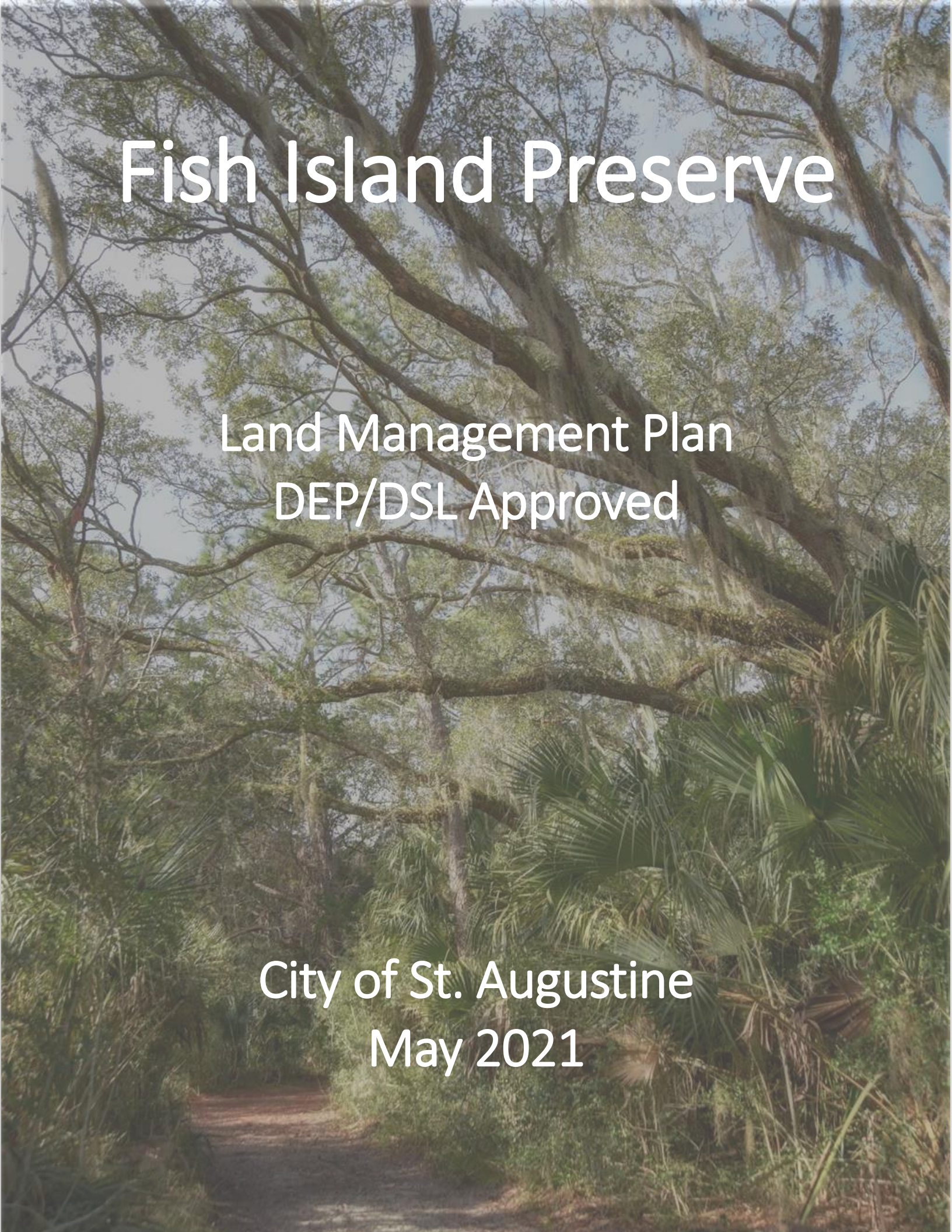

Fish Island Preserve

Land Management Plan
DEP/DSL Approved

City of St. Augustine
May 2021

Table of Contents

Land Management Plan Executive Summary

Lead Manager: City of St. Augustine

Property Name: Fish Island Preserve

Location: St. Johns County

Acreage Total: 59.21 acres

FNAI Natural Community	Acres	Percent of Total Area
Maritime Hammock	30.8	52.0%
Salt Marsh	4.6	7.8%
Xeric Hammock	3.0	5.1%
Hydric Hammock	1.5	2.5%
FNAI Altered Landcover		
Spoil Area	15.0	25.3%
Artificial Pond	2.1	3.6%
Canal/ditch	1.8	3.0%
Developed	0.4	0.7%

Board of Trustees Lease Number: 4843

Use: Single

Management Agency	Responsibility
City of St. Augustine	Lead Manager, Law Enforcement
FL FWCC	Law Enforcement, Imperiled and Exotic Species Mgmt.
FL Forest Service	Wildfire
Division of Hisorical Resources	Cultural Resource Management

Designated Land Use: Passive Park

Sublease(s): None

Encumbrances: Six public easements and two private easements

Type Acquisition: Florida Forever

Unique Features: Maritime Hammock and salt marsh

Archaeological/Historical: Seven documented sites, including one National Register of Historic Places site

Management Needs: Protection, preservation and maintenance of cultural resources; restoration and maintenance of natural communities; exotic and invasive species control and maintenance;

imperiled species habitat maintenance, improvement and restoration; provide public access and resource-based recreational opportunities.

Acquisition Needs: 2.5-acre inholding

Surplus Acreage: None

Public Involvement: Website questionnaire, public workshop and city commission meeting.

Do not write below this line (For Division of State Lands Use only)

ARC Approval Date: BTIITF Approval Date:

Comments:

_____

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Introduction

Fish Island Preserve is located on Anastasia Island within the City of St. Augustine in St. Johns County (see Map 1). The preserve is located just east of the S.R. 312 bridge over the Matanzas River.

Fish Island was acquired in November 2019 and is part of the Northeast Florida Blueways Florida Forever Project. It is 59.21 acres and is owned in fee simple title by the Trustees of the Internal Improvement Trust Fund (Trustees) and was purchased utilizing Florida Forever funds. On October 6, 2020, a lease was executed between the Trustees and the City of St. Augustine for 50 years (Lease # 4843) for management of the property. The lease also contains the legal description of the property and is available from the Trustees or the City of St. Augustine.

Fish Island Preserve is designated passive, single-use to provide public outdoor recreation compatible with the protection of the preserve's natural and cultural resources.

Purpose and Significance of the Property

The purpose of Fish Island Preserve is to protect the natural and cultural resources of the preserve and provide passive resource-based public outdoor recreation, such as hiking, bicycling, nature appreciation, and the interpretation of the natural and cultural resources.

Property Significance

- The preserve provides habitat for a variety of imperiled species, in particular wading birds and migratory songbirds.

- The preserve contains significant pre-historic and historic resources and is listed on the National Register of Historic Places.

- Fish Island Preserve provides visitors a respite from its urban surrounding. From the wonderful shade of a maritime hammock, visitors can learn about the property's natural and cultural resources.

- Fish Island Preserve provides storm and groundwater protection and perhaps most importantly provides the local community with continued coastal resilience.

Purpose and Scope of the Plan

This management plan serves as the statement of direction and policy for the management of Fish Island Preserve for the next 10 years. It includes basic information necessary to manage the preserve's natural and cultural resources and balance public use. It also includes short-term and long-term goals and objectives. It is intended to be consistent with the State Lands Management Plan and its governing Florida statutes and administrative codes.

This plan is composed of three components: Resource Management, Land Use, and Implementation. The Resource Management Component provides a narrative of the natural and cultural resources of the preserve. It outlines important resource management measures such as exotic plant management, cultural resource management, imperiled species management, and restoration of impacted natural communities. Lastly, it provides measurable resource management goals and objectives.

The Land Use Component addresses public use of the preserve's resources. Measurable goals and objectives are established that are compatible with the preserve's natural and cultural resources, which includes their size and location. Public use areas and compatible facilities have been identified.

The Implementation Component condenses all the management plan's goals and objectives into a single table and provides a schedule and cost estimates for each objective.

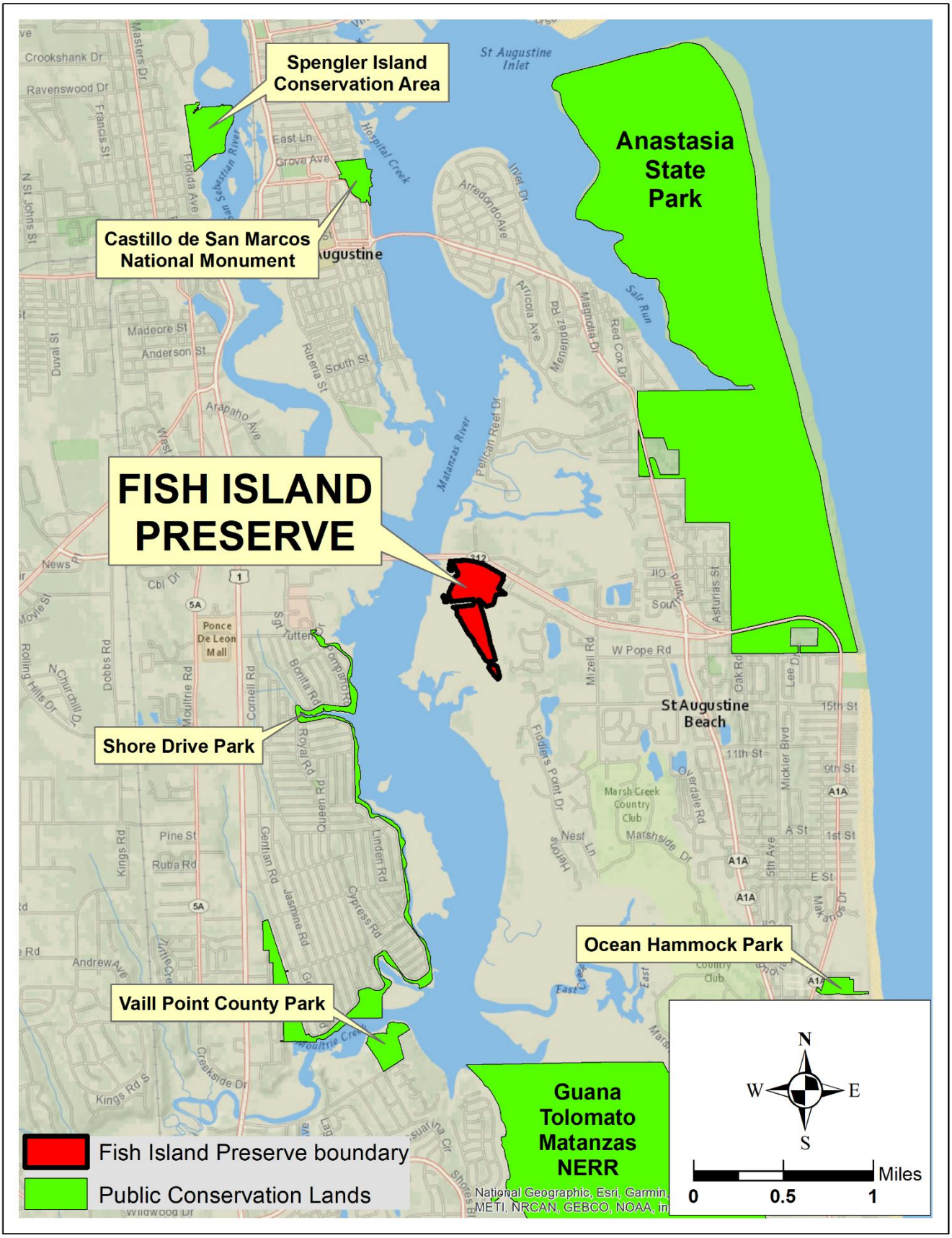
Any resource alteration or development proposed in this management plan is subject to all applicable permits, etc. Management plan approval does not exempt the City from complying with local, state, and federal requirements.

The possibility for the preserve to accommodate secondary management purposes was evaluated during the development of this plan. Based primarily on the preserve's natural and cultural resources, it was determined that no secondary management purposes could be allowed that would not conflict with the primary purposes of the property – protection of the cultural and natural resources and providing resource-based outdoor recreation.

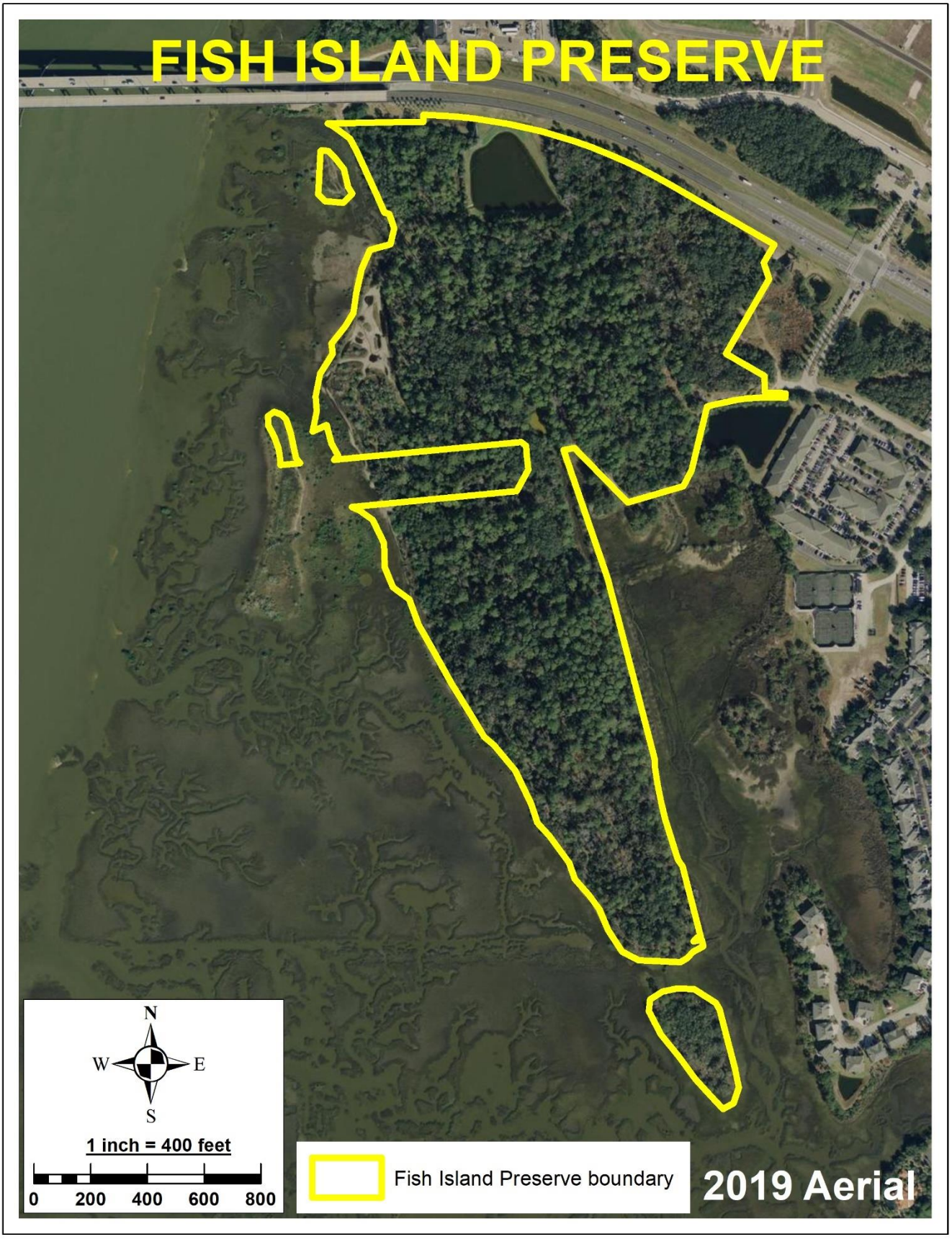
After analyzing the property's resources, it was determined that multiple-use management activities would not be appropriate for this property.

Currently the City of St. Augustine does not have a parks department. In order to accomplish many of the goals and objectives in the management plan, private contractors will be utilized.

Map 1 – Location Map



Map 2 - 2019 Aerial with Property Boundary Map



Management Program Overview

Management Authority and Responsibility

Management of Fish Island by the City of St. Augustine is authorized by the Board of Trustees of the Internal Improvement Trust Fund (Trustees) via a management lease (Lease #4843) executed on October 6, 2020. All management activities proposed on the leased area are outlined in the Resource Management Component of this plan.

Preserve Management Goals

Following is a summary of the preserve's management goals for Fish Island:

- Maintain and restore the preserve's natural communities.
- Protect and preserve the preserve's cultural resources.
- Control invasive exotic plants and animals in the preserve.
- Protect water quality in the preserve.
- Protect and maintain imperiled species and their associated habitat.
- Provide public use that is compatible with the preserve's natural and cultural resources.

Management Coordination

The following state agencies assist in the management of the property's resources. The Florida Fish and Wildlife Conservation Commission (FWC) assists the City with law enforcement support and imperiled and exotic species management. The Florida Department of State's Division of Historical Resources assists with the monitoring and management of the preserve's cultural resources. In the event of a wildfire, the Florida Forest Service will provide assistance.

Public Participation

The City originally wanted to conduct two public workshops in order to provide public input for the draft management plan. Due to the COVID pandemic, it was decided to substitute the first workshop with a questionnaire on the Fish Island website. The questionnaire was designed to learn what recreational uses and amenities the public would like to see at Fish Island Preserve. The questionnaire ran from July 17 – August 23, 2020 and had 653 responses.

A public workshop was held on March 4, 2021 and was announced at the City Commission meeting that proceeded the public workshop. In addition, it was announced on the Fish Island website, social media, City press releases and the City's News and Notes. Video and audio of the meeting can be obtained from the city by request.

Other Designations

Fish Island is not located within a Florida Area of Critical State Concern and is not presently being considered for that designation. The surface waters within and surrounding this preserve are classified as Class III and are not within an aquatic preserve.

The preserve is listed in the Parks and Preserves list of the Natural Resources of Regional Significance element in the Northeast Florida Regional Council's Strategic Regional Policy Plan.

The preserve is adjacent to the Florida Circumnavigational Saltwater Paddling Trail (Segment 24) as designated by the FL Department of Environmental Protection's Office of Greenways and Trails.

RESOURCE MANAGEMENT COMPONENT

Introduction

This component of the management plan describes the natural and cultural resources of Fish Island Preserve and how these resources are to be managed. The resource management program for natural resources utilizes best management practices and follows ecosystem management principles. The primary goal is to protect, manage, and restore (or enhance) the natural communities. It is also important to provide public use of the property and ensure that this use is consistent with the protection and management of the natural communities.

