CASPERSEN BEACH PARK MANAGEMENT PLAN

Prepared by:

Scott Moranda

Tim Treece

Sarasota County

Department of Parks, Recreation and Natural Resources

Division of Beaches and Water Access

February 2021

PARK AT A GLANCE

Size	154 acres
Location	coastal Venice along the Gulf of Mexico and northern Lemon Bay
Management Priority	protect and enhance wildlife habitats that will provide nature-based recreation and environmental education for residents
Management Challenge	vandalism, exotic species, site degradation
Primary habitats	beach dune maritime hammock mangrove swamp scrub scrubby flatwoods altered landcover types
Imperiled species	Florida scrub-jay American kestrel American oystercatcher black skimmer least tern little blue heron reddish egret roseate spoonbill sandhill crane tricolored heron gopher tortoise indigo snake American alligator Atlantic green sea turtle leatherback sea turtle loggerhead sea turtle gopher frog West Indian manatee giant airplant inkberry prickly applecactus shell-mound pricklypear
Cultural Resources	Gory Site (8SO24) Horse and Chaise Site (8SO063) Red Lake Site (8SO436)
Land Uses	passive, nature-based public recreation

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Significance, size, location

Caspersen Beach Park is approximately 150 acres located along the Gulf of Mexico and northern Lemon Bay. The Park is owned by Sarasota County Government and managed by the Beaches and Water Access (BWA) division in the Parks, Recreation and Natural Resources (PRNR) department. The park is located at the south end of Harbor Drive in Venice in Sections 30-31-32, Township 39 South, Range 19 East of southwest Sarasota County. Caspersen Beach Park—together with South Brohard Park, Brohard Paw Park, Brohard Sharky's North Annex, Venice Fishing Pier, property owned by the U. S. Coast Guard, and Service Club Park—form a nearly 3.5 mile stretch of publicly-owned and protected land along the Gulf of Mexico.

Acquisition history

The park was deeded to Sarasota County Government by the Caspersen family in 1968 through a special warranty deed. It was later acquired by the County with a Land and Water Conservation Fund grant and proceeds from a bond referendum.

Important habitats and species

Caspersen Beach Park consists of five habitat types: beach dune, maritime hammock, mangrove swamp, scrub, and altered landcover types. Although most of the park is comprised of altered landcover such as spoil deposit areas, the site and surrounding waters still support 25 species of imperiled flora and fauna, including the West Indian manatee, Florida scrub-jay, gopher tortoise, and giant air plant. Approximately five acres of the site are classified as developed. These areas include infrastructure such as restroom facilities, roads, parking lots, and picnic areas.

Natural and cultural resource management goals

Management goals for Caspersen Beach Park are ensuring that the site will not significantly degrade, providing for nature-based recreational opportunities, restoring degraded natural areas, and providing additional special and protective management actions needed for identified critical natural resources. Management actions should be taken to ensure that the site is secure from intentional acts of vandalism and that it will not significantly degrade from excessive fuel accumulation or exotic species proliferation. Additionally, actions must ensure that Sarasota County meets the primary purpose of site acquisition, which is to protect and enhance wildlife habitats that will provide nature-based recreation and environmental education for residents and visitors.

Historical and current uses and facilities

The park area has been a coastal landmark since the 19th century, when merchant ships used a stand of slash pines directly to the north as a navigational aid. From the mid to late 1800s, the area was under the informal stewardship of a cattle rancher until it was purchased by the Florida Land and Improvement Company. The land changed ownership many times thereafter and was likely used for timber harvest and military training during World War II. The Caspersen Family purchased the land in 1944. Since then, the property has undergone some physical alterations including diking, additions of

dredged sediment from the Intracoastal Waterway (ICW), and installation of groins and park facilities. Current use of the beach park allows for nature-based public recreation. Facilities and amenities include hiking and biking trails, fitness stations, a playground, restrooms, outdoor shower, pavilions and shelters, a fishing pier, beach access walkways, a beachside boardwalk, and a maintenance garage.

Use and facilities management goals

Caspersen Beach Park is primarily utilized as a public use access park that incorporates nature-based recreation and facilities to accommodate park visitors. The gulf beach is the destination for most of the visitors to this park.

