the potentiometric surface is below the water table, and water moves downward from the water table through the semi-permeable confining beds and into the Florida Aquifer. Water quality tests, conducted by the U.S. Geological Survey, have found the water in Clay County is of good chemical quality and has not changed noticeably.

To determine if recharge to the surficial aquifer occurs in a location, the SJRWMD recommends looking at the type of soils in the area if there is no other data available. The type of soil is a factor for recharge because of drainage qualities that may allow seepage of stormwater. If the soils are well-drained, then recharge may occur. Conversely, if the soils were poorly drained, recharge would be limited, if at all.

An analysis of the types of soils in Green Cove Springs reveals the following soil map units might facilitate recharge to the surficial aquifer:

- Blanton Fine Sand, 0 to 5 Percent Slopes
- Centenary Fine Sand, 0 to 5 Percent Slopes
- Ortega Fine Sand, 0 to 5 Percent Slopes

- Ortega-Urban land complex, 0 to 5 Percent Slopes
- Penney Fine Sand, 5 to 8 Percent Slopes

These soils are moderately well drained and excessively drained soils that are sandy throughout. In terms of hydrology, these soils have a high infiltration rate (low runoff potential) when thoroughly wet and have a high rate of water transmission. All of the other soils in the City are classified as having only a moderate or slow rate of water transmission. Soil Types are shown in Map V-1.

For the most part, the areas are located throughout the developed areas of the City. Primarily these soils are found in the developed portions of the Old Green Cove Springs and in the Magnolia Point PUD. None of these soils are found in Reynolds Industrial Park.

2. Air Resources

Air quality is currently not a problem in Green Cove Springs. Ambient air quality is not monitored in Green Cove Springs' area. Air compliance might be checked if there are complaints about air quality.