The resource management program for the preserve's cultural resources utilizes best management practices established by the Division of Historical Resources. The primary goals are to monitor and protect the cultural sites.

Fish Island Preserve is divided into five management zones to facilitate the management activities on the property. These zones are delineated based on several factors including historical use of the property and existing trails. Map 3 depicts the location of the zones and Table 1 provides the acreage and whether cultural resources have been documented within the zone.

Table 1: Management Zones

Management Zone	Zone Acreage	Contains Documented Cultural Resources
FI-1	11	Yes
FI-2	22	Yes
FI-3	2	No
FI-4	22	Yes
FI-5	2	Not surveyed

Resource Description and Assessment

Natural Resources

Physiography/Topography

The following description of the physiography for the Fish Island area follows Brooks, 1981. Most of the state of Florida is part of a distinctive physiographic unit – the Florida section. The topographic features have been influenced by the solution of the underlying limestones. This, in part, has led to a strong relationship between the natural communities and the physiographic units.

Physiographic District: Eastern Flatwoods – a sequence of barrier islands and associated lagoons formed in the Pleistocene.

Sub-district: Central Atlantic Coastal Strip – a coastal strip of land modified by shoreline processes during the late Pleistocene. This occurred at a time when sea level was 6-10 feet above its present level.

Sub-division: St. Augustine-Edgewater Ridge – perched beaches over top of a coquina ridge.

Elevations at Fish Island Preserve range from sea level to 30 ft. (NAVD88). The 30 ft. area is associated with a large spoil pile near the entrance to the property that was deposited in the late 1990's. The highest natural elevation is approximately 9 ft. (see Topographical Map).

Geology

The description and figure of the geomorphology and geology of this area follows Green et al, 2014. The Fish Island area is part of the Barrier Island Sequence District. This is an area characterized by beach ridges, dunes and paleo-lagoons. It is further broken down into geomorphic terranes. The Fish Island area is part of the Atlantic Coast Complex. It is a terrane of undifferentiated Quaternary sediments, undifferentiated Tertiary and Quaternary shelly sediments, with occasional outcrops of Pleistocene Anastasia Formation (coquina).

Following is a short description of the lithostratigraphic units starting from the surface and moving downward. This information can be viewed graphically in Figure 1.

Fish Island is underlain by Holocene sediments comprised of quartz sands, organics, humate and minor carbonate sands. Holocene sediments formed in the last 10,000+/- years (after the last glacial period). These sediments are part of the Surficial aquifer system.

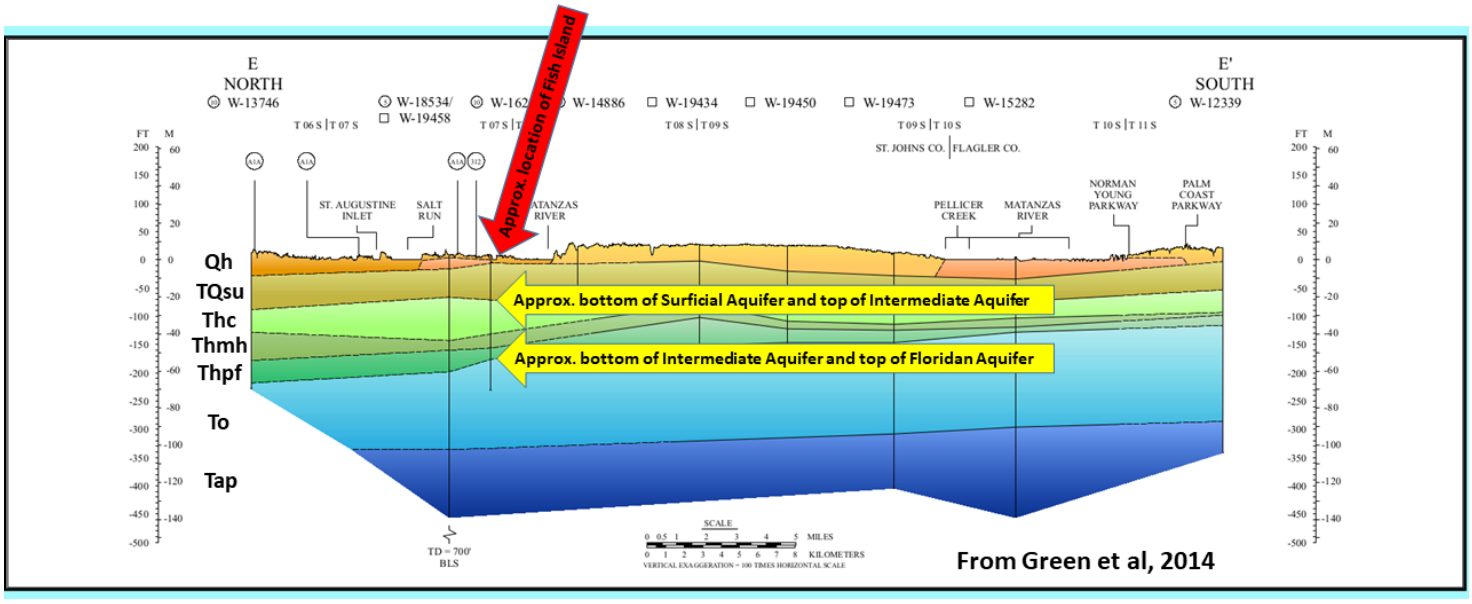
Below the Holocene sediments are undifferentiated Pliocene/Pleistocene shelly sediments that date from approximately 3 million years ago until the Holocene. Permeable portions of these sediments are also part of the Surficial aquifer system.

Next are units of the Hawthorn Group, which were deposited during the Miocene, approximately 11 – 23 million years before present. Under Fish Island, these deposits are from 75 ft. – 180 ft. below land surface are further delineated into the Coosawhatchie Formation, the Marks Head Formation, and the Penney Farms Formation (descending order). The Hawthorn Group sediments are primarily quartz sands, silts and clays (phosphates) with some dolostone and limestone (carbonates). These sediments form the Intermediate aquifer system and the Intermediate confining unit.

Extending from approximately 180 ft. to 340 ft. below land surface is the Ocala Limestone which forms the upper part of the Floridan aquifer system. It is a limestone that is comprised primarily of former living organisms such as foraminfera (single-celled animal plankton) and molluscs, and dates from the Upper Eocene (34 – 40 million years before present). It is commonly divided into an upper and lower unit with the primary difference being the upper unit containing more fossiliferous limestone than the lower unit.

The deepest sediments are from the Avon Park Formation and are primarily comprised of limestone and dolostone from the Middle Eocene (> 40 million years before present). Under Fish Island the top of the Avon Park Formation is approximately 340 ft. below ground surface and extends for hundreds of feet. There are not a lot of deep wells available in this area to quantify the thickness of this formation.

Figure 1 – Cross-section of lithostratigraphic units



Qh = Holocene sediments
TQsu = Undifferentiated Pliocene/Pleistocene shelly sediments
Thc = Hawthorn Group, Coosawhatchie Formation (Middle Miocene)
Thmh = Hawthorn Group, Marks Head Formation (Lower Miocene)
Thpf = Hawthorn Group, Penney Farms Formation (Lower Miocene)
To = Ocala Limestone (Upper Eocene)
Tap = Avon Park Formation (Middle Eocene)

Soils

The Soil Survey of St. Johns County (USDA, 1983) identifies nine soil types within the boundary of Fish Island Preserve. Five soil types are considered upland soils – Adamsville, Ona, Orsino, St. Augustine, and Smyrna. It should be noted that the area mapped as St. Augustine fine sand was historically salt marsh and was hydraulically filled in the mid-1920's. The remaining four soil types (Moultrie, Pellicer, St. Johns, and Samsula) are wetland soils.

Detailed descriptions of the soils of Fish Island Preserve can be found in Addendum 4.

Minerals

No deposits of commercially valuable minerals have been identified at the preserve.

Hydrology

Surface Water

The St. Johns River Water Management District (SJRWMD) delineates its district area into surface water basins (waterways). The individual basins are further delineated into sub-basins or watersheds. Fish Island Preserve is located within the Northern Coastal Basin, an approximately 484,000-acre area stretching from the Guana River watershed (southern Duval County) south to the Spruce Creek watershed in Volusia County. All these watersheds drain toward the Atlantic Ocean. The SJRWMD adopted a Surface Water Management Plan (SWIM) for the Basin in 2003 with a goal of enhancing, restoring, and managing the water quality and wetland resources within the basin's estuaries (SJRWMD, 2003). The major surface water resource challenges in the SWIM plan range from stormwater runoff to leaking septic systems to boat wakes.

Fish Island Preserve is located within the Matanzas River watershed, one of more than 100 watersheds within the Northern Coastal Basin. This watershed encompasses approximately 31,000 acres and stretches from the Bridge of Lions (St. Augustine) south to the S.R. 100 bridge in Flagler Beach.

The SJRWMD maintains a water quality station on the Matanzas River at the SR 312 bridge. The station has been monitored since 1991. In their 2019 Status and Trends Report, the SJRWMD provides water quality trends over a 15-year assessment period (January 2004 – December 2018) for 25 analytes (SJRWMD, 2019). These data indicate a generally stable trend in the water quality. The breakdown is: stable (20), increasing (1), decreasing (2), insufficient data (2). Addendum 9 contains a table with a summary of the data from the Trends Report.

The Guana Tolomato Matanzas National Estuarine maintains a water quality and nutrient station near the mouth of the San Sebastian River. It has been monitored since 2002.

Ground Water

There are three aquifers located below Fish Island. The following description starts at ground surface and proceeds downward. This information can be viewed graphically in Figure 1.

The first 75 ft. are comprised of Holocene and Pliocene/Pleistocene sediments that comprise the Surficial Aquifer System (SAS). Recharge is from rainfall.

The Intermediate Aquifer System (IAS) is comprised of Miocene sediments and is situated directly below the SAS. It is located approximately 75 – 180 ft. below ground surface. Contained within the IAS are areas of thick clayey, silica-based sediments that are not permeable to water. These sediments provide confinement to the areas located below and are called the Intermediate Confining Unit.

Below the IAS are the sediments that comprise the Floridan Aquifer System (FAS). These primarily carbonate sediments from the Eocene are situated below 180 ft. and can extend for hundreds of feet. The FAS is the primary for drinking water in this part of Florida. Typically, the lower portions of the FAS are more mineralized than the upper portions.

Natural Communities

Fish Island Preserve contains three natural communities and three altered landcover types following the classification system developed by the Florida Natural Areas Inventory (FNAI, 2010). For each of these six systems, there will be a general description and a site-specific description. In addition, there will be a short discussion of the desired future condition, the current condition, and what actions will be required to bring the system to the desired future condition.

The goal of the resource management program at Fish Island Preserve is for all of the natural communities to reach the desired future condition. This equilibrium state is called maintenance condition. The altered landcover types will be managed so they provide the greatest ecological benefit to the property.

Fish Island Preserve was assessed utilizing data from the Florida Forever Conservation Needs Assessment. Priority 1 is the highest priority, and the percentage values are the percentage of the entire property that received that priority ranking. Fish Island Preserve received the following scores.

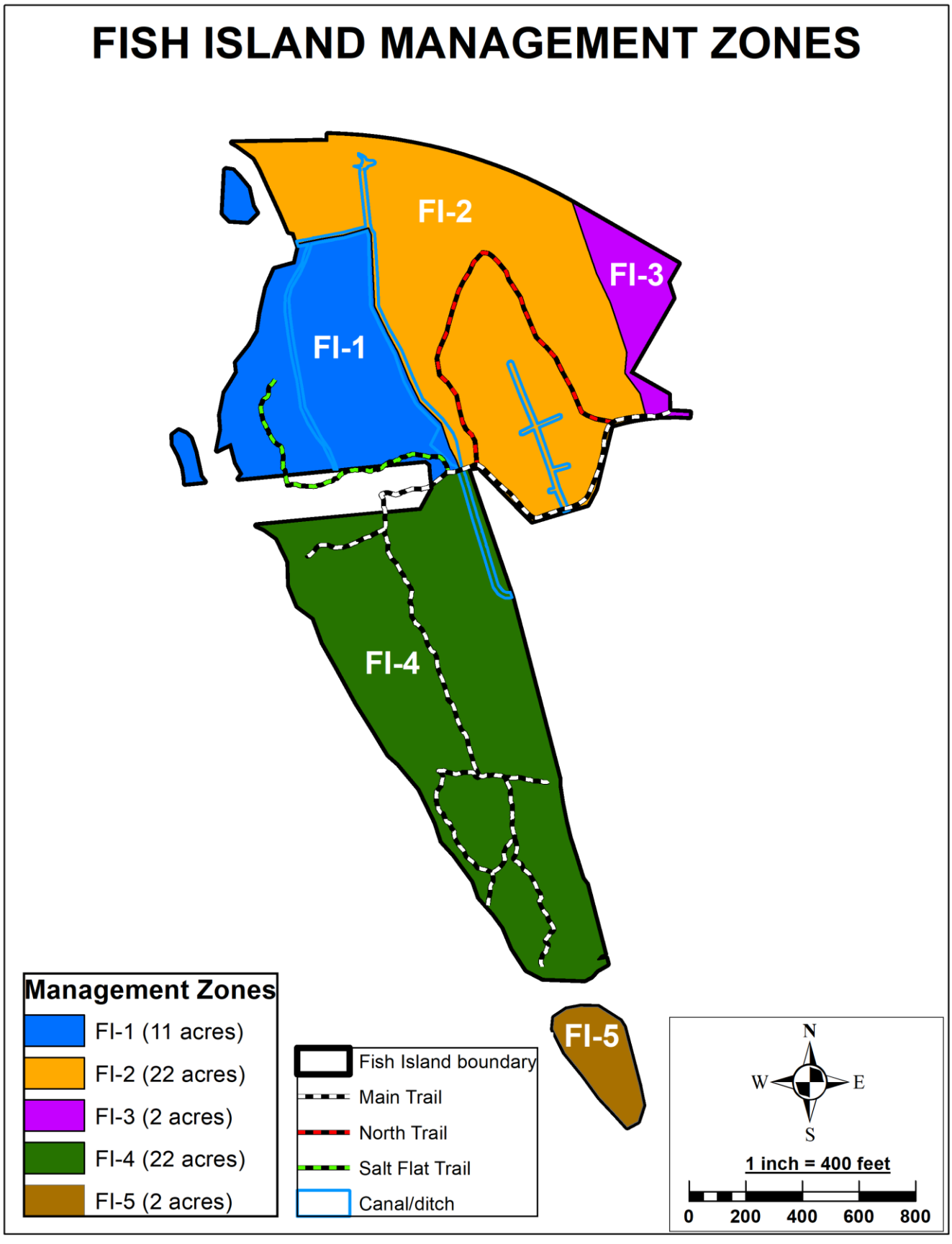
Significant Surface Waters:
Priority 1 – 45%
Priority 2 - 15%
Priority 4 – 32%