All facilities are open to the public 24-hours a day year-round. Vehicles are prohibited from midnight to 6:00am. Facilities are managed and maintained by contractual services and Sarasota County staff. Management goals are to provide safe and accessible facilities. In 2021, facilities are in maintenance phase and do not require replacement over the next five years. In 2026, structures should be evaluated and replacement needs assessed. The gulf boardwalk requires regular monitoring and maintenance, especially after tidal events and storms. High tides are the primary cause of boardwalk degradation. Several staircases, a portion of the walkway, and a section of deck have been removed since original construction.

As of 2021, there is no need to change park use. Public use management opportunities have been identified, and include offering camping, improving trails, and restricting access to sensitive habitats.

Purpose of plan

The Caspersen Beach Park Management Plan aims to preserve the health and function of natural systems, protect historical resources that are part of Sarasota County's heritage, and provide nature-based recreational opportunities for the public. This plan will be updated in 10 years to incorporate relevant new management methodologies. Costs described in this plan are estimated for current conditions, assuming cost escalations for salary and some known funding opportunities, but not based on future optimal conditions or optimal staffing.

MANAGEMENT STRATEGY OVERVIEW

NATURAL RESOURCES	**GOAL 1**	**Restore and maintain native habitats and communities.**
	OBJECTIVE 1.1	Maintain scrub habitat and adjacent zones with an optimal fire return interval of 5-15 years by 2031.
	OBJECTIVE 1.2	Reduce and maintain coverage of invasive exotic plants to less than five percent of the park by 2031.
	OBJECTIVE 1.3	Remove all detrimental vegetation in scrub habitat by 2031.
	OBJECTIVE 1.4	Control nuisance and exotic animal species.
	OBJECTIVE 1.5	Restore and maintain the shoreline.
CULTURAL RESOURCES	**GOAL 2**	**Protect, preserve, and maintain cultural resources.**
	OBJECTIVE 2.1	Follow Sarasota County History Center protocol when ground disturbance is possible.
LAND USES	**GOAL 3**	**Maintain public access and passive recreational opportunities without adversely impacting native habitats and communities.**
	OBJECTIVE 3.1	Maintain public use amenities along the shoreline.
	OBJECTIVE 3.2	Manage public use and safety.
	OBJECTIVE 3.3	Provide for outdoor recreational amenities while still protecting and educating the public about the natural resources of the Park.
	OBJECTIVE 3.4	Assess impacts of recreational activities to ensure the health of native habitats and communities.
	GOAL 4	**Provide nature based educational and interpretive opportunities.**
	OBJECTIVE 4.1	Provide educational and interpretive materials to protect resources and improve visitor enjoyment.
	OBJECTIVE 4.2	Provide environmental education at the park.
OPERATIONS	**GOAL 5**	**Provide administrative and fiscal support.**
	OBJECTIVE 5.1	Continue day-to-day administrative support at current levels.
	OBJECTIVE 5.2	Maintain accountability according to the Beaches and Water Access Environmental, Policies, and Procedure Manual.

1 INTRODUCTION

1.1 LOCATION AND SETTING

Caspersen Beach Park is located at 4100 Harbor Dr. South Venice, FL 34285 in the southwest portion of Sarasota County (Exhibit 1). The Park includes three areas: Caspersen Beach, the northern intracoastal peninsula, and the remaining portions of the Park (Exhibit 2). Caspersen Beach is contiguous with both Venice Island and Manasota Key and is an approximately 1.75 miles of relatively undeveloped Gulf of Mexico beach. The northern intracoastal portion is a triangular-shaped peninsula of land adjoining to the Venice Golf Association site to the north. From the parking lots, this section of the Park is accessible only by way of a narrow bridge over the eastern-most channel. The bridge can accommodate bicyclists, pedestrians, and authorized utility vehicles. The bridge also provides a connection to the Venetian Waterway Park's multi-use recreational trail along the intracoastal waterway (ICW). The remaining portions of the park are primarily bounded by the Gulf of Mexico to the west, the ICW to the east, the northern intracoastal peninsula to the north, and the South Venice Beach Endowment Trust property to the south. Most of the public use amenities and park improvements are in the northwest portion of the park. The area includes natural areas and impacted habitats that are open to public use.