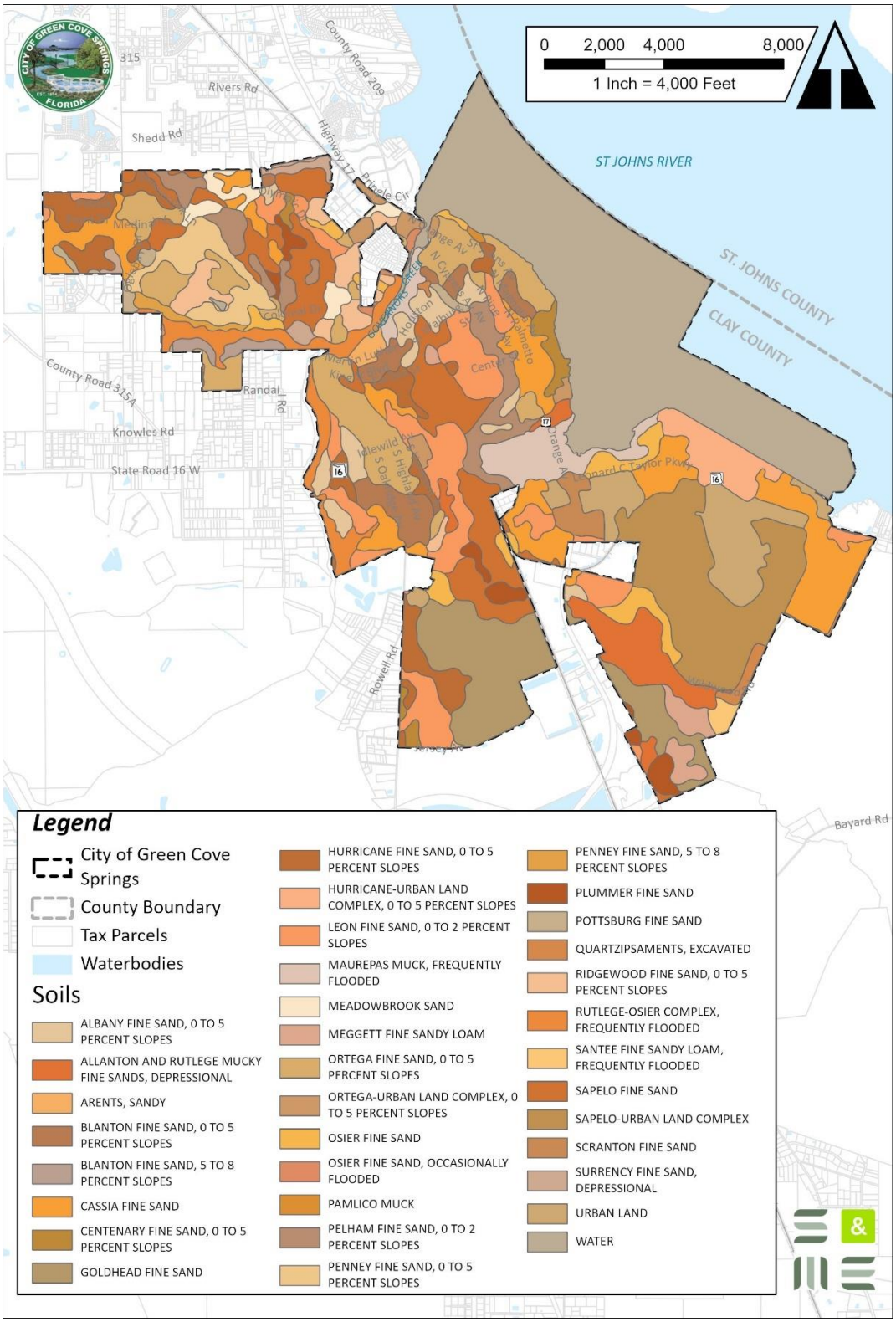
3. Topography and Drainage

The topography of Green Cove Springs is relatively flat with the higher elevations in the western section (Hilltop neighborhood) of the Center City. The highest elevations, 50 to 60 feet above mean sea level, occur along Oakridge Avenue with a gentle slope eastward to the St. Johns River and a more rapid decline westward to Governors Creek. A 50-foot contour line also cuts diagonally through Magnolia Point.

The area south of Oak Street to the south City limits between the CSX Railroad and U.S. Highway 17 is the only large low-lying land in the City. This area is generally below 10 feet elevation. Other low-lying areas are adjacent to Governors Creek and the St. Johns River.

4. Soils

Map V-1. Soils



Source: Natural Resources Conservation Service, City of Green Cove Springs, 2021

The soils in Green Cove Springs are comprised of 3 general categories according to the Soil Survey of Clay County prepared by the U.S. Soil Conservation Service. The Soil Survey identifies the location and characteristics of soil associations within the City. Prior to any development, the Soil Survey should be consulted for greater details and information on soil suitability. The Soil Survey should be used to provide guidance for land uses, construction activities, drainage needs, etc.

A general description of the soil composition will be presented below, detailing the plant life associated with each and limitations, which are associated with the soil group.

ORTEGA-PENNEY-CENTENARY: Nearly level to moderately sloping, moderately well-drained and excessively drained soils that are sandy throughout. Some have thin lamellae of loamy fine sand at a depth of more than 57 inches, and some have a subsoil that is coated with organic matter at a depth of more than 50 inches. These soils are on broad, rolling, sandy uplands that are interspersed with some small streams, creeks and drainageways.

The natural vegetation is slash pine, longleaf pine, sand pine turkey oak, bluejack oak, post oak, and live oak. The understory vegetation includes pineland, low panicum, lopsided Indian grass, rosemary, and lichens. The vegetation on the wetter soils is cypress, bay, gum, and maple trees.

Severe limitations for these soils are low fertility and drought that affect cropland production. The potential for seepage, which is caused by the deep, sandy texture of the soils, is the major restrictive feature for most urban uses. Limitations affecting homesites, small commercial buildings, and roads and streets are slight. Wind erosion can become a problem on sites that have been cleared of all protective vegetation. Limitations affecting septic tank absorption fields are mostly moderate; however, they vary from moderate to severe if the water table is close to the surface during wet periods.

LEON-MANDARIN-POTTSBURG: Nearly level, poorly drained and somewhat poorly drained soils that are sandy throughout and have a subsoil that is coated with organic matter. The landscape is nearly level pine and saw palmetto flatwoods interspersed with a few slight knolls, cypress ponds, swamps, and small, grassy, wet depressions. The natural vegetation is slash, loblolly, and longleaf pines. The understory vegetation is mostly saw palmetto, gall berry, wax myrtle, dwarf huckleberry, blackberry, greenbrier, pineland, bluestem, and sedges. The vegetation in the ponds, swamps and drainage ways is mainly cypress, bay and gum trees and water-tolerant grasses.

The soils in this map unit have several limitations for cropland. Wetness and drought are the limiting factors. Most are suited to pasture, where drained. Limitations affecting most urban uses are severe due to wetness or the seasonal high-water table. This problem should be overcome before urban development is undertaken.