Priority Recharge:
Priority 3 – 25%
Priority 4 – 50%

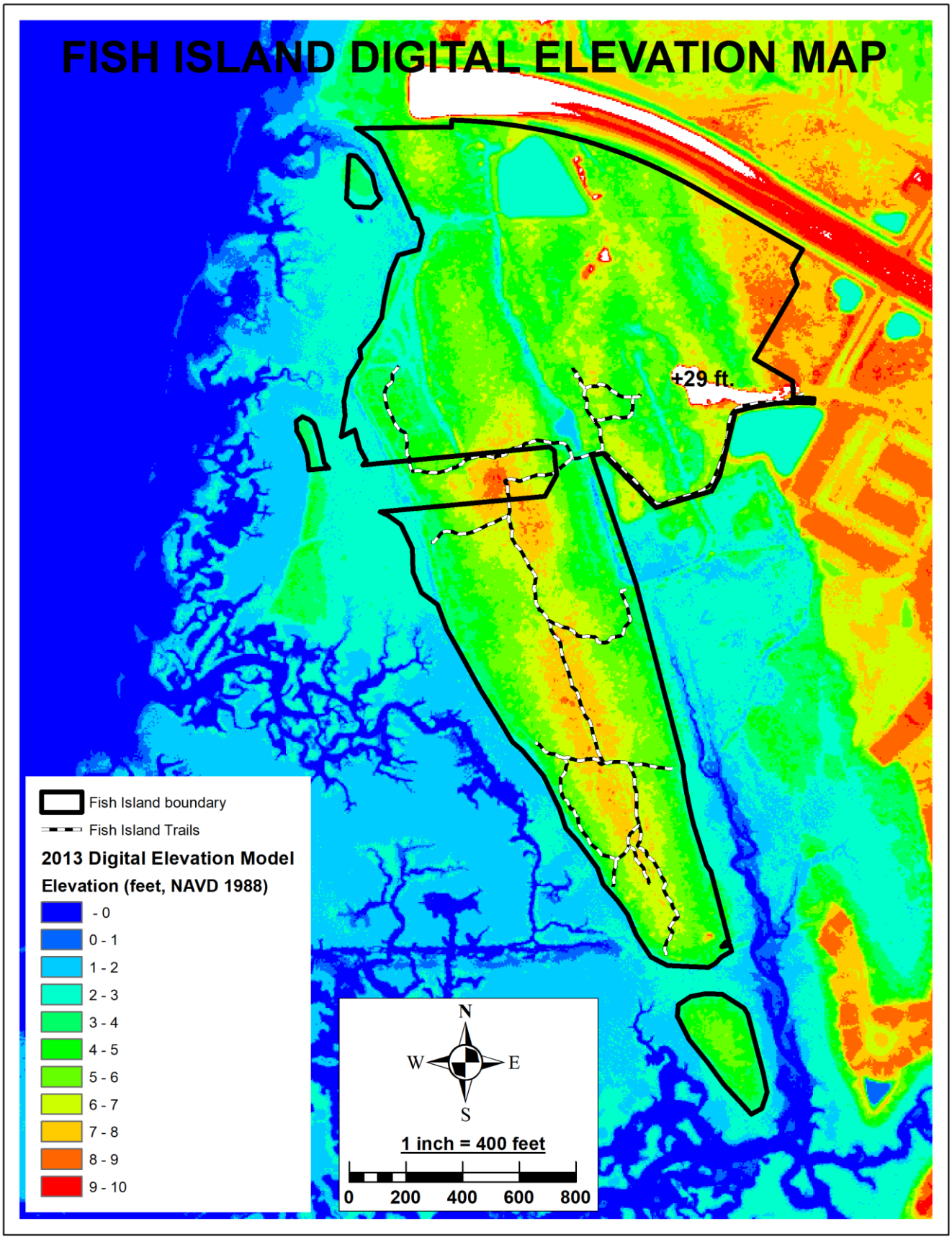
Functional Wetlands:
Priority 3 – 26%

FNAI Rare Species Habitat:
Priority 6 – 27%

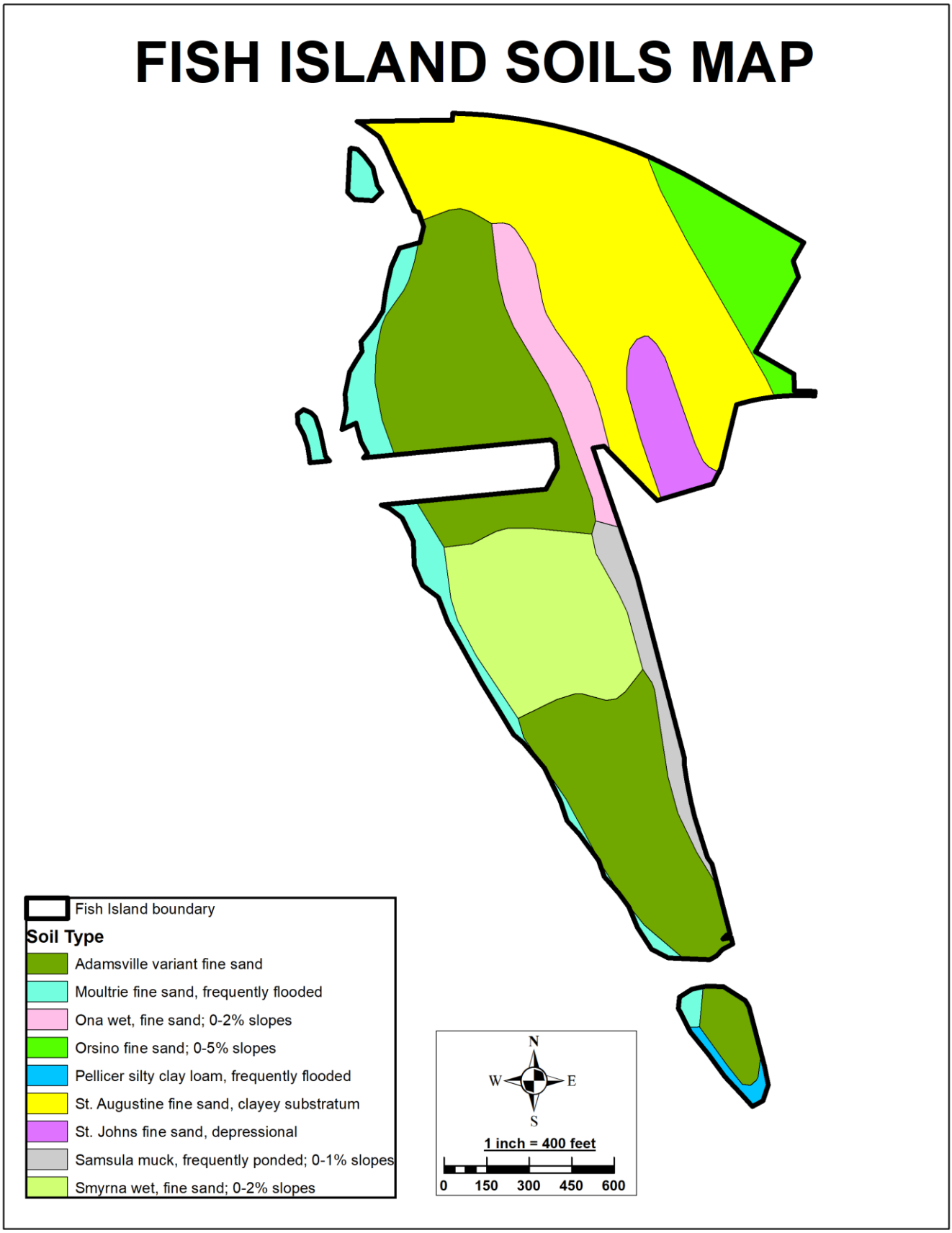
Map 3 - Management Zones Map



Map 4 - Topography Map (Digital Elevation Model)



Map 5 – Soils Map



Natural Floodplain:
Priority 3 – 92%
Priority 4 – 1%
Priority 5 – 2%

Ecological Greenways:
Priority 5 – 98%

A map of the natural communities and altered landcover types is depicted on Map 6. A list of plants and animals documented within Fish Island Preserve can be found in Addendum 5.

Natural Communities:

Maritime Hammock (30.8 acres)

Maritime hammocks are hardwood forests located in the coastal zone on old dunes. They are typically adjacent to estuaries and are influenced by salt spray and severe storms. They are comprised mostly of large evergreen trees that form the canopy, a sub-canopy of medium-sized shrubs, and sparse ground cover. Maritime hammocks also provide very important habitat for songbirds, particularly during migration. They provide food, cover, and areas to rest.

At Fish Island Preserve the maritime hammock was cleared for the planting of citrus in the mid 1700's. All the large hardwood trees present today are likely no more than 150-200 years old. Typical canopy trees include live oak, laurel oak, southern magnolia, pignut hickory, slash and loblolly pine. The subcanopy is more diverse and contains Carolina laurelcherry, red cedar, red bay, cabbage palm, wild olive, yaupon and American holly, sugarberry, tough bully, wax myrtle, Florida swampprivet, coralbean, Hercules-club, American beautyberry, and saw palmetto. The herbaceous layer is quite sparse.

The desired future condition is a dense canopy of hardwood trees with a subcanopy and a sparse, or absent, herbaceous layer. Currently the maritime hammock at Fish Island Preserve is in good condition. Elevations in this hammock range from approximately 5-9 ft. (NAVD88). The storm surge from Hurricane Matthew (2016) was over 7 ft. (NAVD88), which placed a couple of feet of seawater on much of the island. This led to the death of many large pines and some oaks. This hammock is very vulnerable to rising sea levels.

There are several species of exotic plants that are currently negatively impacting the maritime hammock at Fish Island Preserve. They include Brazilian pepper, Chinese tallowtree, lantana, and camphortree. The control of these highly invasive species is necessary to improve the overall condition of the hammock and reach the desired future condition.

In the recent past, this habitat was negatively impacted by many homeless camps. During the acquisition process by the state, the camps were removed (approximately 350 cubic yards of trash were removed). It is anticipated that the old campsite locations will quickly revegetate. Their succession will be monitored.

The Florida Natural Areas Inventory ranks this natural community as S2, which means it is imperiled in Florida because of rarity or because of vulnerability to extinction due to some natural or man-made factor.

Salt Marsh (4.6 acres)

Salt marshes are herbaceous natural communities located in low-energy intertidal areas in the coastal zone. They typically contain distinct zones that result from the salinity and the frequency of inundation.

Salt marshes are highly productive natural communities, providing habitat for many species of shellfish and fish, which in turn provides food for a wide variety, and large numbers of, wading birds, terns, and shorebirds. In addition, salt marshes act as filters that absorb nutrients coming from the adjacent uplands.

At Fish Island Preserve most of the salt marsh receives daily tides and is dominated by saltmarsh cordgrass. Other common plant species include saltmeadow cordgrass, seaside oxeye, marsh elder, glassworts, saltwort, saltgrass, needlerush and black mangroves. The numbers of black mangroves in the salt marsh at Fish Island Preserve have increased significantly in the past 30 years.

The desired future condition for salt marsh is an herbaceous community located in low-energy intertidal areas in the coastal zone. Black mangroves are changing this natural community from herbaceous to woody.

Commonly salt marshes have distinct zones resulting from elevation and tidal inundation. These zones are often referred to as high marsh and low marsh. This habitat is very vulnerable to rising sea levels. The salt marsh at Fish Island is in good condition, but there is a concern with the habitat being drowned in the future as a result of sea level rise. The property is part of a grant-funded research project, led by the University of Florida, looking at ways to keep salt marsh accretion greater than sea level rise.

The salt marsh at Fish Island contains Brazilian pepper along the ecotone with the maritime hammock but is very near its desired future condition.

The Florida Natural Area Inventory ranks this natural community as S4, which means apparently secure in Florida (may be rare in parts of its range).

Xeric Hammock (3 acres)

Xeric hammocks are evergreen forests located on well-drained sandy soils. They typically have a low, closed canopy and an open understory. On barrier islands they are typically a successional stage of coastal scrub, due primarily to the exclusion of fire.

At Fish Island the canopy consists of sand live oak, myrtle oak, wild olive, red bay, and Chapman's oak. The mid and understory is comprised of saw palmetto, fetterbush, sparkleberry, common persimmon, bracken fern, and cockspur pricklypear. Spanish moss is common in the oaks. The herbaceous layer is very sparse. Elevations in the xeric hammock range from approximately 7-9 ft. (NAVD88).

The desired future condition is a low, mostly closed canopy of evergreen hardwoods with an open understory of shrubs. The xeric hammock at Fish Island Preserve is in good to excellent

condition. It has very few exotic plant problems and contained a small number of homeless camps prior to acquisition. It is very near its desired future condition.

An approximately 0.9-acre portion of xeric hammock is encumbered by an "Access, Drainage, and Utility Easement" that was granted by the previous seller to the adjacent landowner and was negotiated during the acquisition process by the state (see Map 9). The easement allows for the construction of a stormwater retention pond.

The Florida Natural Areas Inventory ranks this natural community as S3, which means either very rare and local in Florida or found locally in a restricted range or vulnerable to extinction from other factors.

Hydric Hammock (1.5 acres)
A hydric hammock is an evergreen and cabbage palm forest on poorly drained wetland soils with an understory typically dominated by palms and ferns. The plant composition is strongly influenced by the hydroperiod of the site.

The area delineated at Fish Island Preserve as hydric hammock was impacted by dredge fill activity in the mid-1920's. Based on a topo survey that was conducted prior to the dredge fill activity, this linear feature was located near the bottom of a slope that transitioned from what is now xeric hammock to what was then salt marsh. Current elevations range from 2.8 – 5.5 ft. (NAVD88). The limited canopy is currently dominated by cabbage palm. Historical aerials show the area with more canopy, with significant canopy loss following Hurricanes Matthew and Irma. Other common plants include saw palmetto, wax myrtle, muscadine grape and cinnamon fern.

The desired future condition is a closed canopy, evergreen hardwood and/or palm forest with a variable understory dominated by palms, with sparse to moderate ground cover of grasses and ferns. Typical canopy species include laurel oak, cabbage palm, live oak, sweetbay, swamp tupelo, American elm, red maple and other hydrophytic tree species. Soils are poorly drained, with a normal hydroperiod seldom over 60 days per year. Hydric hammock should occasionally burn by allowing fires to naturally burn across ecotones from fires originating in adjacent upland natural communities. Due to the urban location of the property, no prescribed fire is being considered.

Brazilian pepper and Chinese tallowtree are currently negatively impacting this habitat at Fish Island. The control of these highly invasive species is necessary to improve the overall condition of the hammock and reach the desired future condition.

The Florida Natural Area Inventory ranks this natural community as S4, which means apparently secure in Florida (may be rare in parts of its range).

Altered Landcover Types:

Spoil Area (15 acres)

Spoil areas are defined as areas on which dredge, or spoil material has been deposited. At Fish Island, the area mapped as spoil area was historically salt marsh. In the mid 1920's, dredge spoil

was deposited on top of approximately 15 acres. This activity was done as part of a land development project that led to the development of Davis Shores (located to the north of Fish Island). It is estimated that 3-5 ft. of dredged material was placed on top of the salt marsh.

Currently the area is dominated by red cedar, laurel oak and Brazilian pepper. In general, the vegetation is fairly sparse. Exotic plant removal efforts will occur in this area. There are currently no plans to restore this area (remove the spoil and return it to salt marsh). The northern end of the property is blocked by S.R 312, which is historically the northern extent of the salt marsh. If a large mitigation project in this mitigation basin was needed, then the City could discuss this with DEP – State Lands as a possible project.

There are several smaller areas of spoil on the property that were deposited on uplands (vs. salt marsh). These areas will be addressed in a future restoration/enhancement plan.

Artificial Pond (2.1 acres)

In 1997, two perpetual easements totaling 2.3 acres were granted to the Florida Department of Transportation (FDOT) for the construction of a stormwater pond and outfall (via a ditch to the Matanzas River) on the Fish Island property, for the widening of S.R. 312. In 1998-99, a 2-acre artificial pond was constructed. The pond is fenced and maintained by FDOT.

In 2019 a drainage easement was granted on the northeast corner of the Fish Island property for the construction of a stormwater pond and outfall. The stormwater pond area is approximately 0.9 acre. If constructed, it will be added in future natural community mapping.

Canal/ditch (1.8 acres)

There is approximately 3,600 linear feet of canal/ditch that has been constructed on this property. Approximately 2,700 feet of canal/ditch was constructed by mosquito control in the 1960‘s on the eastern side of the property. These ditches now serve as stormwater outlets for the FDOT stormwater pond located on the property and the wet areas on the east side of the property. During state acquisition, a drainage easement was granted from the owner to the property adjacent to the northeast corner. This easement allows for a stormwater pond to be constructed on the Fish Island property with an outfall through the property and connecting to an existing ditch. If constructed, it will be added in future natural community mapping.

The ditch on the western side of the property (approximately 900 feet) is believed to have been constructed during the Jesse Fish era. If so, it was likely dug by hand. It has been suggested by archaeologists that this ditch was constructed to aid in the transport of goods and people between the plantation house and the wharf (White & Halbirt, 2001). There is an additional unmapped feature along the western edge of the property, in the salt marsh. It appears to be more of a low berm with an adjacent swale. Its function is unknown, as is the date of its construction.

Developed (0.4 acres)

The small, developed area is adjacent to the FDOT stormwater pond and S.R. 312. It is currently mowed and maintained by a FDOT contractor. Because of its location, this area will continue to be mowed and maintained, as is.

Imperiled Species

Imperiled species are defined as those whose populations are in decline and may be in danger of extinction. These species are listed as either endangered or threatened by the U.S. Fish and Wildlife Service (plants and animals), threatened by the Florida Fish and Wildlife Conservation Commission (animals) or endangered or threatened by the Florida Department of Agriculture and Consumer Services (plants). In addition, the Florida Natural Areas Inventory tracks plants and animals as critically imperiled or imperiled.

No imperiled plant species have been documented on Fish Island Preserve. To date, nine imperiled species of animals have been documented on the property. They are listed in Table 2 below along with the agency, the current ranking, the management activities proposed, and the proposed level of monitoring.

All but one of the imperiled species at Fish Island are birds. Most of the birds are wading birds that utilize the salt marsh for feeding/loafing and the adjacent trees along the marsh edges for resting. No nesting of these species has been observed on the property.

The property contains a bald eagle nest. It was active from 2001 until 2016. Hurricane Matthew (October 2016) did considerable damage to the nest and nest tree in 2016. The nest was inactive in 2017, as well (Hurricane Irma impacted the area in September 2017). The nest tree and many of the other large slash pines were inundated by salt water for fairly long periods of time during, and after, both hurricanes. Many of the large pines on the island are now dead, including the nest tree.

The eagle pair nested in 2018, but it was obvious that the tree limbs that supported the nest were deteriorating. In 2019, they utilized the nest tree for courtship and resting, but no nest reconstruction occurred. The eagle pair nested in a dead pine tree to the north of the preserve. In fall 2020, a new nest in a live pine tree was constructed on Fish Island Preserve and two eaglets fledged. The nesting adults were new to the area since the pair that nested north of the preserve in 2019 nested there again in 2020.

In September 2019, a fresh Florida black bear track was observed on Fish Island. It was a young bear based on track size. The Florida Fish and Wildlife Conservation Commission considers this area to be within the common range of bears and it is within 6 miles of the abundant range.

Map 6 - Natural Communities Map – Existing Conditions

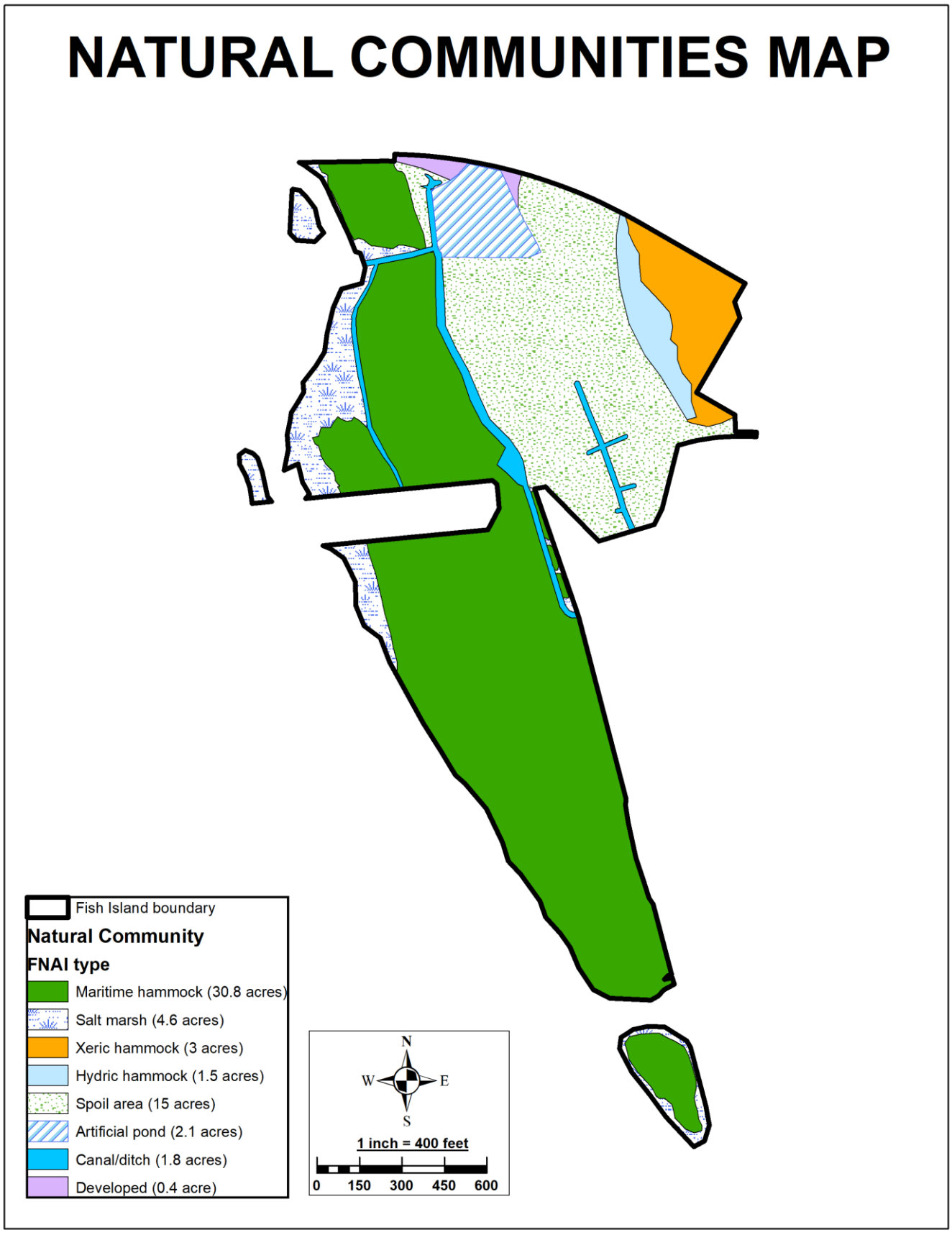


Table 2: Imperiled Species Inventory

Common and Scientific Name	Imperiled Species Status				Management Action	Monitoring Level
	USFWS	FWC	DACS	FNAI		
BIRDS						
Little Blue Heron (*Egretta caerulea)*		ST		S4	1,2	1
Reddish Egret (*Egretta rufescens)*		ST		S3	1,2	1
Snowy Egret (*Egretta thula)*				S3	1,2	1
Tricolored Heron (*Egretta tricolor)*		ST		S4	1,2	1
White Ibis (*Eudocimus albus)*				S4	1,2	1
Bald eagle (*Haliaeetus leucocephalus)*				S3	2	2
Wood Stork (*Mycteria americana)*	FT	FT		S2	1,2	1
Black-crowned Night Heron *Nycticorax nycticorax*				S3	1,2	1
Painted Bunting (*Passerina ciris)*				S1,S2	1,2	1
Roseate Spoonbill (*Platalea ajaja)*		ST		S2	1,2	1
Royal Tern (*Thalasseus maximus)*				S3	1,2	1
MAMMALS						
Florida Black Bear *Ursus americanus floridanus*				S2	1	1

Species Status:
FT = Federally-designated Threatened
ST = State-designated Threatened
S2 = State Imperiled
S3 = State Very Rare, vulnerable to extinction
S4 = Apparently secure in state, may be rare in parts of its range

Management Action:
1. Exotic plant removal
2. Protection from visitor impacts

Monitoring Level:
1. Casual, non-targeted observation
2. Specific, targeted observation

Exotic and Nuisance Species

Exotic species are defined as plants and animals that are not native to this portion of Florida. Invasive exotic species can out-compete native species. If not managed, they can alter the species composition, character, and conservation value of a natural area.

Nuisance species are native plants and animals that can spread quickly and out-compete other native species. Disturbance, altered hydrology and nutrient loading are examples of changes to a natural area that can lead to a marked increase in nuisance species.

Nine species of exotic plants that are listed as Category I and Category II by the Florida Exotic Pest Plant Council (FLEPPC) have been documented at Fish Island. A Category I species is defined by FLEPPC as an invasive exotic that is altering native plant communities by displacing native species, changing community structures or ecological functions, or hybridizing with natives. A Category II species is an invasive exotic that has increased in abundance or frequency but has not yet altered native plant communities to the extent shown by Category I species.

All portions of Fish Island are subject to the spread of invasive plants due to the amount of disturbance the entire property has received, and the property's relatively small size. Brazilian pepper presents the greatest threat and is currently the most widespread exotic plant species on Fish Island. After that, Chinese tallowtree, Chinaberry, and camphortree are the most numerous species and are high priority species targeted for control. The City applied for FWC Upland Invasive Plant funding in FY 2020-21 but unfortunately did not receive funding. The City will apply in FY 2021-22. In addition, the City is planning on funding and using one of the approved state contractors to begin work on controlling the above-mentioned species in 2021.

Table 3 contains a list of the documented FLEPPC Category I and II species on Fish Island. It also contains the relative distribution of each species along with the management zone(s) in which the species has been documented (see management zone map).

Table 3: Inventory of FLEPPC Category I and II Exotic Plant Species

Common and Scientific Name	FLEPPC Category	Distribution	Management Zone
Camphortree *Cinnamomum camphora*	I	2	FI-4
Umbrella plant *Cyperus involucratus*	II	1	FI-4
Lantana *Lantana strigocamara*	I	2	FI-1, FI-2, FI-4

Common and Scientific Name	FLEPPC Category	Distribution	Management Zone
Chinaberry *Melia azedarach*	II	2	FI-1, FI-2, FI-4
Tuberous sword fern *Nephrolepis cordifolia*	I	1	FI-2
Brazilian pepper *Schinus terebinthifolius*	I	3,6	FI-1, FI-2, FI-3, FI-4
Creeping oxeye *Sphagneticolia trilobata*	II	2	FI-2, FI-4
Chinese tallowtree *Triadica sebifera*	I	2	FI-1, FI-2, FI-3, FI-4

Distribution Categories:
1 – Single plant or clump
2 – Scattered plants or clumps
3 – Scattered dense patches
4 – Dominant cover
5 – Monoculture
6 – Linear distribution

To date, three species of exotic animals have been documented on Fish Island – feral cat, brown anole and armadillo. Coyotes have not been documented on-site but are in the area. At acquisition, there were several feral cats living at the entrance to the property that were being fed. This activity has stopped, and two feral cats have been removed. If feral cats appear, animal control will be contacted for removal.

Detailed management goals, objectives and actions for the management of exotic plants and animals can be found in the Resource Management Program portion of this document.

Special Natural Features

Although the habitat has been altered by historic use and impacted recently by tropical cyclones, the maritime hammock at Fish Island Preserve is an important resting and feeding area for migrating birds, particularly songbirds during the spring and fall.

Cultural Resources

Description and Assessment

This section discusses the documented cultural sites on Fish Island Preserve and includes prehistoric sites, historic sites and cultural landscapes. The inventory of these documented sites is maintained by the Florida Department of State through the Florida Master Site File (FMSF). The FMSF is the State of Florida's official inventory of historical, cultural resources.

Addendum 7 contains the management procedures for cultural sites per the Florida Department of State, Division of Historical Resources. It also contains the U.S. Department of Interior's definitions for the recommended treatments.

Table 4 lists the documented FMSF sites and provides the cultural period, resource type, significance, a condition assessment and the recommended treatment for each site. The significance is based on the eligibility, or potential eligibility, for listing in the National Register of Historic Places (NRHP). Most of the western portion of Fish Island is NRHP-listed.

The condition assessment is a subjective evaluation based on a three-tier ranking – good, fair, and poor. The recommended treatment follows the U.S Department of Interior's Standards for the Treatment of Historic Properties (U.S. Dept. of Interior, 2017).

Addendum 10 contains a narrative of Fish Island's remarkable history. It is not intended to be the complete history, just a starting point to understand the breadth of use this property has experienced.

Table 4: Fish Island Cultural Sites Listed in the Florida Master Site File

FL Master Site File Number and Site Name	Culture/Period	Description	Significance	Condition	Recommended Treatment
SJ00062 Fish Island	Archaic to Territorial	Prehistoric and Historic	NRL	G-P	P
SJ03299 Troll	St. Johns and St. Johns II	Prehistoric	NS	F	P
SJ04838 Fish Island blockhouse	Second Spanish Period (1783-1821)?	Historic	NRL	P	P
SJ04839 Fish Island wharf	British Period (1763-1783)	Historic	NR	P	P

FL Master Site File Number and Site Name	Culture/Period	Description	Significance	Condition	Recommended Treatment
SJ04840 Fish Island channels	British Period (1763-1783)	Historic	NRL	F	P
SJ04841 Fish Island well #1	British Period (1763-1783)	Historic	NRL	P	P
SJ04842 Fish Island well #2	British Period (1763-1783)	Historic	NRL	P	P
SJ04783 Fish Island boat	20th Century	Historic	NS	NE	

Significance:
NRL – National Register Listed
NR – National Register Eligible
NE – Not Evaluated
NS – Not Significant

Condition:
G – Good
F – Fair
P – Poor
NE – Not Evaluated

Recommended Treatment:
P – Preservation
RH – Rehabilitation
RE – Restoration
ST - Stabilization

Following is a short description of the seven documented FMSF sites located on Fish Island Preserve. SJ04783 (Fish Island boat) is not located on the property but is directly adjacent to it.

SJ00062 – Fish Island

This site is listed in the National Register of Historic Places. The listing occurred on June 13, 1972. The following FMSF sites are located within the boundary of SJ00062: SJ04838, SJ04841, SJ04842, and portions of SJ04840.

Based on artifacts from the site, the prehistoric component of SJ00062 spans from the Orange Period (4,000 – 2,500 ybp) to the St. Johns II Period (1,250 ybp – 1565). During the mid-1700's, most of Fish Island's uplands were converted to agriculture – primarily citrus. White and Halbirt noted midden disturbance on SJ00062 was likely attributable to agricultural endeavors (White and Halbirt, 2001). Since the shell material in the midden is comprised of calcium carbonate, the citrus trees were probably planted into the midden since citrus trees are calcium loving.

The historic components of SJ00062 are discussed in the descriptions of SJ04838, SJ04841, SJ04842 and SJ04840 that follow.

SJ03299 - Troll

This site was recorded in 1995 as a result of the widening of S.R 312. The survey only recorded St. Johns sherds. Subsequent work by White and Halbirt, 2001, identified Orange Period artifacts in the immediate area.

SJ04838 – Fish Island blockhouse

The blockhouse structure is currently comprised of coquina blocks scattered on the ground, with tabby and plaster on some of the blocks. Most of the blocks have been moved or removed from the site. White and Halbirt suggested that the structure dates from the Second Spanish period. An historic map from the late 18th century depicts a structure in this area. Carl Halbirt (personal communication) noted that the blockhouse was relatively intact in the early 1990's.

Currently, the function of the blockhouse is unknown. It has been suggested that it was a guard or sentry house.

SJ04839 – Fish Island wharf

The wharf area contains two parallel walls of coquina, approximately 10 meters long and 3 meters wide. Shovel tests conducted at the base of the coquina walls revealed that the wharf wall was constructed of four courses of block and possibly has some wooden structural elements. At the eastern end of the wharf there appears to be a shallow boat basin.

SJ04840 – Fish Island channels

This feature is an approximately 900 ft. long channel with its northern terminus at the wharf and the southern terminus just northwest of the plantation house. It would make sense that this channel would have been used to transport people and goods to and from the house to the wharf.

SJ04841 – Fish Island well #1

This feature is an approximately 2.5 ft. mostly square coquina well that has been disturbed. Three of the walls are exposed.

SJ04842 – Fish Island well #2

This feature was identified from a depression in the ground. A unit was opened to expose the side of the well. Several coquina blocks were associated with the well, suggesting that the well was lined at the surface.

SJ04783 – Fish Island boat

The remains of a mid-1900's commercial fishing vessel are in the marsh west of Fish Island. Of note is the wood used to construct the vessel – eastern hemlock. This suggests that the vessel was likely constructed in the northeastern U.S. The estimated length of the vessel is between 50-70 feet.

Resource Management Program

Management Goals, Objectives and Actions

This section of the plan identifies measurable management goals that comprise the resource management program for Fish Island Preserve. Each goal contains measurable objectives and actions which are summarized in the plan's Implementation Schedule and Cost Estimates. This summary also contains how progress will be measured, the planning period and the estimated expenses for each of the goals, objectives and actions.

In addition to the Implementation Schedule and Cost Estimates, annual work plans will be developed for specific activities, such as exotic plant removal. The ten-year management plan is based on conditions that exist during the development of the plan. It may become necessary to adjust the plan's priorities and cost estimates as new information and conditions arise.

Natural Resource Management

Hydrological Management

Goal: Protect water quality in the property and improve surface hydrology to the extent feasible.

Objective: Assess the preserve's hydrological restoration needs.
Action 1: Assess the impacts associated with the two easternmost ditches on the surface hydrology of the preserve.

Action 2: Monitor future land use and zoning changes on nearby properties.

Action 3: Assess potential stormwater impacts to the surface waters of the preserve from adjacent and nearby properties.

Natural Communities Management

Goal: Restore and maintain the natural communities/habitats of the property.

Objective 1: Complete a comprehensive plant and animal survey of the preserve.

Action 1: Complete the survey.

Action 2: Create a baseline plant and animal list.

Objective 2: Assess the preserve's natural community restoration needs.

Action: Develop a restoration/enhancement plan for the preserve.

Imperiled Species Management

Goal: Maintain, improve or restore imperiled species populations and habitats in the property.

Objective: Develop baseline imperiled species list for the preserve and the habitats they utilize.

Action: Develop an imperiled species list for the property.

Exotic Species Management

Goal: Remove invasive exotic plants and animals from the property and maintain them in a maintenance phase.

Objective 1: Annually treat one preserve management zone for EPPC Category I and II plant species.

Action 1: Develop annual exotic plant removal work plan.

Action 2: Implement the annual work plan by treating one management zone per year.

Objective 2: Practice preventative measures to ensure that no invasive exotic plants are accidentally introduced or spread within the preserve.

Action: Develop and implement preventative measures.

Objective 3: Monitor the preserve for damage from exotic animal species.

Action: Control exotic animal species as needed.

Cultural Resource Management

Goal: Protect, preserve, interpret and maintain the cultural resources of the preserve.

Objective: Expand level of documentation of cultural resources.

Action 1: Produce digital and archival quality documentation of most significant cultural resources to reduce the loss of information that could occur with natural hazards or human interaction.

Action 2: Update the National Register nomination to include additional information and expand period of significance to include the pre-historic periods.

Objective: Monitor and evaluate all the documented Florida Master Site File (FMSF) sites in the preserve.

Action 1: Annually assess and evaluate all recorded cultural resources for any changes or damage resulting from natural processes or visitor use impacts.

Action 2: Record any new sites with the FMSF.

Action 3: Consult with the Division of Historical Resources Compliance Review in advance of any ground disturbance.

Special Management Considerations

Timber Management Analysis

Chapters 253 and 259, Florida Statutes, require a timber management analysis on parcels larger than 1,000 acres. During the development of this plan, forest (timber) management activities for this property were considered. It was determined that forest management was not needed to meet the property's resource management objectives.

Coastal/Beach Management

Fish Island Preserve has over 7,000 ft. of salt marsh shoreline. All management activities will be designed to maintain or improve the quality of the salt marsh habitat and salt marsh – upland ecotone.

Additional Considerations

Arthropod Control Plan

Fish Island Preserve has been designated as "environmentally sensitive and biologically highly productive". City staff met with Anastasia Mosquito Control District and have executed an Arthropod Control Plan for the preserve (see Addendum 10). Use of adulticides and larvacides are allowed, with restrictions. The plan may temporarily be set aside under declared threats to public or animal health, or during a Governor's Emergency Proclamation.

Sea Level Rise

The property is situated along the Matanzas River and is influenced by changing coastal conditions. Based on digital elevation mapping for the property, the natural elevations range from 0 feet up to 9 feet (NAVD88), where much of the property is between 3-5 feet (NAVD88). The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) indicate that most of the property is also located within the 1% annual chance flood, also known as the 100-yr recurrence interval flood, which defines the Special Flood Hazard area. Such an event has a 1% chance of occurring any given year, and a 26% chance of occurring over a 30-

year timeframe. FEMA FIRM maps indicate that the property is located within a coastal floodplain and special flood hazard areas Zone AE, elevations 7 and 8 feet (NAVD88).

The City of St. Augustine (COSA) was one of the three (3) communities involved in the Community Resiliency Initiative Pilot Projects administered through the Florida Department of Economic Opportunity (FDEO) and funded by the National Oceanic and Atmospheric Administration (NOAA). The objectives of this effort were to assess community vulnerability (City of St. Augustine, 2016) to projected increases in coastal flooding and develop strategies (City of St. Augustine, 2017) to improve resilience to the associated impacts. Three types of coastal flooding were identified for the analysis in the vulnerability assessment, which included:

1. Mean Higher High Water (MHHW), which defines the highest daily high tide, presenting the limit of where land is "wetted" daily and have very limited use.
2. Nuisance flooding – defined as a minor flood event that occurs monthly, often resulting in the flooding of roads.
3. The 1% annual chance flood, also known as the 100-yr recurrence interval flood.

The study assessed the vulnerability of the city to these existing flood conditions with an incremental approach. This involved gradually increasing sea level at half-foot increments to identify "tipping points" in vulnerability. This approach was used to assess the city's existing and future coastal flooding vulnerability. The essential results of this assessment are summarized below:

- Of the three flood types evaluated, nuisance flooding has the largest potential to impact St. Augustine in the near term. An additional 500 acres of land are vulnerable to nuisance flooding with 1-foot of sea level rise (SLR). This scenario could occur as early as the 2030's or as late as 2100, depending on the degree of SLR acceleration.
- Present-day areas subject to nuisance flooding are expected to be flooded almost daily by tides with 1.5-feet of SLR, which could occur as early as the 2040's or after 2100.
- 3-feet of SLR would make today's nuisance flooding equivalent to today's 1% annual chance flood, in terms of the area flooded. This situation could occur in the 2060's with high acceleration, or after 2100 with low acceleration of SLR.
- The 1% annual chance floodplain is projected to increase slowly after the first 1.5 feet of SLR.
- In addition to increased flood extent and depth, SLR also increase the frequency of coastal flood events. The future higher water day-to-day water levels allow smaller, more frequent floods to impact larger areas. For example, despite the relatively small amount of growth or the 1% annual chance flood, it is estimated that a flood equal to today's event will occur twice as often with 1-foot of SLR.

Fish Island Preserve was included in this assessment as it is within the City limits, although it was not specifically described in the report. There are three figures included in the assessment that shows the comparison of current and future conditions with 1.5 and 3 feet of sea level rise for the nuisance, MHHW and 1% annual chance events. From looking at these figures and where Fish Island is located, the following is observed:

- For the MHHW, there is an increase in the projected flooding limits.
- For the nuisance flooding, there is an increase in the projected flooding limits.