SAPELO-MEADOWBROOK-LEON: Nearly level, poorly drained soils that are sandy to a depth of 40 to 79 inches; some have a loamy subsoil, some have a sandy subsoil that is underlain by a loamy subsoil and some are sandy throughout and have a subsoil that is coated with organic matter. The landscape is nearly level pine and saw palmetto flatwoods interspersed with cypress ponds, drainageways, and small, grassy wet depressions.

The natural vegetation on the flatwoods is mixed slash and longleaf pines and a few loblolly pines. The understory vegetation is mostly saw palmetto, gall berry, running oak, wax myrtle, dwarf huckleberry, pineland, bluestem, and lichens. The vegetation in the ponds, depressions and drainage ways is mainly cypress, bay and gum trees and water-tolerant grasses.

The soils in this map unit have severe limitations for cropland. Wetness and drought are the limiting factors. Most are suited to pasture, where drained. Limitations affecting most urban uses are severe due to wetness.

If these soils are used for urban development, a drainage system is needed to remove excess water during wet periods and to adequately control the high-water table.

In general, the soils of Green Cove Springs are moderately to well suited for residential and related urban development but poorly suited for the use of septic tanks. Within developed urban areas providing municipal sewer service, most objections to development related to the soils can be removed through a system of drainage control, which provides for effective storm drainage during those periods when the natural water table is high.

Table V-1 is a listing of the soil map units that can be found in Green Cove Springs. The soil units have a corresponding number which correlate to the numbers shown on the "Soils Map. Also included is the erosion hazard rating for each soil map unit, as determined by the Soil Conservation District. Overall, the soil units in Green Cove Springs are not characterized as having much potential for soil erosion. The Drainage Sub-Element documented several areas in the City that have experienced soil erosion in relation to the functions of drainage facilities. More detail relating to this issue can be found in the master drainage study attached with that Sub-Element.

There are no known commercially valuable minerals in the City of Green Cove Springs.

Thirteen drainage sub-basins were identified as potential flooding problem areas from the drainage basin evaluations. Nine areas were determined to have major drainage problems. These areas are identified in the Public Facilities Data & Analysis – Stormwater section. Other minor problem areas were identified and categorized similarly as the major problems in order to identify potential flood problem areas. The minor problem areas are also identified in the same report.

Improper drainage flows can impact environmentally sensitive areas such as floodways and floodplains of the St. Johns River and Governors Creek. Stormwater runoff usually contains pollutants from streets, businesses, fertilizers, etc., and should be adequately treated before entering waterways. Design criteria of future drainage structures should mitigate adverse impacts to these areas and stormwater management facilities should be designed to utilize or improve the natural capacity or function of these hydrologically sensitive areas.

Table V-1. Soil Map Types

#	Soil Name	Erosion Hazard
1.	Albany Fine Sand, 0 to 5 Percent Slopes	Slight
2.	Blanton Fine Sand, 0 to 5 Percent Slopes	Slight
3.	Hurricane Fine Sand, 0 to 5 Percent Slopes	Slight
6.	Mandarin Fine Sand	Slight
7.	Centenary Fine Sand, 0 to 5 Percent Slopes	Slight
8.	Sapelo Fine Sand	Slight
9.	Leon Fine Sand	Slight
10.	Ortega Fine Sand, 0 to 5 Percent Slopes	Slight
11.	Allanton and Rutlege Mucky Fine Sand, Depressional (Hydric)	Slight
13.	Meggett Fine Sandy loam	Slight
14.	Ortega-Urban land complex, 0 to 5 Percent Slopes	Not Available
15.	Quartzipasamments, excavated	Not Available

#	Soil Name	Erosion Hazard
16.	Hurricane-Urban Land Complex, 0 to 5 Percent Slopes	Not Available
17.	Plummer Fine Sand	Slight
18.	Ridgewood Fine Sand, 0 to 5 Percent Slopes	Slight
19.	Osier Fine Sand	Slight
20.	Scranton Fine Sand	Slight
21.	Goldhead Fine Sand	Slight
22.	Pelham Fine Sand	Slight
23.	Sapelo-Urban Land Complex	Not Available
24.	Urban Land	Not Available
25.	Maurepas Muck, Frequently Flooded (Hydric)	Slight
27.	Pamlico Muck (Hydric)	Slight
28.	Santee Fine Sandy Loam, Frequently Flooded (Hydric)	Slight
29.	Rutlege-Osier Complex, Frequently Flooded (Hydric)	Slight
30.	Arents, Sandy	Slight
31.	Pottsburg Fine Sand	Slight
32.	Blanton Fine Sand, 5 to 8 Percent Slopes	Slight
34.	Penney Fine Sand, 5 to 8 Percent Slopes	Slight
42.	Osier Fine Sand, Occasionally Flooded (Hydric)	Slight
65.	Meadowbrook Sand	Slight