- For the 1% annual chance flood, there is an increase in the projected flooding limits.

Based on the conclusions that were summarized in the Coastal Vulnerability Assessment, with the nuisance flooding having the largest potential to impact the City in the short-term, this could impact the Fish Island property. Current nuisance flooding limits are estimated to increase by 1.5 feet due to SLR. This could occur as early as 2030 or as late as 2100 depending on the degree of SLR acceleration.

Resource Management Schedule

A summary and a priority schedule/budget for conducting the resource management activities outlined in this plan can be viewed in the Implementation Component of this management plan.

Land Management Review

The property was acquired in 2019. To date, a land management review has not been conducted.

LAND USE COMPONENT

Introduction

Fish Island Preserve is designated passive, single-use with a goal of providing public outdoor recreation compatible with the protection of the property's cultural and natural resources. For this goal to be met, an analysis of the on-site natural and cultural resources is completed before the conceptual land use plan is developed. In addition, public input from a workshop was part of the process.

The following land use component compiles numerous attributes to develop a land use plan that meets the above-mentioned goal.

External Conditions

In order to make informed decisions about what uses should be proposed for a property, it is important to look at what occurs outside its boundaries.

Fish Island Preserve is located on Anastasia Island, a barrier island in St. Johns County that has very little natural areas remaining that are not currently in public ownership. Based on U.S. Census data, more than 1 million people live within 50 miles of the property. There are more than 725,000 acres of public conservation land within 50 miles of Fish Island, as well. There are numerous, significant conservation areas that are much closer. They include Anastasia State Park, Guana Tolomato Matanzas National Estuarine Research Reserve, Guana River Wildlife Management Area, Twelve Mile Swamp Conservation Area, Matanzas State Forest, Faver-Dykes State Park, Castillo de San Marcos National Monument and Ft. Matanzas National Monument.

Fish Island Preserve is adjacent to the Matanzas River boating trail and across the Matanzas River from the San Sebastian River paddling trail. Both are part of the St. Johns County Greenway, Blueway & Trails Master Plan. Approximately 1 mile to the east of the property is the A1A Trail, a priority corridor in the Florida Greenways and Trails system.

Existing Use of Adjacent Lands

The northern boundary of the property is State Road 312, a busy, 4-lane highway with its eastern terminus at State Road A1A, approximately 1 mile east of the property. The western and southern boundary of Fish Island is the Matanzas River and its associated salt marsh. The adjacent areas to the east are medium density/intensity residential and commercial properties.

Planned Use of Adjacent Lands

The future land use designations for the lands directly to the east of Fish Island are residential medium density/mixed use and commercial medium intensity. The salt marsh areas to the west have an open land designation.

Property Analysis

This section discusses the physical characteristics of Fish Island Preserve to help identify what recreational opportunities can be considered and assessing whether the property can support these opportunities.

Land Area

The uplands of the preserve are comprised of maritime hammock, xeric hammock, hydric hammock and a spoil area. Most of the maritime hammock was part of the historic citrus plantation and is underlain by prehistoric midden material. Elevations range from 5-9 ft. (NAVD88). This area currently has trails through it. Any trail system developed should utilize the existing trails. The remaining trails should be abandoned if they are not needed for access.

The xeric hammock is very small (3 acres) and is in the northeastern portion of the property. It could support a portion of a trail traversing it. Elevations range from 7-9 ft. (NAVD88).

The small hydric hammock has standing water some of the year. It would not be suitable for a trail unless a boardwalk was installed. Due to its small size (1.5 acres), a trail could easily go around it.

The spoil area was created in the mid-1920's when hydraulic fill was pumped from the Matanzas River and placed on top of salt marsh as part of a large development project called Davis Shores. Elevations generally range from 4-7 ft. (NAVD88), with some lower areas. Likely due to the saline soils, the area was mostly devoid of trees and shrubs until the 1960's. This area is not nearly as scenic as other parts of the property. It can support trails, if sited around the low areas.

Water Area

Fish Island Preserve has salt marsh on three sides. The salt marsh is expansive, ranging from 300 ft. to 1,900 ft. wide as one goes from north to south on the western boundary. At low tide, there is no standing water adjacent to Fish Island. Consequently, water access to and from Fish Island is not a viable option from this property.

Shoreline

Fish Island Preserve has more than 1 mile of salt marsh shoreline. Most of this shoreline is deep, organic muck so it is not suitable for any recreational activity. There is a small area of hard sand flat on the northwestern side of the property that appears to be a result of historic manipulation. At high tide there are several small ponds that have water in them. This area can support limited wade fishing.

Natural Scenery

Fish Island Preserve has gorgeous natural scenery, in particular the wide, expansive views of the salt marsh and the towering trees in the maritime hammock. Both habitats are excellent for birding, and nature photography and appreciation.

Significant Habitat

Fish Island Preserve has two good examples of coastal habitats – the maritime hammock and salt marsh. Both support a good diversity of plants and animals.

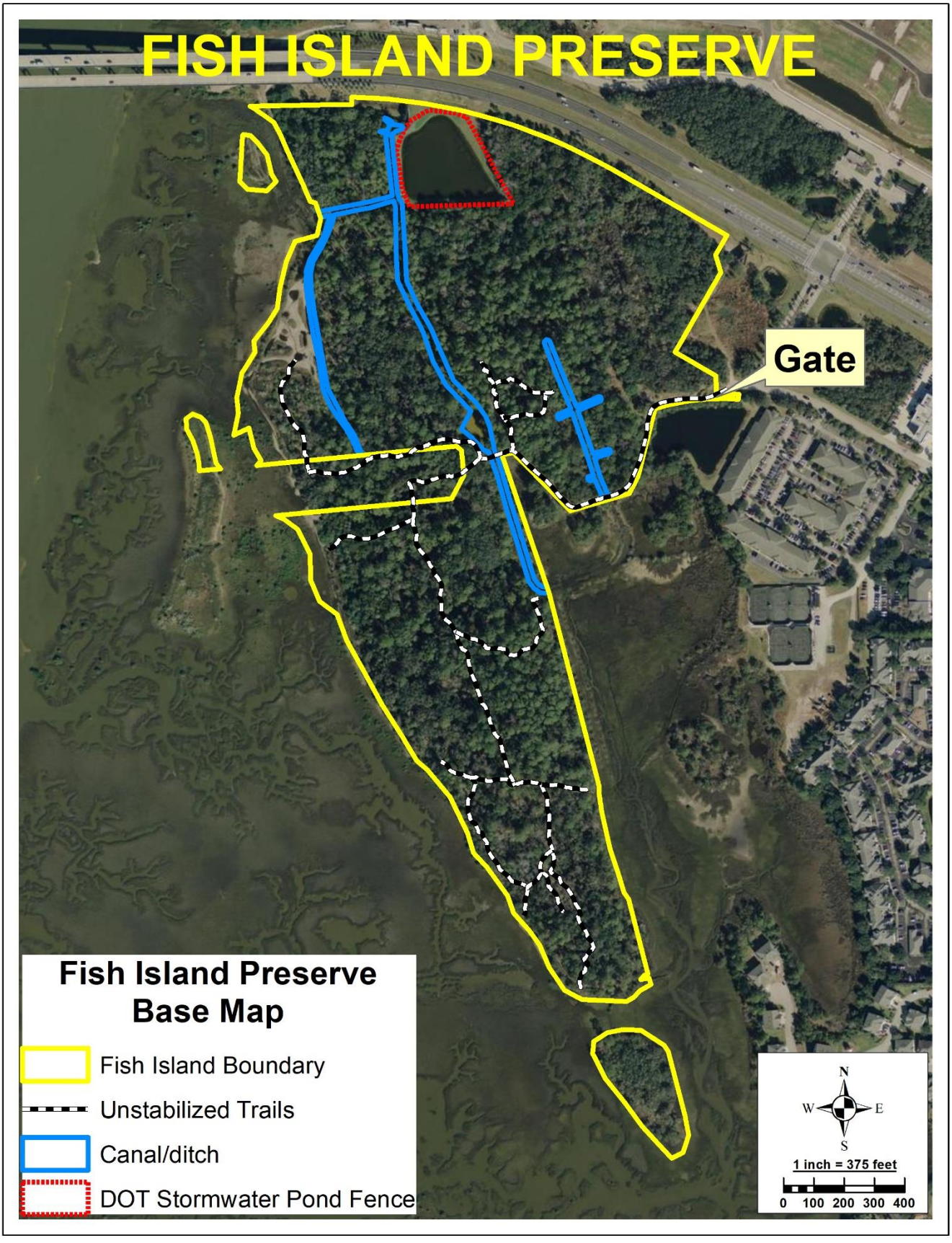
Natural Features

The maritime hammock with its towering trees and the salt marsh with its expansive views are both excellent examples of outstanding natural features.

Archaeological and Historical Features

The cultural resources at Fish Island Preserve are perhaps its greatest treasure. This is exemplified with the island's designation on the National Register of Historic Places. A large portion of the original island contains a prehistoric midden. Prior to any groundbreaking activity, the Florida Division of Historical Resources will be consulted to assure that all work will conform to the provisions and guidelines set forth under Chapter 267, Florida Statutes.

Map 6 - Base Map



Assessment of Use

This section contains short descriptions of the uses of the property. All the trails and ditches can be found on the base map that follows.

Past Uses

Fish Island has documented human use since, at least, 4,000 years before present. In the mid-1700's most of the uplands were converted to a citrus grove. The grove stopped being managed in the early 1800's. In more modern times, it had unregulated use by local citizens and in very recent times it had numerous homeless camps on the site.

Future Land Use and Zoning

The entire property is located within the City of St. Augustine and currently has a future land use designation of Recreation and Open Space for the uplands per the updated 2040 Comprehensive Plan. The jurisdictional wetlands surrounding the property are designated as Open Land.

Currently the property has three zoning designations – Residential General Office – A, Commercial Medium – 2, and Open Land. The City will undergo a rezoning process with plans to designate the upland portions of the property as Government Use and the jurisdictional wetlands surrounding the property as Open Land.

Current Recreational Use and Visitor Programs

As a state land, the property has never been open to the public. Prior to state acquisition in November 2019, the property experienced uncontrolled use.

Other Uses

There are currently no other uses for this property.

Protected Zones

A protected zone is an area that contains sensitive natural and/or cultural resources or is an unusually high-quality example of a natural and/or cultural resource.

The portion of the property that is listed on the National Register of Historic Places has been designated as a protected zone. This encompasses all the maritime hammock mapped in the natural community's map (Map 6). The types of uses and facilities compatible in this protected zone include trails, interpretive kiosks, benches, picnic tables and carefully site-located overlooks.

Existing Facilities

There are currently no existing recreational facilities on Fish Island Preserve.

Conceptual Land Use Plan

The conceptual land use plan that follows contains goals and objectives and a map that outlines the long-term development plan for the property. Numerous attributes are considered such as the property's natural and cultural resources and the landscape setting. This plan is not designed to be static. If new information is identified, the plan should be modified (amended) to adapt to these changes.

Potential Uses

Public Access and Recreational Opportunities

Goal: Provide public access and resource-based recreational opportunities at Fish Island.

All proposed recreational activities at Fish Island will be resource-based and will be consistent with the cultural and natural resources located on the property.

Objective 1: Open the property to the public.

Provide appropriate parking and access to the property.

Objective 2: Provide a minimum of 3 resource-based recreational opportunities within one year of opening the property.

The recreational opportunities being considered at this time are hiking, bicycling, picnicking, nature appreciation, birding, fishing and the interpretation of the natural and cultural resources.

Objective 3: Develop and install interpretive kiosks for the property.

Interpret the cultural and natural resources of the preserve.

Objective 4: Develop 2 interpretive programs for the property within one year of opening the property.

One program should focus on the cultural resources and the other on the natural resources.

Proposed Facilities

Capital Facilities and Infrastructure

Goal: Develop and maintain the infrastructure needed to implement the recreational opportunities for this property.

Objective: Maintain the recreational facilities for this property.

The parking area, trailhead, trails, overlooks and interpretive kiosks will need to be maintained at an acceptable level.

Facilities Development

The cost estimates for all the recommended infrastructure can be found in the Ten-Year Implementation Schedule and Cost Estimates located in Table 5. The cost estimates are preliminary and may get revised once further design is completed.

New facilities planned for this property include a parking area, trailhead, overlooks and interpretive kiosks. The trail system will utilize existing trails. The proposed trail system crosses private property. The city has executed an access easement with the private property owner. The easement is revokable, so an alternative trail section is identified in the Conceptual Land Use map (Map 7) to circumvent the private property, if needed.

Recreational Carrying Capacity

A recreational carrying capacity is an estimate of the number of users that can recreate in a natural or cultural resource or a facility without degrading the resource or facility. It is important to provide the highest quality recreational experience.

The suggested recreational carrying capacity for this property utilizing the proposed recreational uses is:

Trail Use: 40 at one-time, 180 daily. These values include hiking, bicycling, fishing, birding, picnicking and nature appreciation. All these activities utilize the same trail system.

Optimum Boundary

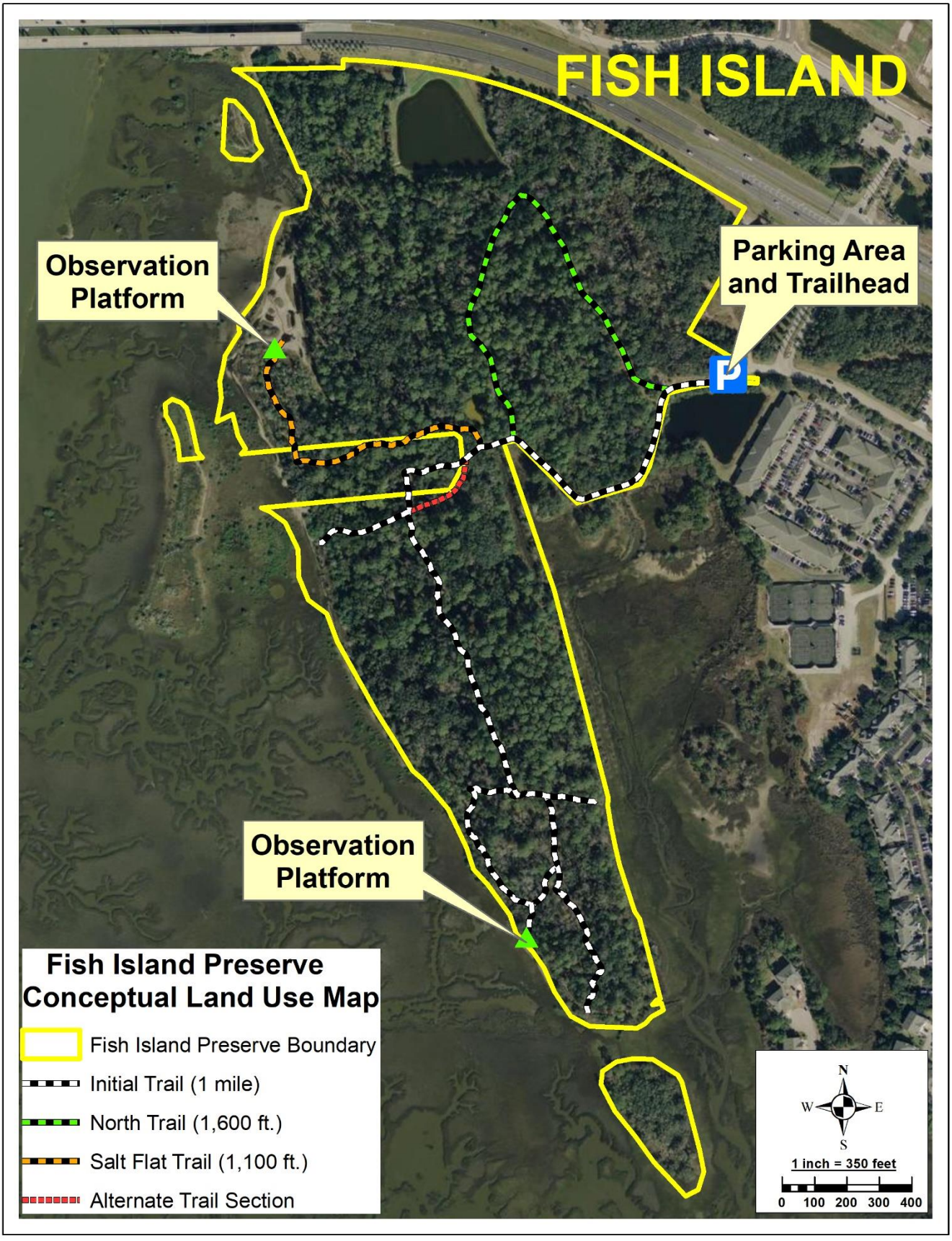
An optimum boundary is an area identified that is not part of the current boundary, but if added to the current boundary will improve the overall management ability, resource value and/or protection of the property.

Any property identified as optimum boundary is intended for planning purposes only. It is not to be used for any regulatory purposes, nor is it to be used to restrict any rights of any private landowner.