Source: Soil Survey of Clay County, Florida. United States Department of Agriculture, Soil Conservation Service, September 2010

5. Flood Plains

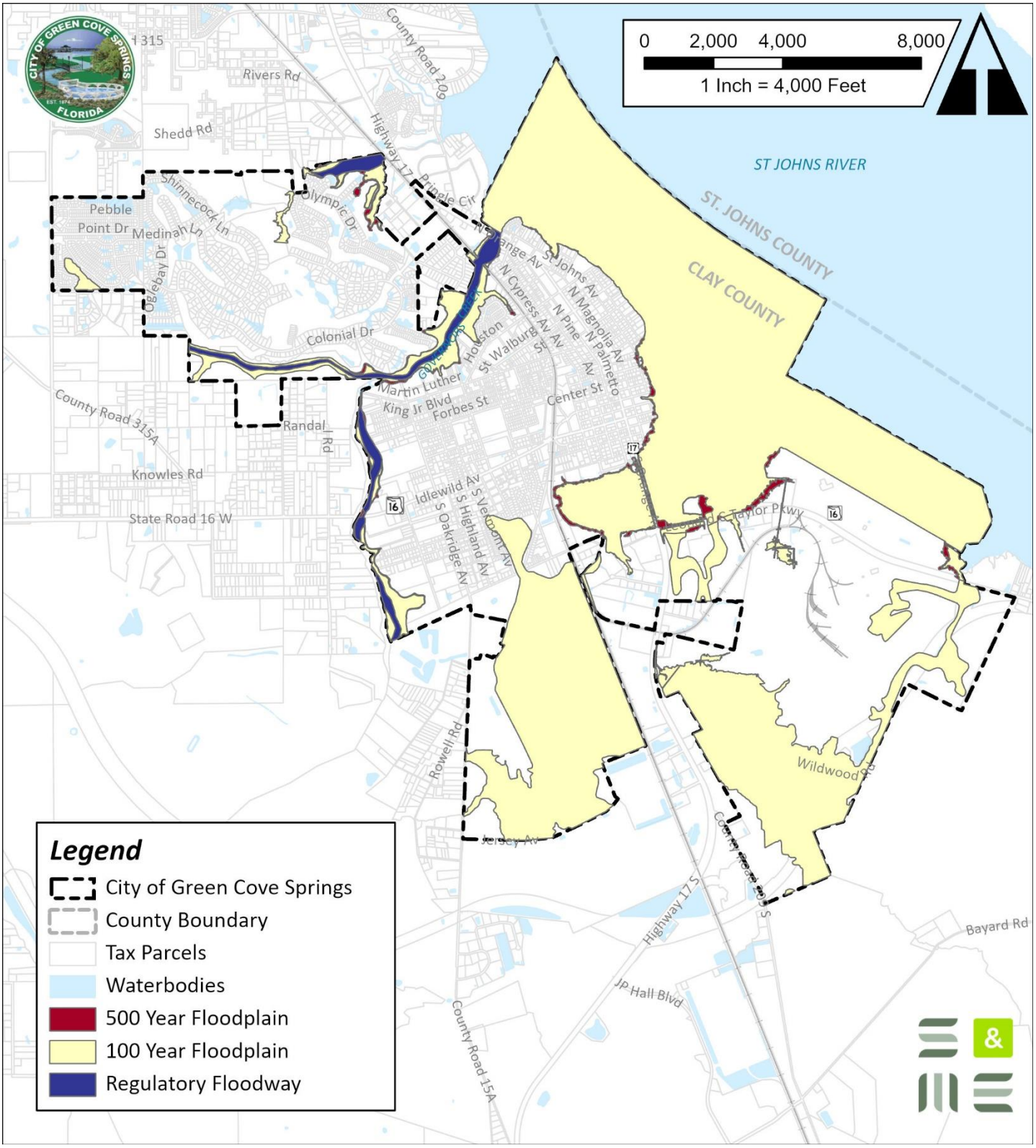
The overall City is divided into 33 drainage sub-basins. Generally, stormwater runoff is drained by Governors Creek west and north, the St. Johns River to the east and a woodland area to the south. Both Governors Creek and the woodlands eventually drain to the St. Johns River. The soils in the area have low percolation and infiltration rates. Additionally, the area has a high-water table, which combined with the quality of the soils, impede the natural drainage of stormwater.

In natural drainage systems, when a heavy rainfall generates large volumes of runoff, excess surface water is stored in the flood plain and is gradually drained by the natural wetland waterways. When fill and/or impermeable surfaces are placed within the flood plain, flooding occurs because natural stormwater retention areas have been displaced. Flood plain development has several negative consequences. Urban development increases runoff by enhancing the velocity of flow from impervious surfaces. Also, increased flooding can result from fill placed within the flood plain.

To protect the natural functions of the floodplain, the City should limit the density of development within the 100-year floodplain to allow only low intensity development. In addition, the location of any storage area for hazardous materials should not be stored within the 100-year flood plain of any watercourse.

The 100-year flood plains are identified in Figure E-2. The 100-year flood plain generally follows the along the edges of the City along the St. Johns River on the east border, and north then west along the City's border with Governor Creek. The 500-year floodplain is predominantly found in the lower reaches of the City generally around SR 16 and along Governors Creek and the St Johns River.

Map V-2. Floodplains



Source: FEMA, City of Green Cove Springs, 2021

6. Wetlands

The following Wetlands are identified in Green Cove Springs:

1) Freshwater Forested Shrub are in Magnolia Point, the nature preserves at the northeast and northwest corner of SR 16 and US 17, and south of the Airpark in Reynolds Park and described as woody plants less than 20 feet tall are the dominant life form—i.e., the tallest life form with at least 30 percent areal coverage. The "shrub" life form includes true shrubs, young specimens of tree species that have not yet reached 6 m in height, and woody plants (including tree species) that are stunted because of adverse environmental conditions.

2) Freshwater Emergent Wetlands, which are in the area northwest of SR 16 and US 17 and located in the area along CR 15A in the southwestern portion of the City, are predominately emergent plants—i.e., erect, rooted, herbaceous hydrophytes, excluding mosses and lichens—are the tallest life form with at least 30% areal coverage. This vegetation is present for most of the growing season in most years. These wetlands are usually dominated by perennial plants.

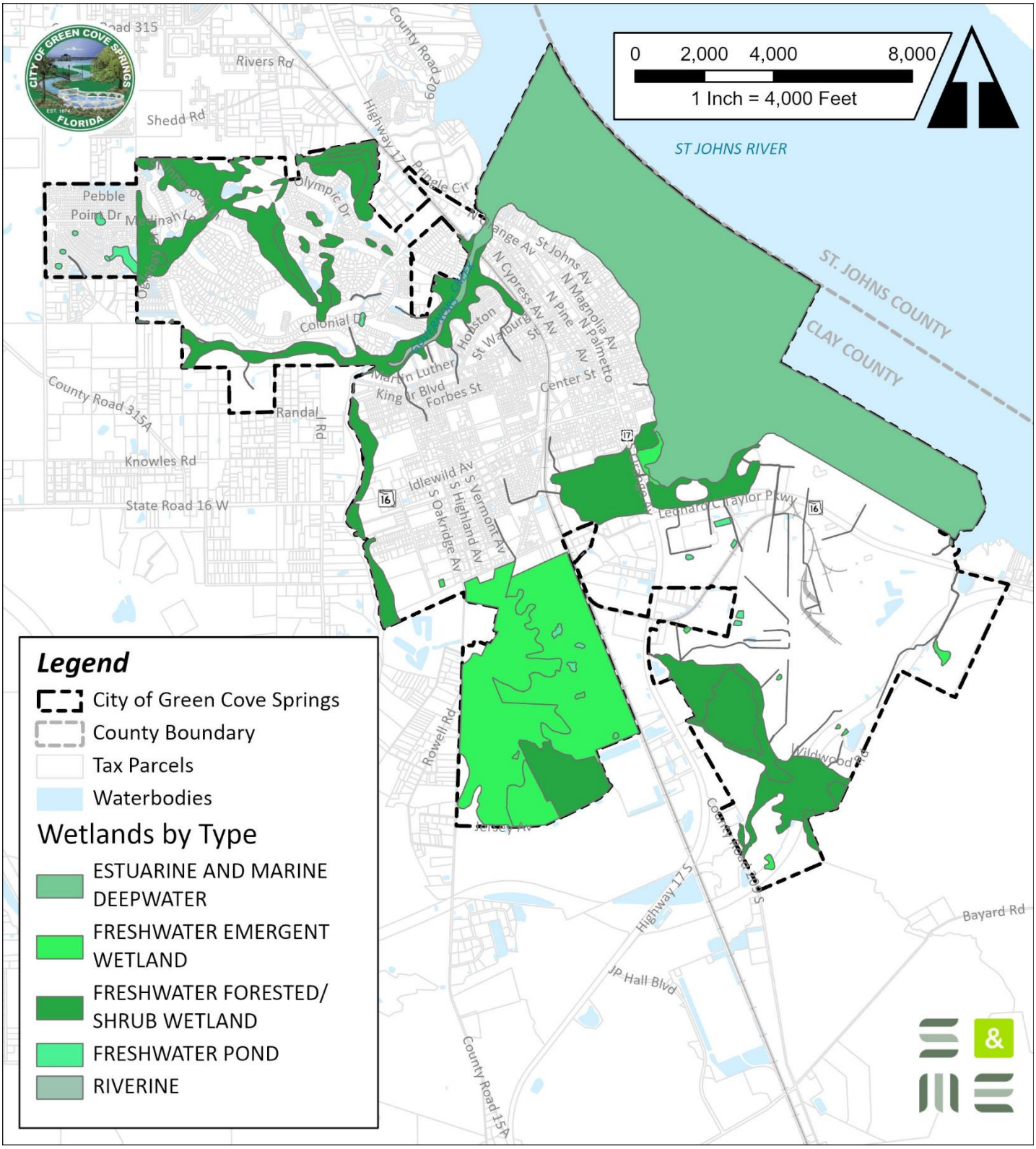
3) Estuarine and Marine Deepwater (St John's River) consists of deepwater tidal habitats and adjacent tidal habitats that are usually semi enclosed by land.