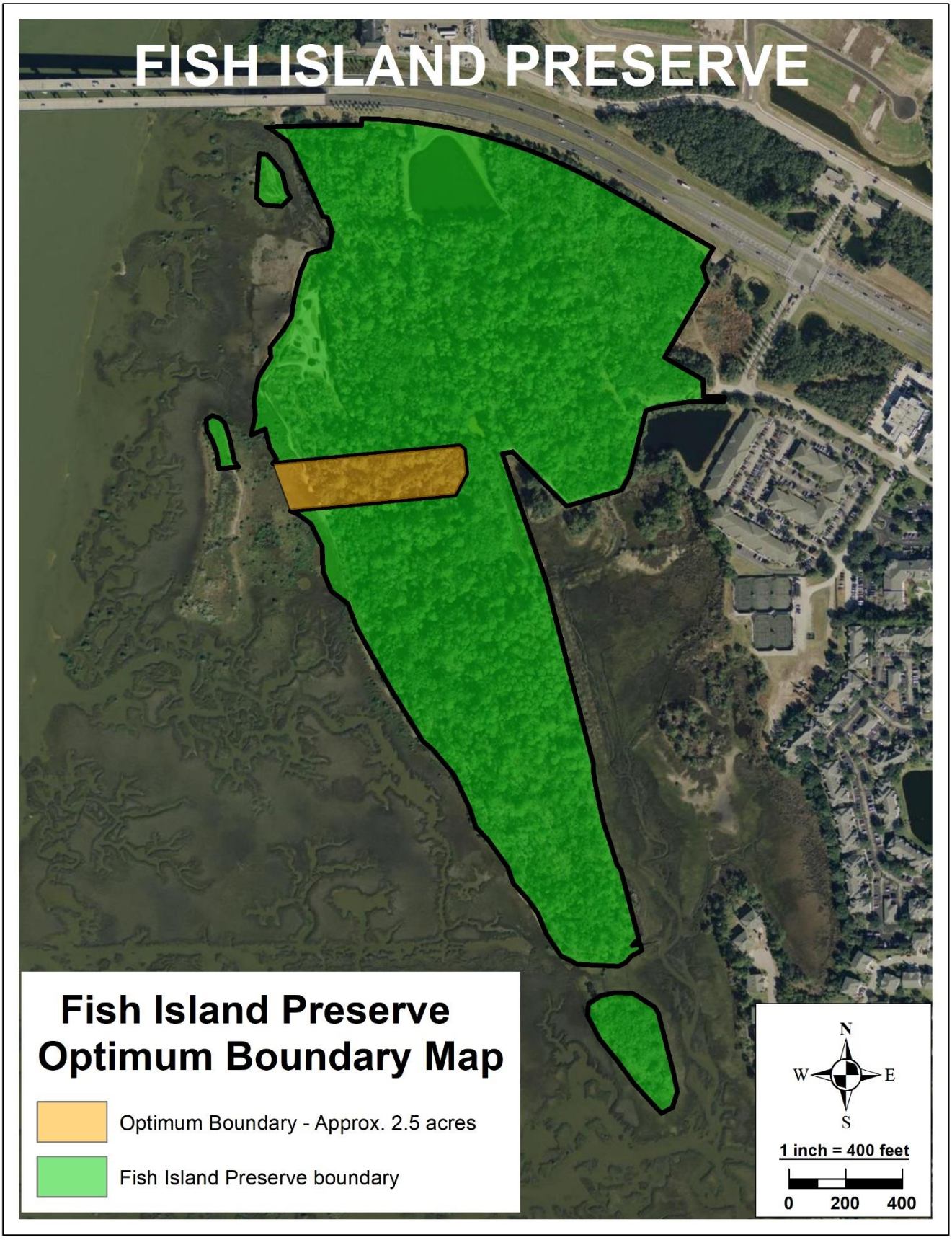
An approximately 2.5-acre parcel that is located on the western boundary of Fish Island Preserve has been identified as an optimum boundary (see Map 8). This parcel contains significant cultural resources and would enhance the resource value of the property. In addition, two existing trails traverse this parcel, including the main trail that provides access to the southern 21 acres (1/3) of the property. The city has obtained an access easement for the public to traverse the private property, but the easement is revokable.

This section of the management plan is also used to identify any portion(s) of the property that is not needed for management of the property. There are no portions of this property that are not needed for management.

Map 7 – Conceptual Land Use Map



Map 8 - Optimum Boundary Map



IMPLEMENTATION COMPONENT

The resource management and land use components of this plan discuss the preserve's cultural, natural and recreational resources in some detail. They describe the property's management needs and problems and provide short and long-term objectives and actions to the needs and problems.

The implementation component contains two parts. First are the accomplishments since acquisition in November 2019. The second part is the Ten-Year Implementation Schedule and Cost Estimates that is in Table 5. It is a compilation of the management goals, objectives and actions located throughout this document and includes management measures, the planning period and estimated costs.

Management Progress

Fish Island Preserve was acquired in November 2019. The City hopes to open the property to the public in early 2021. The lease from the Trustees was executed in October 2020. The following work has been accomplished.

Preserve Administration and Operations

- Over 1,000 volunteer hours have been donated on the property, primarily associated with a clean-up day that removed over 25 cubic yards of trash.
- Contractor removed over 300 cubic yards of trash.
- City staff have designed the initial parking area, trailhead and trail system.
- City of St. Augustine and Florida Fish and Wildlife Conservation Commission law enforcement officers are both patrolling the property.

Resource Management

Natural Resources

- Staff and volunteers have hand-pulled hundreds of invasive exotic plants.
- Identified and mapped the invasive plant infestations.
- A preliminary plant and animal survey has been completed.

Cultural Resources

- City staff are working with the Florida Public Archaeology Network and the St. Augustine Archaeological Association to monitor the sites recorded on the Florida Master Sites on the property.

Preserve Facilities

- Designed and mapped the proposed trail system.
- Allocated funding for the design and engineering of parking area and trailhead.

Management Plan Implementation

This management plan has a ten-year planning scope. Information throughout this document is utilized to develop the Ten-Year Implementation Schedule and Cost Estimates that is in Table 5. It is a compilation of the management goals, objectives and actions located throughout this document and includes management measures, the planning period and estimated costs. It is arranged utilizing the accepted five land management categories: Resource Management, Administration and Support, Capital Improvements, Recreation Visitor Services and Law Enforcement.

The actions in this plan will be accomplished by City staff, volunteers and contractors and are subject to available funding. Grant funding will be sought to accomplish the plan's goals.

The goals, objectives and actions in this plan are based on the best information available at the writing of the plan. If new information becomes available, then the proposed schedules and costs may need to be adjusted.

Table 5 – Ten-Year Implementation Schedule and Cost Estimates

Goal 1: Provide administrative support to the preserve at current levels.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective 1	**Continue administrative support to the preserve at current levels.**	Ongoing Admin. Support	C	**$50,000**
Objective 2	**Expand administrative support as new facilities are developed.**	Expand Admin. Support	LT	**$40,000**
Goal 2: Protect water quality in the property and improve surface hydrology to the extent feasible.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective	**Assess the preserve's hydrological restoration needs.**	Assessment Completed	C	**$6,000**
Action 1	Assess the impacts associated with the two easternmost ditches on the surface hydrology of the preserve.	Assessment Completed	LT	$4,000
Action 2	Monitor future land use and zoning changes on nearby properties.	Monitoring Done	C	$1,000
Action 3	Monitor potential stormwater impacts to the surface waters of the preserve from adjacent and nearby properties.	Monitoring Done	C	$1,000
Goal 3: Restore and maintain the natural communities/habitats of the property.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective 1	**Complete a comprehensive plant and animal survey of the preserve.**	Complete list	ST	**$3,000**
Action 1	Complete the survey.	Complete Survey	ST	$1,500
Action 2	Create a baseline plant and animal list.	Complete List	ST	$1,500
Objective 2	**Assess the preserve's natural community restoration needs.**	Assessment Completed	LT	**$3,000**
Action	Develop a restoration/enhancement plan for the preserve.	Plan Completed	LT	$3,000
Goal 4: Maintain, improve or restore imperiled species populations and habitats in the property.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective	**Develop baseline imperiled species list for the preserve and the habitats they utilize.**	List Developed	ST	**$500**
Action	Develop an imperiled species list for the property.	List Developed	ST	$500

*2021 Dollars
ST = Short-term (actions within 2 years)
LT = Long-term (actions within 10 years)
C = Continuous (short-term or long-term actions)

Goal 5: Remove invasive exotic plants and animals from the property and maintain them in a maintenance phase.		Measure	Planning Period	Estimated Manpower and Expense Cost* (10-years)
Objective 1	**Annually treat one preserve management zone for EPPC Category I and II plant species.**	Acres Treated	C	**$100,500**
Action 1	Develop and update annual exotic plant removal work plan.	Plan Dev. and Updated	C	$500
Action 2	Implement the annual work plan by treating one of the preserve's management zones per year.	Plan Implemented	C	$100,000
Objective 2	**Practice preventative measures to ensure that no invasive exotic plants are accidentally introduced or spread within the preserve.**	Measures Implemented	C	**$5,000**
Action	Develop and implement preventative measures.	Measures Dev. and Implemented	C	$5,000
Objective 3	**Monitor the preserve for damage from exotic animal species.**	Provide Monitoring	C	**$5,000**
Action	Control exotic animal species as needed.	# of Species Controlled, as needed	C	$5,000
Goal 6: Protect, preserve, interpret and maintain the cultural resources of the preserve.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective 1	**Monitor and evaluate all the documented Florida Master Site File (FMSF) sites in the preserve.**	All Sites Monitored and Evaluated	C	**$51,000**
Action 1	Complete evaluations utilizing the Heritage Monitoring Scout program developed by the Florida Public Archaeology Network.	Evaluation Completed	C	$50,000
Action 2	Record any new sites with the FMSF.	Record Completed, as needed	C	$500
Action 3	Consult with the Division of Historical Resources Compliance Review in advance of any ground disturbance.	DHR Consulted, as needed	C	$500
Objective 2	**Expand level of documentation of cultural resources.**	All Sites Monitored and Evaluated	ST	**$17,000**
Action 1	Produce digital and archival quality documentation of most significant cultural resources to reduce the loss of information that could occur with natural hazards or human interaction.	Documentation Completed	ST	$12,000
Action 2	Update the National Register nomination to include additional information and expand period of significance to include the pre-historic periods.	Nomination Updated	ST	$5,000

*2021 Dollars
ST = Short-term (actions within 2 years)
LT = Long-term (actions within 10 years)
C = Continuous (short-term or long-term actions)

Goal 7: Provide public access and resource-based recreational opportunities at Fish Island.		Measure	Planning Period	Estimated Manpower and Expense Cost* (10-years)
Objective 1	**Open the property to the public.**	Property Open	ST	**$100,000**
Objective 2	**Provide a minimum of 3 resource-based recreational opportunities within one year of opening the property.**	Opportunities Provided	ST	**$25,000**
Objective 3	**Develop and install interpretive kiosks for the property.**	Kiosks Dev. and Installed	ST	**$50,000**
Objective 4	**Develop 2 interpretive programs for the property within one year of opening the property.**	# of Interpretive Programs	ST	**$1,000**
Goal 8: Develop and maintain the infrastructure needed to implement the recreational opportunities for this property.		**Measure**	**Planning Period**	**Estimated Manpower and Expense Cost* (10-years)**
Objective	**Maintain the recreational facilities for this property.**	Facilities Maintained	C	**$110,000**
Summary of Estimated Costs				
Management Categories			**Total Estimated Manpower and Expense Cost* (10-years)**	
Administration and Support			**$90,000**	
Resource Management			**$191,000**	
Recreation/Visitor Services			**$176,000**	
Capital Improvements			**$110,000**	
Law Enforcement		Law enforcement is provided by the City of St. Augustine Police Department and the Florida Fish and Wildlife Conservation Commission's Division of Law Enforcement		

*2021 Dollars
ST = Short-term (actions within 2 years)
LT = Long-term (actions within 10 years)
C = Continuous (short-term or long-term actions)

Addendum 1 – Acquisition History

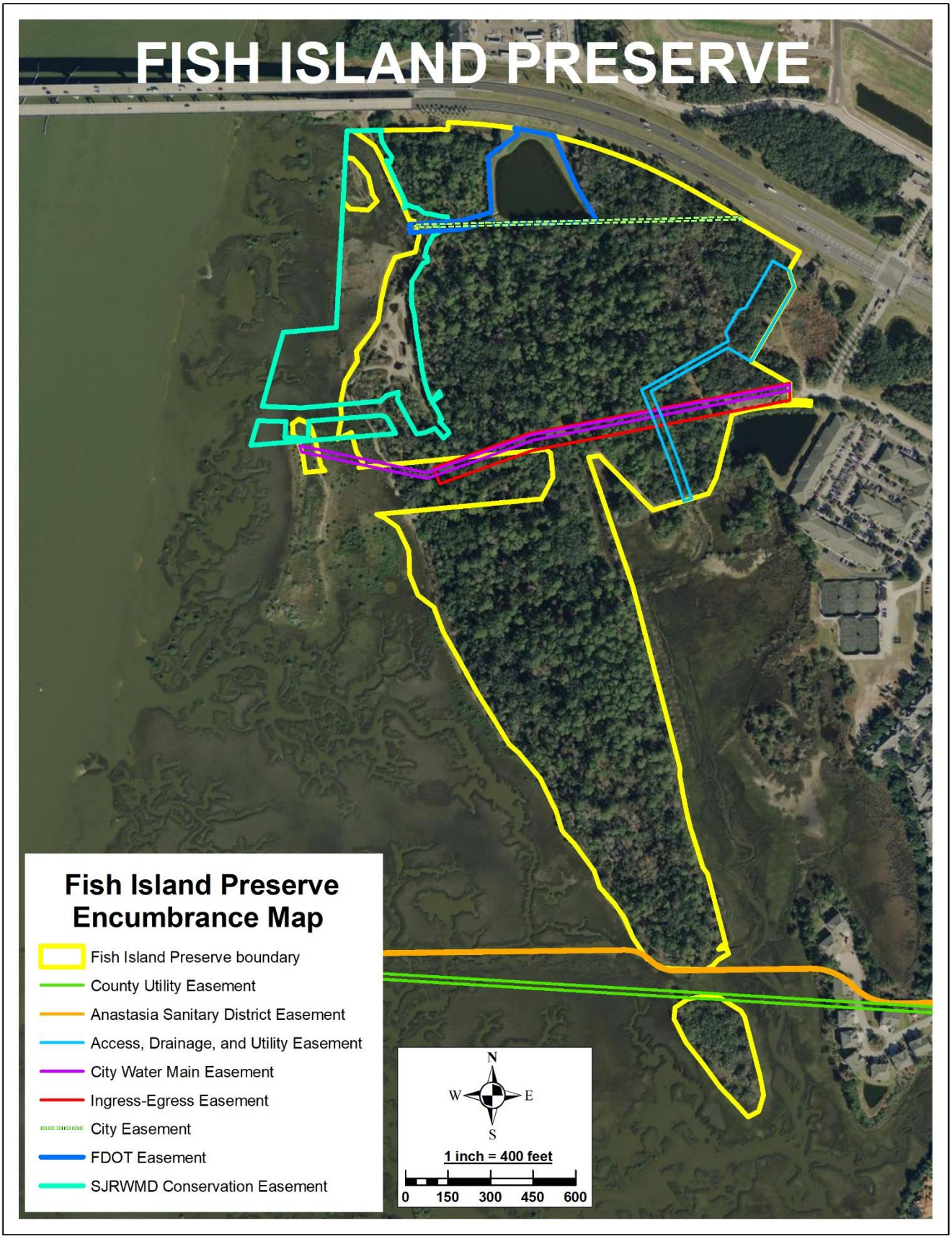
Fish Island was acquired in full fee by a warranty and a quit claim deed on November 15, 2019 and is owned by the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida (Trustees). It is part of the Northeast Florida Blueway Florida Forever Project and is currently ranked #5 in the Climate Change Lands Project category.

Fish Island Preserve is a culturally and ecologically rich property that is important for the protection of coastal uplands and wetlands. In addition, it provides storm and groundwater protection and perhaps most importantly provides the local community with continued coastal resilience.

The City of St. Augustine was granted a lease by the Trustees on October 6, 2020 (Lease # 4843) to manage the property.

The property is constrained by eight encumbrances (see Map 9). None of the encumbrances preclude or hinder the City's ability to manage the property's cultural or natural resources.

Map 9 – Encumbrances



Addendum 2 – References Cited

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Addendum 3 – Soil Descriptions

The following soil descriptions are from the United States Department of Agriculture, Natural Resource Conservation Service's Official Soil Series Descriptions.

Adamsville variant fine sand

This soil series is comprised of very deep, somewhat poorly drained, rapidly permeable soils found on broad flats and low knolls. They formed in thick sandy marine sediments. Slopes typically range from 0-5%. This soil type can extend to a depth of 80 inches, or more, and is acidic. The water table can be as shallow as 18 inches below surface during the wet season and up to 60 inches during the dry season. At Fish Island, this soil type is associated with the maritime hammock.

Moultrie fine sand, frequently flooded

The Moultrie soil series consists of very deep, very poorly drained, rapidly permeable soils found in salt marshes. They formed in thick deposits of sandy marine sediments. This soil type can extend to a depth of 80 inches and is alkaline near the surface becoming more acidic as depths increase. The water table is within 10 inches of the surface most of the year and is strongly affected by tidal fluctuations. At Fish Island, this soil type is associated with the salt marsh.

Ona wet, fine sand; 0-2% slopes

This soil series is comprised of poorly drained, moderately permeable soils that formed in thick sandy marine sediments found in flatwood areas. Slopes typically range from 0-2%. This soil type can extend to a depth of 80 inches, or more, and is acidic. The water table is within 10 inches of the surface during the wet season and up to 40 inches during the dry season. At Fish Island, this soil type is associated with the upland margins of salt marsh.

Orsino fine sand; 0-5% slopes

This soil series is comprised of very deep, moderately well drained, very rapidly permeable soils that formed in thick beds of sandy marine deposits found on moderately high ridges in the coastal plain. Slopes typically range from 0-8%. This soil type can extend to a depth of 80 inches, or more, and is acidic. The water table is between 48 and 60 inches below the surface during the wet season and more than 60 inches below the surface during the dry season. At Fish Island, this soil type is associated with the xeric hammock.

Pellicer silty clay loam, frequently flooded

The Pellicer series consists of very deep, very poorly drained, very slowly permeable soils located in salt marsh. They formed in loamy and clayey marine sediments. This soil type can extend to a depth of 80 inches, or more, and is alkaline. This series is flooded by normal high tides. At Fish Island, this soil type is associated with the salt marsh.

St. Augustine fine sand, clayey substratum

This soil series is comprised of very deep, somewhat poorly drained, moderately rapid to very slowly permeable soils found on broad to narrow flats and slight ridges as a result of dredging and filling operations. This soil type can be slightly acidic to moderately alkaline, depending on the amount of shell material. At Fish Island, this soil type is associated with the spoil area.

St. Johns fine sand, depressional

The St. Johns series is comprised of very deep, very poorly or poorly drained, moderately permeable soils found on broad flat and depressional areas and are formed in sandy marine sediments. Slopes typically range from 0-5%. This soil type can extend to a depth of 80 inches, or more, and is strongly acidic. These areas are typically ponded for more than 6 months per year. At Fish Island, this soil type is associated with an historically low area that was impacted by dredge spoil.

Samsula muck, frequently ponded; 0-1% slopes

This soil series is comprised of very deep, very poorly drained, rapidly permeable soils that formed in thick beds of hydrophytic plant remains and are underlain by sandy marine sediments. These soils are typically located in swamps, poorly defined drainageways and floodplains. This soil type can extend to a depth of 55 inches, or more, and is extremely acidic. The water table is at or above surface of the soil except during extended dry periods. At Fish Island, this soil type is associated with the salt marsh.

Smyrna wet, fine sand; 0-2% slopes

The Smyrna series consists of very deep, poorly to very poorly drained soils located in thick deposits of sandy marine sediments. Permeability is moderately rapid to rapid. Slopes typically range from 0-2%. This soil type can extend to a depth of 80 inches, or more, and is strongly acidic. At Fish Island, this soil type is associated with the maritime hammock.

Addendum 4 – Plant and Animal List

Common Name	Scientific Name

PLANTS

PTERIDOPHYTES

Giant leather fern	*Acrostichum danaeifolium*
Japanese climbing fern	*Lygodium japonicum**
Tuberous sword fern	*Nephrolepis cordifolia**
Resurrection fern	*Pleopeltis polypodiodes*
Tailed bracken	*Pteridium aquilinum var. pseudocaudatum*

GYMNOSPERMS

Red cedar	*Juniperus virginiana*
Slash pine	*Pinus elliottii*
Loblolly pine	*Pinus taeda*

MONOCOTS

Bushy bluestem	*Andropogon glomeratus* var. *pumilus*
Broomsedge bluestem	*Andropogon virginicus* var. *virginicus*
Coastal sandbur	*Cenchrus spinifex*
Whitemouth dayflower	*Commelina erecta*
Umbrella plant	*Cyperus involucratus**
Saltgrass	*Distichlis spicata*
Pinewoods fingergrass	*Eustachys petraea*
Needle rush	*Juncus roemerianus*
Hairawn muhly	*Muhlenbergia capillaris*
Seashore paspalum	*Paspalum vaginatum*
Cabbage palm	*Sabal palmetto*
St. Augustinegrass	*Stenotaphrum secundatum*
Saw palmetto	*Serenoa repens*
Earleaf greenbrier	*Smilax auriculata*
Saw greenbrier	*Smilax bona-nox*
Laurel greenbrier	*Smilax laurifolia*
Saltmarsh cordgrass	*Spartina alterniflora*
Marshhay cordgrass	*Spartina patens*
Bartram's airplant	*Tillandsia bartamii*
Spanish moss	*Tillandsia usneoides*
Small-leaf spiderwort	*Tradescantia fluminensis**
Bluejacket	*Tradescantia ohiensis*
Spanish bayonet	*Yucca aloifolia*

DICOTS

Common ragweed	*Ambrosia artemesiifolia*
Bastard false indigo	*Amorpha fruticosa*
Smallflower pawpaw	*Asimina parviflora*

Black mangrove	*Avicennia germinans*
Saltwater falsewillow	*Baccharis angustifolia*
Groundsel tree	*Baccharis halimifolia*
Saltwort	*Batis maritima*
Beggarticks	*Bidens alba*
Bushy seaside oxeye	*Borrichia frutescens*
American beautyberry	*Callicarpa americana*
Trumpet creeper	*Campsis radicans*
Wild olive	*Cartrema americanum*
Pignut hickory	*Carya glabra*
Pecan	*Carya illinoinensis**
Sugarberry	*Celtis laevigata*
Spurred butterfly pea	*Centrosema virginianum*
Partridge pea	*Chamaecrista fasciculata*
Coastalplain goldenaster	*Chrysopsis scabrella*
Camphortree	*Cinnamomum camphora**
Purple thistle	*Cirsium horridulum*
Tread-softly	*Cnidoscolus stimulosus*
Pinebarren frostweed	*Crocanthemum corymbosum*
Oakleaf fleabane	*Erigeron quercifolius*
Coralbean	*Erythrina herbacea*
Dogfennel	*Eupatorium capillifolium*
Florida swampprivet	*Forestiera segregata*
Carolina buckthorn	*Frangula caroliniana*
Firewheel	*Gaillardia pulchella*
Elliott's milkpea	*Galactia elliottii*
Camphorweed	*Heterotheca subaxillaris*
Largeleaf marshpennywort	*Hydrocotyle bonariensis*
Yaupon	*Ilex vomitoria*
American holly	*Ilex opaca var. opaca*
Anil de pasto	*Indigofera suffruticosa*
Tievine	*Ipomoea cordatotriloba*
Man-of-the-earth	*Ipomoea pandurata*
Bigleaf sumpweed	*Iva frutescens*
Lantana	*Lantana strigocamara**
Virginia pepperweed	*Lepidium virginicum*
Carolina sealavender	*Limonium carolinianum*
Rusty staggerbush	*Lyonia ferruginea*
Southern magnolia	*Magnolia grandiflora*
Chinaberry	*Melia azedarach**
Spotted beebalm	*Monarda punctata*
Indianpipe	*Monotropa uniflora*
Southern bayberry	*Myrica cerifera*
Peppervine	*Nekemias arborea*
Devil's-tongue	*Opuntia austrina*
Cockspur pricklypear	*Opuntia drummondii*

Virginia creeper	*Parthenocissus quinquefolia*
Gulf coast swallowwort	*Pattalias palustre*
Red bay	*Persea borbonia* var. *borbonia*
Turkey tangle frogfruit	*Phyla nodiflora*
Walter's groundcherry	*Physalis walteri*
American pokeweed	*Phytolacca americana*
Rosy camphorweed	*Pluchea baccharis*
Paintedleaf	*Poinsettia cyathophora*
Carolina laurelcherry	*Prunus caroliniana*
Black cherry	*Prunus serotina*
Chapman's oak	*Quercus chapmanii*
Sand live oak	*Quercus geminata*
Laurel oak	*Quercus laurifolia*
Myrtle oak	*Quercus myrtifolia*
Live oak	*Quercus virginiana*
Winged sumac	*Rhus copallina*
Rougeplant	*Rivina humilus*
Sand blackberry	*Rubus cuneifolius*
Annual glasswort	*Salicornia bigelovii*
Coastalplain willow	*Salix caroliniana*
Lyreleaf sage	*Salvia lyrata*
Brazilian pepper	*Schinus terebinthifolius**
Bladderpod	*Sesbania vesicaria*
Shoreline seapurslane	*Sesuvium portulacastrum*
Tough bully	*Sideroxylon tenax*
Chapman's goldenrod	*Solidago odora var. chapmanii*
Common sowthistle	*Sonchus oleraceus**
Creeping oxeye	*Sphagneticola trilobata**
Poison ivy	*Toxicodendron radicans*
Chinese tallowtree	*Triadica sebifera**
Forked bluecurls	*Trichostema dichotomum*
American elm	*Ulmus americana*
Frostweed	*Verbesina virginica*
Hairypod cowpea	*Vigna luteola*
Sparkleberry	*Vaccinium arboreum*
Highbush blueberry	*Vaccinium coymbosum*
Shiny blueberry	*Vaccinium myrsinites*
Muscadine	*Vitis rotundifolia*
Giant ironweed	*Vernonia gigantea*
Hercules-club	*Zanthoxylum clava-herculis*

INVERTEBRATES

GASTROPODS

Eastern oyster	*Crassostrea virginica*
Marsh periwinkle	*Littorina irrorata*

CRUSTACEANS

Blue crab	*Callinectes sapidus*
Flat mud crab	*Eurypanopeous depressus*

MOSQUITOES

Eastern saltmarsh mosquito	*Aedes sollicitans*
Black saltmarsh mosquito	*Aedes taeniorhynchus*

BUTTERFLIES AND MOTHS

Butterflies and skippers

Gulf fritillary	*Agraulis vanillae*
White peacock	*Anartia jatrophe*
Monarch	*Danaus plexippus*
Zebra heliconian	*Heliconus charithonia*
Common buckeye	*Junonia coenia*
Giant swallowtail	*Papilio cresphontes*
Eastern tiger swallowtail	*Papilio glaucus*
Palamedes swallowtail	*Papilio palamedes*

VERTEBRATES

FISHES

Sheepshead minnow	*Cyprinodon variegatus*
Gulf killifish	*Fundulus grandis*
Striped killifish	*Fundulus majalis*
Eastern mosquitofish	*Gambusia holbrooki*
Striped mullet	*Mugil cephalus*
Silver mullet	*Mugil curema*
Sailfin molly	*Poecilia latipinna*

AMPHIBIANS

Frogs and Toads

Southern toad	*Anaxyrus terrestris*
Green treefrog	*Hyla cinerea*
Squirrel treefrog	*Hyla squirella*

REPTILES

Lizards and Skinks

Green anole	*Anolis carolinensis*
Brown anole	*Anolis sagrei**
Little brown skink	*Scincella lateralis*

Snakes

Florida cottonmouth	*Agkistrodon conanti*
Southern black racer	*Coluber constrictor priapus*
Red cornsnake	*Pantherophis guttata*

Eastern ratsnake	*Pantherophis alleghaniensis*

BIRDS

Waterfowl

Wood Duck	*Aix sponsa*
Mallard	*Anas platyrhynchos* (domestic)
Blue-winged Teal	*Spatula discors*

Pigeons and Doves

Common Ground-Dove	*Columbina passerina*
Mourning Dove	*Zenaida macroura*

Rails, Gallinules, and Allies

Clapper Rail	*Rallus crepitans*

Shorebirds

Dunlin	*Calidris alpina*
Wilson' Snipe	*Gallinago delicta*
Greater/Lesser Yellowlegs	*Tringa* sp.

Gulls, Terns, and Skimmers

Bonaparte's Gull	*Chroicocephalus philadelphia*
Laughing Gull	*Leucophaeus atricilla*
Ring-billed Gull	*Larus delawarensis*
Royal Tern	*Thalasseus maxima*

Storks

Wood Stork	*Mycteria americana*

Cormorants and Anhingas

Double-crested Cormorant	*Phalacrocorax auritus*

Pelicans

Brown Pelican	*Pelecanus occidentalis*

Herons, Ibis, and Allies

Great Blue Heron	*Ardea herodias*
Great Egret	*Ardea alba*
Snowy Egret	*Egretta thula*
Little Blue Heron	*Egretta caerulea*
Reddish Egret	*Egretta rufescens*
Tricolored Heron	*Egretta tricolor*
Yellow-crowned Night-heron	*Nyctanassa violacea*
White Ibis	*Eudocimus albus*
Roseate Spoonbill	*Platalea ajaja*

Vultures, Hawks, and Allies

Turkey Vulture	*Cathartes aura*
Black Vulture	*Coragyps atratus*
Osprey	*Pandion haliaetus*
Cooper's Hawk	*Accipter cooperii*
Sharp-shinned hawk	*Accipiter striatus*
Northern Harrier	*Circus hudsonius*
Bald Eagle	*Haliaeetus leucocephalus*
Red-shouldered Hawk	*Buteo lineatus*
Red-tailed Hawk	*Buteo jamaicensis*

Kingfishers

Belted Kingfisher	*Megaceryle alcyon*

Owls

Barred Owl	*Strix varia*

Woodpeckers

Red-bellied Woodpecker	*Melanerpes carolinus*
Yellow-bellied Sapsucker	*Sphyrapicus varius*
Downy Woodpecker	*Dryobates pubescens*
Pileated Woodpecker	*Dryocopus pileatus*

Falcons

American Kestrel	*Falco sparverius*

Tyrant Flycatchers: Pewees, Kingbirds, and Allies

Great Crested Flycatcher	*Myiarchus crinitus*
Eastern Phoebe	*Sayornis phoebe*

Vireos

White-eyed Vireo	*Vireo griseus*
Red-eyed Vireo	*Vireo olivaceus*
Blue-headed Vireo	*Vireo solitarius*

Jays, Magpies, Crows, and Ravens

Blue Jay	*Cyanocitta cristata*
American Crow	*Corvus brachyrhynchos*
Fish Crow	*Corvus ossifragus*

Tits, Chickadees, and Titmice

Carolina Chickadee	*Poecile carolinensis*
Tufted Titmouse	*Baeolophus bicolor*

Martins and Swallows

Purple Martin	*Progne subis*

Tree Swallow	*Tachycineta bicolor*

Kinglets

Ruby-crowned Kinglet	*Regulus calendula*

Gnatcatchers

Blue-gray Gnatcatcher	*Polioptila caerulea*

Wrens

Carolina Wren	*Thryothorus ludovicianys*
House Wren	*Troglodytes aedon*

Catbirds, Mockingbirds, and Thrashers

Gray Catbird	*Dumetella carolinensis*
Brown Thrasher	*Toxostoma rufum*
Northern Mockingbird	*Mimus polyglottos*

Thrushes

Eastern Bluebird	*Sialia sialis*
American Robin	*Turdus migratorius*

Waxwings

Cedar Waxwing	*Bombycilla cedrorum*

New World Sparrows

Eastern Towhee	*Pipilo erythrophthalmus*

Blackbirds

Red-winged Blackbird	*Agelaius phoeniceus*
Boat-tailed Grackle	*Quiscalus major*

Wood-Warblers

Black-and-white Warbler	*Mniotilta varia*
Orange-crowned Warbler	*Oreothlypis celata*
Common Yellowthroat	*Geothlypis trichas*
Northern Parula	*Setophaga americana*
Yellow-rumped Warbler	*Setophaga coronata*
Prairie Warbler	*Setophaga discolor*
Yellow-throated Warbler	*Setophaga dominica*
Palm Warbler	*Setophaga palmarum*
Pine Warbler	*Setophaga pinus*

Cardinals, Grosbeaks, and Allies

Northern Cardinal	*Cardinalis cardinalis*
Painted Bunting	*Passerina ciris*
Indigo Bunting	*Passerina cyanea*

MAMMALS

Didelphids

Virginia opossum	*Didelphis virginiana*

Edentates

Nine-banded armadillo	*Dasypus novemcinctus**

Lagomorphs

Marsh rabbit	*Sylvilagus palustris*

Rodents

Eastern grey squirrel	*Sciurus carolinensis*

Cervids

White-tailed deer	*Odocoileus virginianus*

Carnivores

Feral cat	*Felis catus**
Raccoon	*Procyon lotor*
Florida black bear	*Ursus americanus floridanus*

*** = exotic species**

Addendum 5 - Imperiled Species Ranking Definitions

Federal Legal Status: Listed by the U.S. Fish and Wildlife Service (USFWS). Derived from the U.S. Endangered Species Act of 1973, Sec. 3.

E = Endangered: species in danger of extinction throughout all or a significant portion of its range.

T = Threatened: species likely to become Endangered within the foreseeable future throughout all or a significant portion of its range.

State Legal Status:

Plants: Listed by the Florida Department of Agriculture and Consumer Services (FDACS) in the Preservation of Native Flora of Florida Act.

FE = Endangered: species of plants native to Florida that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue; includes all species determined to be endangered or threatened pursuant to the U.S. Endangered Species Act.

FT = Threatened: species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in number as to cause them to be Endangered.

Animals: Listed by the Florida Fish and Wildlife Conservation Commission. Derived from "Florida's Endangered and Threatened Species" published by Florida Fish and Wildlife Conservation Commission, May 2017.

ST = State population listed as Threatened by the FFWCC. Defined as a species, subspecies, or isolated population which is acutely vulnerable to environmental alteration, declining in number at a rapid rate, or whose range or habitat is decreasing in area at a rapid rate and as a consequence is destined or very likely to become an endangered species within the foreseeable future.

SSC = Listed as Species of Special Concern by the FFWCC. Defined as a population which warrants special protection, recognition, or consideration because it has an inherent significant vulnerability to habitat modification, environmental alteration, human disturbance, or substantial human exploitation which, in the foreseeable future, may result in its becoming a threatened species.

Florida Natural Areas Inventory State Rank Definitions:

S1 = Critically imperiled in Florida because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.

S2 = Imperiled in Florida because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.

S3 = Either very rare and local in Florida (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.

S4 = Apparently secure in Florida (may be rare in parts of range).

S5 = Demonstrably secure in Florida.

Addendum 6 – Cultural Resource Information

Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties

(revised March 2013)

These procedures apply to state agencies, local governments, and non-profits that manage state-owned properties.

A. General Discussion

Historic resources are both archaeological sites and historic structures. Per Chapter 267, Florida Statutes, '*Historic property' or 'historic resource' means any prehistoric district, site, building, object, or other real or personal property of historical, architectural, or archaeological value, and folklife resources. These properties or resources may include, but are not limited to, monuments, memorials, Indian habitations, ceremonial sites, abandoned settlements, sunken or abandoned ships, engineering works, treasure trove, artifacts, or other objects with intrinsic historical or archaeological value, or any part thereof, relating to the history, government, and culture of the state."*

B. Agency Responsibilities

Per State Policy relative to historic properties, state agencies of the executive branch must allow the Division of Historical Resources (Division) the opportunity to comment on any undertakings, whether these undertakings directly involve the state agency, i.e., land management responsibilities, or the state agency has indirect jurisdiction, i.e. permitting authority, grants, etc. No state funds should be expended on the undertaking until the Division has the opportunity to review and comment on the project, permit, grant, etc.

State agencies shall preserve the historic resources which are owned or controlled by the agency.

Regarding proposed demolition or substantial alterations of historic properties, consultation with the Division must occur, and alternatives to demolition must be considered.

State agencies must consult with Division to establish a program to location, inventory and evaluate all historic properties under ownership or controlled by the agency.

C. Statutory Authority

Statutory Authority and more in-depth information can be found at:

http://www.flheritage.com/preservation/compliance/guidelines.cfm

D. Management Implementation

Even though the Division sits on the Acquisition and Restoration Council and approves land management plans, these plans are conceptual. Specific information regarding individual projects must be submitted to the Division for review and recommendations.

Managers of state lands must coordinate any land clearing or ground disturbing activities with the Division to allow for review and comment on the proposed project. Recommendations may include but are not limited to approval of the project as submitted, cultural resource assessment survey by a qualified professional archaeologist, modifications to the proposed project to avoid or mitigate potential adverse effects.

Projects such as additions, exterior alteration, or related new construction regarding historic structures must also be submitted to the Division of Historical Resources for review and comment by the Division's architects. Projects involving structures fifty years of age or older, must be submitted to this agency for a significance determination**.** In rare cases, structures under fifty years of age may be deemed historically significant. These must be evaluated on a case-by-case basis.

Adverse impacts to significant sites, either archaeological sites or historic buildings, must be avoided. Furthermore, managers of state property should make preparations for locating and evaluating historic resources, both archaeological sites and historic structures.