4) Riverines are located along Governor's Creek and small creeks that feed into Governor's Creek and are defined as systems contained within a channel and their associated streamside vegetation.

5) Freshwater Pond are in Reynolds Park and Magnolia West and are natural and manmade ponds that under normal circumstances can support wetland vegetation but are not considered a part of a great pond, stream, or major wetland.

The wetlands in the City, can be impacted by improper drainage. There have been no pollution problems of the City's wetlands noted by the DEP or the SJRWMD. As indicated in the Transportation Element, the City is committed to paving all dirt streets and requiring paved parking for new development within the City of Green Cove Springs. This will decrease runoff from these roads into the City's stormwater management system. Florida allows wetlands to be permitted for development, subject to requirements for mitigation. Over time, this practice results in fragmentation of wetland systems, and the gradual but continual loss of wetland ecosystem functions and services. The cumulative effect results in Regional impacts. The loss of forested and natural areas means less water recharge from the surface to the aquifer and increased storm water runoff impacts to water bodies such as the St. Johns River, which often experiences algal blooms in the summer months. The number of septic tanks permitted is a metric tracked in this report, as these systems, when they fail, have the potential for negative impacts on the River and ground water.

Map V-3. Wetlands



Source: Natural Resources Conservation Service, City of Green Cove Springs, 2021

7. Plant and Animal Life

Plant Communities. The Northeast Florida Regional Planning Council's Land Use Cover Analysis identified the following plant communities in Green Cove Springs: Mesic Hammock, Hardwood Swamp, and Urban.

The Mesic Hammock, also called the Southern Mixed Hardwood Forest, is a relatively diverse plant community dominated by evergreen hardwoods in the drier areas and deciduous hardwoods in the moister areas. Within Green Cove Springs, this plant community is limited to the Hilltop neighborhood in the lower areas along Governor Creek. Deciduous hardwoods predominate.

The Hardwood Swamps are in the low areas along Governors Creek in the Martin Luther King, Jr., and North Suburb neighborhoods and in the low-lying area south of Oak Street, Magnolia Point and the industrial park. This is a wetland forest dominated by deciduous hardwoods and is usually associated with areas influenced by seasonal flooding. The most common trees include red maple, water tupelo, sweetgum, bald cypress, pop ash, Florida elm, and cabbage palm with no one species predominant.

The remainder of the City is dominated by typical urban vegetation. A wide variety of ornamental plants and grasses are found intermixed with the native deciduous hardwoods. Ground cover ranges from none to fairly intensive. To the north, west, and southwest of the City, ground cover is fairly intense. South and southwest of the City ground cover is dominated by agricultural uses and wetlands.