E. Minimum Review Documentation Requirements

In order to have a proposed project reviewed by the Division, certain information must be submitted for comments and recommendations. The minimum review documentation requirements can be found at: http://www.flheritage.com/preservation/compliance/docs/minimum_review_documentation_requirements.pdf .

* * *

Questions relating to the treatment of archaeological and historic resources on state lands should be directed to:

Deena S. Woodward

Division of Historical Resources

Bureau of Historic Preservation

Compliance and Review Section

R. A. Gray Building

500 South Bronough Street

Tallahassee, FL 32399-0250

Phone: (850) 245-6425

Toll Free: (800) 847-7278

Fax: (850) 245-6435

Preservation Treatments as Defined by the Secretary of Interior's Standards and Guidelines

Preservation

Preservation is defined as the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project. However, new exterior additions are not within the scope of this treatment.

Rehabilitation

Rehabilitation is defined as the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values.

Restoration

Restoration is defined as the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project.

Stabilization

Stabilization is defined as the act or process of applying measures designed to reestablish a weather resistant enclosure and the structural stability of an unsafe or deteriorated property while maintaining the essential form as it exists, at present.

Addendum 7 – Local Government Comprehensive Plan Compliance

Amy McClure Skinner, AICP
Deputy Director
City of St. Augustine Planning and Building Department

The City of St. Augustine conducted an Evaluation and Appraisal Report (EAR) on its 2011 Comprehensive Plan in 2018. This EAR resulted in virtually a complete rewrite of the City's Comprehensive Plan through an extensive public hearing process over the course of 2019.

The City of St. Augustine 2040 Comprehensive Plan was submitted to the State land planning agency and other reviewing Agencies in November 2019, adopted by the City in July of 2020, and approved by the State in September 2020.

This adopted Comprehensive Plan designates the Fish Island property Recreation and Open Space (State owned uplands portion), Open Land (State owned land waterward of the most restrictive jurisdictional line), and Residential Medium Density Mixed Use (other owned property).

The designated passive single use for public outdoor recreation described in the Management Plan is in compliance with the adopted 2040 Comprehensive Plan. The articulated intent of the Management Plan to be compatible with the protection of natural and cultural resources including habitat, historic resources, and coastal resilience are consistent with the adopted 2040 Comprehensive Plan. The intended balance of the park space with preservation and public use to protect the property while providing access and recreational opportunities promotes the adopted 2040 Comprehensive Plan.

The sections outlined in the Management Plan of Natural Resource Management. Natural Communities Management, Imperiled/Exotic Species Management, and Cultural Resource Management are all discussed in the adopted 2040 Comprehensive Plan.

Outlined below are specific references to Objectives and Policies that demonstrate the Management Plan's compliance with the City's 2040 Comprehensive Plan (not exclusive):

Future Land Use Element:
Objective 1.1, Policy 1.1.4, Policy 1.2.1, Objective 3.1, Policy 3.1.3, Policy 3.1.5, Objective 6.7, Policy 6.7.2, Policy 6.7.3, Policy 7.7.3.1, Policy 8.1.6, Policy 8.1.7

Historic Preservation Element:
Policy 1.1.2, 7.2.1, Objective 9.1, Policy 10.5.6

Conservation and Coastal Management Element:
Policy 1.7.1, Policy 1.7.9, Policy 1.9.1, Policy 2.4.9, Policy 2.4.10, Objective 2.5, Policy 2.6.3

Recreation and Open Space Element:
Policy 2.1.4, Policy 6.1.2

Addendum 8 – Water Quality Trends Report Data

SJRWMD Water Quality Trends Report Data – State Road 312 Bridge		
Analyte	**Water Quality Status Description**	**Water Quality Trend**
Total Alkalinity (mg/L as CaCO3)	Mid-range	Stable
Total Calcium (mg/L as Ca)	High-range	Stable
Corrected Chlorophyll-A (ug/L)	Mid-range	Stable
Color (platinum-cobalt units)	Low-range	Stable
Specific Conductance Field (umhos/cm@25C)	High-range	Stable
Dissolved Oxygen Analysis by Probe (mg/L)	Mid-range	Stable
Dissolved Organic Carbon (mg/L as C)	Low-range	Insufficient Data
Ca Mg Hardness (calculated mg/L as CaCO3)	High-range	Stable
Total Potassium (mg/L as K)	High-range	Decreasing (<5%)
Total Magnesium (mg/L as Mg)	High-range	Stable
Dissolved Ammonia Nitrogen (ug/L as N)	Mid-range	Stable
Dissolved Nitrite and Nitrate (ug/L as N)	Mid-range	Stable
Total Sodium (mg/L as Na)	High-range	Stable
Dissolved Orthophosphate (ug/L as P)	Mid-range	Increasing (<5%)
Salinity (ppt)	High-range	Stable
Secchi Disc Transparency (meters)	High-range	Stable
Total Kjeldahl Nitrogen (ug/L as N)	Low-range	Stable
Total Nitrogen (ug/L as N)	Low-range	Stable
Total Organic Carbon (mg/L as C)	Low-range	Stable
Dissolved Phosphorus (ug/L as P)	Mid-range	Insufficient Data
Total Phosphorus (ug/L as P)	Mid-range	Stable
Total Suspended Solids (mg/L)	High-range	Decreasing (<5%)
Lab Turbidity (NTU)	High-range	Stable
Water Temperature (degrees C)	Mid-range	Stable
Ph (standard units)	High-range	Stable

Addendum 9 – Fish Island History

Prehistoric

The following information is consolidated from several cultural resource assessments conducted on Fish Island Preserve in the past twenty years.

The earliest documented occupants on Fish Island occurred during the Orange Period, approximately 4,000 years before present (ybp). The Orange Period is defined by the development of fiber-tempered ceramics that were tempered by plant fibers. When the hand-molded ceramics were fired, occlusions were left in the pot matrix due to the burning of the plant material.

The Orange Period was followed by the St. Johns Period which occurred from 2,500 ybp until European contact. Most archeologists further break the period into St. Johns I and St. Johns II periods, with additional subdivisions. The St. Johns I period was generally from 2,500 ybp until 1,250 ybp and the St. Johns II was generally from 1,250 ybp until European contact.

The early St. Johns pottery was chalky, plain, sand-tempered and contained fossil sponge spicules. Later period pottery exhibited patterns such as check-stamping.

During the St. Johns Period, there was an increase in population numbers and subsistence activities, with an increase in a plant-based diet. In addition, the level of socio-political organization increased, most notably in the later St. Johns II period. In addition, the construction of burial mounds became common and increased in size and complexity.

Historic

Special thanks to Susan Hill and Jon Hodgin for their amazing efforts to bring the story of Jesse Fish and Fish Island to the public's attention. Portions of this historical narrative were taken from their writings.

The story of Fish Island encompasses parts of three distinct historical periods in St Augustine: The First Spanish Period (1565–1763); the English Period (1763-1784); and the Second Spanish Period (1784-1821).

The story begins in New York in 1724 or 1726, the date Jesse Fish was born. He was of English descent, and as a young boy of ten or twelve, he set sail from New York employed by the Walton & Company of New York, a shipping company, who since 1726 held the contract to bring food provisions and supplies to the Spanish Garrison in St Augustine. In explaining his young age at employment, it has been suggested that Fish's father had died while working for the firm, and that "Jesse was employed in his place as an act of kindness".

Jesse Fish arrived in St. Augustine in 1736, where he resided for the next 54 years until his death on February 8, 1790 on Fish Island. He was reportedly sent to St Augustine by the Walton Company in order to learn the Spanish language, laws, and customs while living with a prominent local Spanish family, the Herrera's. He became so proficient in these areas, that

within a few years he obtained the commission as “Agent of Supplies”, the company’s sales representative in Spanish Florida, a role in which he remained until 1763.

There is far less available documentation about the details of what transpired in Jesse Fish’s life during the years between 1748 and 1763. It has been reported that he was held as a prisoner of war by the Spanish starting in 1739 during Spain’s war with the British under King George, and he is said to have arrived back to live as a free man in St Augustine “in 1748, following the end of hostilities”.

Upon his return to St Augustine from his imprisonment, Jesse Fish became engaged in business dealings on several different fronts. He is on record as continuing to work many years as a shipping agent for the Walton Company, at times traveling and sailing ships for them.

Sometime in the mid-1700’s, on the parcel now called Fish Island, Jesse Fish established a “world famous” and very large plantation, called El Vergel. He exported tens of thousands of oranges and hundreds of barrels of juice and was known for the high quality of his fruit, as far away as London, where it was “preferred before all others in the making of shrub” (think whiskey sour). Jesse Fish is considered by some historians as “Florida’s first orange baron”. On Census records his profession is simply listed as “Planter”. This area has been listed on the National Register of Historic Places since 1972.

Jesse Fish was a documented slaver trader. From the available records pertaining to Jesse Fish’s slaves, during the ten-year period from 1752-1763, he imported and is registered as the owner of 133 African slaves. Historian Jane Landers, the foremost authority and author of Black Society in Spanish Florida, identifies Jesse Fish as introducing “most of the African-born slaves registered in the decade preceding Spain’s loss of Florida (1752-63)”. In addition, in the three available Census records for the years 1783, 1786, and 1787 he is listed as owning sixteen, fourteen, and seventeen Slaves, respectively.

In 1805 Andre Michaux, the Botanist to King Louis the XVI of France, in referencing his visit to Jesse Fish describes Fish’s “five hectares of orange trees on Anastasia Island” writing, “They are sweet, very large, have a thin skin, and are more esteemed than those brought from the West Indies. It is fifty years since the seeds of this species were brought from India, and given to an inhabitant of this island, who has increased them so much as to have made an orchard of them of forty years. I had the opportunity of seeing this fine plantation when I was in Florida in 1788.”

The British occupied Florida in 1763, at the end of the First Spanish Period, and all Spanish Floridians were given 18 months to leave. However, having nearly 200 years of history in Spanish Florida, many were landowners. They were permitted to sell their properties before departing, however, many were not successful in their efforts. Jesse Fish, being of British descent, was permitted to stay. A representative of the Spanish government, Senore de la Puente in early 1764, after being unable to sell all the Spanish properties quickly enough, transferred most of the Spanish ex-patriot’s land deeds to Jesse Fish, who supposedly had a confidential agreement to act on their behalf as their agent. He was supposed to sell or rent their properties and then send money to them in Cuba. This arrangement, and whether Fish acted in good faith, remained a point of controversy for years until his death and afterwards, resulting in many land disputes and court cases involving his descendants.

Because of the massive land transfer that he acquired after the 1763 exodus of the Spanish, Jesse Fish became the owner of most of the properties in St. Augustine, in addition to lands that he already owned on Anastasia Island. Following the transfer of properties from the departing Spanish people to him sometime in 1764, a map of the City depicts Jesse Fish as the owner of most of the properties in St Augustine. It is unclear whether he resided in any of the St Augustine homes he had acquired. At the end of his life, he reportedly had lost everything but El Vergel, due to the payments of his debts, and his self-reported mismanagement of his affairs by his brother-in-law. He is said to have died penniless and a recluse on Fish Island, where he was also buried.

Jesse Fish married 17-year-old Sarah Warner, the daughter of the Harbor Master in 1768 when he was in his forties. They had two children, Jesse Fish, Jr. and Phoebe Furman Fish, before the marriage ended in separation blamed (according to several accounts) on her "madcap" behavior. At his death, his descendants included his wife and children, and Clarissa Fish, "a certain black woman" said to be the "servant" to Jesse Fish Jr., and mother to their seven children, Sophia, Betsy, John, Maisy, Diana, Harriet, and Phebe.

During Michaux's visit to Fish Island in 1788, he also is said to have described El Vergel, "as a paradise that had withstood pillages by pirates and survived domination by two countries, England and Spain." In January 1775, a band of pirates attacked the Fish Plantation. There was a skirmish, and several pirates were wounded.

Jesse Fish died in 1790 and was buried on Fish Island. He lived a colorful life and has been described in many ways: as a scoundrel, a spy, a slaver, the savior of St Augustine, and a land grabber, just to name a few.

Jesse Fish, Jr. was able to acquire his dad's ownership on Anastasia Island, via auction in 1792. The auction valuators identified the plantation as having oranges, medlars, pomegranates, figs, peaches and limes. In 1812, Jesse Fish, Jr. was found dead on Fish Island with his horse, apparently from a lightning strike.

Sarah Fish (Jesse Fish, Sr's widow) retained ownership of her son's property soon after his death. She died in 1824. The property was then transferred to Jessica Perpall, who was Sarah's granddaughter. Jessica died in 1827. From this point, ownership becomes very unclear.

There are records of visits to Fish Island in 1867 and 1874. Both accounts describe the plantation site in ruins.

There is little information about Fish Island in the early twentieth century. Based on an affidavit prepared by W.J. Sanchez in 1925, Mr. Sanchez owned Fish Island from 1878 until 1925. He stated that he kept up the orange grove and grew corn, watermelon and potatoes. In addition, he grazed cattle and horses, and raised pigs.

In 1925, the property was purchased by D. P. Davis, the developer of nearby Davis Shores. Mr. Davis placed dredge spoil from the bottom of the Matanzas River on the northern 15 acres of Fish Island as part of his development plan. This portion of Fish Island was historically salt marsh.

In 1935, the property was sold to John D. Thompson and Harold E. Ryman.

According to White and Halbirt, the property was used to produce moonshine during the Prohibition Era and a trash disposal site and camp and party site in subsequent years. In the 1950's, portions of the house, tomb and blockhouse were still standing. By the 1990's, the structures had been vandalized and were in a state of decay (White and Halbirt, 2001).

Figure 2 - Jesse Fish plantation house, Morton 1867 drawing

References Used:

Gold, Robert L. 1973. That Infamous Floridian, Jesse Fish. Florida Historical Quarterly. 52: pp.1-17.

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Landers, Jane. Black Society in Spanish Florida. University of Illinois Press, Urbana.

St. Augustine Historical Society Research Library. Fish Island and Jesse Fish File.

Smith, Greg C., Brent M. Handley and Sidney P. Johnston. 2004. Archaeological Data Recovery in the Northern Portion of 8SJ62NR, Fish Island Plantation, St. Johns County, Florida. Report of Investigations No. 502.

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Woolson, Constance F. 1874. The Ancient City. Harpers New Monthly Magazine, Number CCXCV (December), Vol. 1, pp. 1-25 and 164-185.

Addendum 10 – Arthropod Control Plan

Florida Department of Agriculture and Consumer Services
Division of Agricultural Environmental Services

ARTHROPOD MANAGEMENT PLAN - PUBLIC LANDS

Section 388.4111, F.S.
Telephone: (850) 617-7995

NICOLE "NIKKI" FRIED
COMMISSIONER

Return to:
Mosquito Control Program
3125 Conner Blvd, Bldg 6,
Tallahassee, Florida 32399-1650

For use in documenting an Arthropod Control Pan for lands designated by the State of Florida or any political subdivision thereof as being environmentally sensitive and biologically highly productive therein. Fill this form out if control work is necessary or planned.

Name of Designated Land: Fish Island Park

Is Control Work Necessary: ☒ Yes ☐ No

Location: Anastasia Island off SR312

Land Management Agency: City of St. St. Augustine

Are Arthropod Surveillance Activities Necessary? ☒ Yes ☐ No
If "Yes", please explain:

According to the Florida Adminstration Code 5E-13 surveillance shall be conducted to determine the species and numbers of both pestiferous and diease bearing arthropods. After an emergence of mosquitoes, they will affect citizens, business, and tourists.

Which Surveillance Techniques Are Proposed?
Please Check All That Apply:

☒ Landing Rate Counts ☒ Light Traps ☐ Sentinel Chickens

☒ Citizen Complaints ☒ Larval Dips ☐ Other

If "Other", please explain:

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Arthropod Species for Which Control is Proposed:

Salt Marsh Mosquito: Aedes taeniorhynchus and Aedes sollicitans

Culex restuans, Cx. erraticus, Cx. nigripalpus (WNV), Cx, quinquefasciatus (SLE), Coquillettidia perturbans (EEE)

Proposed Larval Control:

Proposed larval monitoring procedure:

Are post treatment counts being obtained: ☒Yes ☐ No

Biological Control of Larvae:

Might predacious fish be stocked: ☒ Yes ☐ No

Other biological controls that might be used:

Material to be Used for Larvaciding Applications:

(Please Check All That Apply:)

☒ Bti

☒ Bs

☒ Methoprene

☐ Non-Petroleum Surface Film

☐ Other, please specify:

Please specify the following for each larvacide:

Chemical or Common name:

☒ Ground ☒ Aerial

Rate of application: As directed by label

Method of application: Truck, Helicopter, Drone

Proposed Adult Mosquito Control:

Aerial adulticiding ☒Yes ☐ No

Ground adulticiding ☒ Yes ☐ No

Please specify the following for each adulticide: Permethrin, Sumithrin, Bifenthrin

Chemical or common name: Aqualuer 20-20, Duet, Talstar P

Rate of application: As directed by label

Method of application: Truck, Aerial, Drone, Backpack, Thermal Fogger

Proposed Modifications for Public Health Emergency Control: Arthropod control agency may request special exception to this plan during a threat to public or animal health declared by State Health Officer or Commissioner of Agriculture.

When a health emergency is declared, then adulticiding is approved.

Proposed Notification Procedure for Control Activities:
Before any adulticides are applied AMCD will collect thirty five (35) mosquitoes per night on-site, as requested by City of St. Augustine.
Chapter 388, of the Florida Statue and Rule 5-E13.036 under the Dept. of Agriculture and Consumer Services. Demonstrable Increase or Other Indicator of Arthropod Population Level. Before any adulticides can be applied you will need to collect more than twenty five (25) mosquitoes in a trap night.

Records:

Are records being kept in accordance with Chapter 388, F.S.:

☒ Yes ☐No

Records Location: AMCD Office

How long are records maintained: 5 years

Vegetation Modification:

What trimming or altering of vegetation to conduct surveillance or treatment is proposed? Minimal

It will be necessary to keep road/paths cleared for proper treatment. All efforts will be made to minimize the creation and occurrence of tire ruts.

Proposed Land Modifications:

Is any land modification, i.e., rotary ditching, proposed: No

Include proposed operational schedules for water fluctuations:

List any periodic restrictions, as applicable, for example peak fish spawning times.

Proposed Modification of Aquatic Vegetation:

Land Manager Comments:

Arthropod Control Agency Comments:

Signature of Lands Manager or Representative 7/22/2020 Date

Signature of Mosquito Control Director / Manager 7-10-2020 Date