The Endangered and Potentially Endangered Plants as Designated by the Department of Agriculture and Consumer Services are presented in Table V-2. These species are listed on a County basis and not specific for the City of Green Cove Springs.

Sandhill communities can be found in Magnolia Point. These communities are pine dominated woodlands with suppressed understory due to frequent fires. The most common vegetation consists of longleaf pine (slash pine replacing longleaf), turkey oak, wiregrass, foxglove, bluejack and blackjack pines, and beggar's tick.

Fisheries and Animal Wildlife. There are no known fisheries in Green Cove Springs. Wildlife in Green Cove Springs is typical of the animals and birds normally associated with developing urban areas in Northeast Florida. A field survey of wildlife was not conducted and, while a number of threatened or endangered species are typically associated with the limited vegetative environments found in the City, none have been specifically identified with the exception of gopher tortoise burrows in the southwestern edge of the City near the old Gustafson Dairy.

Table V-2 lists endangered or threatened species that might be found in the City. The species listed are based on the type of soils in the City and the vegetation associated with the soils. After both of these 2 items are identified, the listed species most likely to occur within the vegetative communities can then be identified.

Table V-2. Threatened and Endangered Species

Vegetative Community	Species	Status
FAUNA		
MESIC HAMMOCK	Florida Panther	Endangered
	Arctic Peregrine Falcon	Endangered
	Ivory-Billed Woodpecker	Endangered
	Kirkland's Warbler	Endangered

Vegetative Community	Species	Status
	Florida Black Bear	Threatened
	Bald Eagle	Threatened
	Southeastern kestrel	Threatened
	Red-cockaded Woodpecker	Threatened
	Eastern Chipmunk	Species of Special Concern
HARDWOOD SWAMP	Florida Panther	Endangered
	Wood Stork	Endangered
	Ivory-Billed Woodpecker	Endangered
	Bachman's Warbler	Endangered
	Florida Black Bear	Threatened
	Everglades Mink	Threatened
	Eastern Indigo Snake	Threatened
	Homosassa Shrew	Species of Special Concern
	Limpkin	Species of Special Concern
	Barbour's Map Turtle	Species of Special Concern
	Pine Barrens Treefrog	Species of Special Concern
MARINE-FRESHWATER ENVIRONMENT	Silver Rice Rat	Endangered
	West Indian Manatee	Endangered
SANDHILL COMMUNITIES	Florida Panther	Endangered
	Ivory-Billed Woodpecker	Endangered
	Kirkland's Warbler	Endangered
	Florida Black Bear	Threatened
	Bald Eagle	Threatened
	Southeastern kestrel	Threatened
	Red-cockaded Woodpecker	Threatened
	Blue-Tailed Mole Skink	Threatened
	Sand Skink	Threatened
	Short-Tailed Snake	Threatened
	Sherman's Fox Squirrel	Species of Special Concern
	Florida Mouse	Species of Special Concern
	Gopher Tortoises	Species of Special Concern
	Florida Pine Snake	Species of Special Concern
	Gopher Frog	Species of Special Concern
FLORA		
	Curtiss Milkweed	Threatened
	Florida Hartwrightia	Threatened
	Pond Spice	Threatened
	Needle Palm	Commercially Exploited
	Chapman's Rhododendron	Endangered
	St. John's-Susan	Endangered
	Bartram's Ixia	Threatened
	Netted Chain Fern	

Vegetative Community	Species	Status
	Hooped Pitcher Plant	
	Swamp Honeysuckle	
	Dwarf (Blue Stem) Palmetto	

Source: Department of Agriculture and Consumer Services

C. ANALYSIS OF WATER SOURCES AND NEEDS FOR INDUSTRIAL, AGRICULTURAL, AND POTABLE WATER USES

Current and Projected Water Sources. The primary source of water for Green Cove Springs and Clay County is the Floridan Aquifer. The aquifer extends throughout all of Northeast Florida and Southeast Georgia. Recharge to the aquifer occurs in southwestern Clay County through sinkholes and lakes that are connected to the aquifer in the Keystone Heights region. According to the SJRWMD, there are no high groundwater recharge areas for the Floridan Aquifer in Green Cove Springs. The City shall continue to utilize the Floridan aquifer for all its water needs.

1. Quantity and Quality of Water Available to Meet the Needs

Water Quantity. Medium Peak demand in the City is 1.295 million gallons per day pursuant to the 2018 Master Water Plan. The average annual demand is 159 gallons per day per capita. The City owns and operates two (2) permitted Water Treatment Facilities ("WTF"). The Harbor Road WTF ("HRWTF") generally serves Magnolia Point and elevated areas along Randall Road to SR 16 at Clay High School, while the Reynolds WTF ("RWTF") is located toward the south end of the City and serves the majority of the core city and customers to the north. he two WTFs are interconnected via distribution piping that is connected to three separate elevated storage tanks (EST). The HRWTF is isolated from the distribution system and ESTs via two hydraulic control valve stations that ensure high-pressure service to the elevated regions of Magnolia Point and Randall Road is maintained, but also allow the HRWTF to pump finished water to the larger distribution system when the control valves are open.

The projected water demand over the next 20 years is provided in Table V-3 below.

Table V-3. Projected Water Demand

Year	Population	Project (MGD-AADF)
2020	9,786	1.213464
2025	11,859	1.470516
2030	14,143	1.753732
2035	16,297	2.020828
2040	18,363	2.277012
2045	18,768	2.327232

Source: S&ME (Future Land Use Data & Analysis), BEBR

With the exception of the 560 acres to be annexed along CR 15 A (Ayrshire) and the Magnolia West Neighborhood, future development within the City's Utility Service Area boundary will continue to be served

by the existing City system, as it is adequate to serve the projected growth through 2040 pursuant to the infrastructure modifications set forth in the 2018 Master Water Plan. Clay County Utility Authority will serve the west Magnolia area and the Ayrshire Development. The City anticipates being able to serve the projected population within the City limits and the property outside the City limits in the Green Cove Springs Utility Service Area.

The City completed a reclaimed water system master plan in 2015. The City owns and operates two permitted Water Reclamation Facilities (WRF). The Harbor Road WRF generally serves the Core City and northern reaches of the City and the South WRF serves the southern portion of the City. The supply of reclaimed is projected to nearly double to .929 million gallons per day by 2040. The reuse of treated wastewater effluent is being used for irrigation of the Magnolia Point Golf Course. The additional reclaimed water is projected to be used for the following developments:

- Reynolds Park
- Edgewater Landing
- Black Creek Marina
- Existing and future phases of Magnolia Point

Water Quality. There is currently no saltwater intrusion or any other degradation to the City's potable water. Potential for contamination of the potable water sources in Green Cove Springs is greater in the Reynolds Industrial Park than at the Harbor Road treatment facility. Industrial activities in the Park could be a threat to the wells in the park, especially if spillage of contaminants occurs. A policy should be adopted to provide for the protection of water supply wells.

2. Impact on Adjacent Natural Resources

Some potential impacts of any water facilities on natural resources could include the following:

- Contamination of the Areas of Influence around Wellheads
- Over Pumpage of Groundwater
- Development of Prime Recharge Areas
- Seepage of Contaminants Such as Hazardous or Toxic Substances into the Soil

Green Cove Springs should continue to seek ways to encourage reduced water withdrawals by possibly establishing incentives for heavy industrial and commercial water users to reduce and/or reuse noncontaminated water.

Green Cove Springs requires a 200-foot buffer around its wellheads. This will prevent potential hazardous waste from being located near the sites.

D. EXISTING COMMERCIAL, RECREATIONAL, OR CONSERVATION USES

Existing uses in the City's floodplains consists primarily of residential and industrial development. Low density residential units have been constructed along the floodplains of Governors Creek and in the Magnolia Point PUD. Flood plains are also found in Reynolds Industrial Park where some development has taken place. In the southern portion of the Core City district, the majority of property south of Oak Street to Green Cove Avenue between US 17 and the Railroad Tracks has been designated as being within the 100-year floodplain. In addition, the areas south of Green Cove Avenue and CR 15 A, including City property and the potential Ayrshire Development are

also located within the 100-year floodplain. These areas consist primarily of vacant land that is owned by the City. Other small, isolated uses in the flood plains include two cemeteries, and a park along the St. Johns River.

Implementation Measures. The creation of the Green Cove Springs Nature Preserve will promote conservation of natural areas with the City. The acquisition of the wetlands area south of Oak Street, and along U.S. 17 will help to preserve the flood plain area and limit development along the St. Johns River. The Nature Preserve will connect to Spring Park.

Proper management of stormwater is necessary to protect sensitive habitats from potentially adverse impacts that may result from development. The City furthers the conservation of these systems by ensuring in the Land Development Regulations to require all future development and redevelopment activities meet or exceed drainage levels of service standards set forth in the Drainage Sub-Element and all applicable federal and state standards regarding water quality and stormwater discharge.