1.2 SITE SIGNIFICANCE AND PROTECTION PRIORITY

The nearly two miles of public beach along the Gulf of Mexico is the longest beachfront stretch for one park in Sarasota County. With its relatively undisturbed beach, it is a popular recreation area for collecting shells and prehistoric shark teeth and critical nesting habitat for the state and federally Threatened loggerhead sea turtle (*Caretta caretta*), the state and federally Endangered green sea turtle (*Chelonia mydas*), the state Threatened least tern (*Sterna antillarum*), and other shorebirds. The beach and other plant communities provide habitat for several other rare or protected species of wildlife including the state and federally Threatened Florida scrub-jay (*Aphelocoma coerulescens*), gopher tortoise (*Gopherus Polyphemus*), and several protected species of wading birds and plants. The state and federally Threatened Florida manatee (*Trichechus manatus latirostris*) frequently use the ICW adjacent to the Park and its tributaries. The Park also includes beach dune, maritime hammock, and scrub natural communities. Ruderal areas, used for spoil deposition from ICW dredging in the 1960s, support a mixture of native and nonnative plant species.

A 1,100-feet ADA-accessible wood and composite boardwalk provides panoramic views of the Gulf and dune walkovers for beach access. Nature trails exist throughout a wide range of habitats in the park. The eastern portion of the Park features a fishing pier, canoe and kayak launch, picnic pavilion and shelters, restrooms, fitness area, and playground. It also includes the southern end of the Venetian Waterway Park, a multi-use recreational trail along the ICW extending north through the City of Venice and eventually connecting with the Legacy Trail.

1.3 ACQUISITION HISTORY

The Park was deeded to Sarasota County Government by the Caspersen family in 1968 through a special warranty deed stipulating that the land reverts to the family in 20 years. In 1972, a bond referendum was approved to acquire Caspersen Beach and South Lido Park. In 1987, the 110-acre Shamrock Park site

(formerly known as Caspersen Mainland) was included by the Board of County Commissioners in a voter approved bond referendum. A friendly condemnation suit was filed by the Caspersen family requiring that the County prove the need for the land as a public park. The court ruled in the County's favor and established the land's value. The site was then acquired through a $3.5M General Obligation Bond Issue and a $1.75M Federal Land and Water Conservation Fund (LWCF) grant.

See Appendix A for acquisition documents.

1.4 Management Authority and Responsibility

Management authority is the responsibility of Sarasota County Parks, Recreation and Natural Resources Department (PRNR) with the lead being the Beaches and Water Access Division (BWA). Management includes, but is not limited to, the upkeep of public use amenities, scheduling of events, and management of natural areas. BWA collaborates with the Natural Areas and Trails division (NAT) on preservation and restoration of natural communities and critical habitat area management. PRNR also enlists the assistance of other departments that may have expertise or regulatory authority in particular areas of the park's management and operation.

Governing Documents

Management authority is given by the following County Codes and governing documents (see Appendix C):

1. The Sarasota County Comprehensive Plan (2016)
2. Sarasota County Land Management Master Plan (2004)
3. Code of Ordinances Chapter 90 – Parks, Recreation and Public Lands
4. Code of Ordinances Chapter 130 – Waterways
5. Code of Ordinances Chapter 66 – Historic Preservation
6. Sarasota County Strategic Plan (2020)

1.5 Future Plans For The Site

Current plans for Caspersen Beach Park do not include substantial changes to activities, uses, or facilities. Staff regularly evaluates the site for needs and opportunities related to erosion mitigation, habitat enhancement, facility protection, and overall park and facility maintenance.

NATURAL RESOURCES MANAGEMENT PHILOSOPHY

Sarasota County's habitat management approach seeks to restore and maintain a natural balance which preserves the quality of these diverse landscapes for the benefit of wildlife and visitors. As part of this effort, Sarasota County's environmental professionals apply a variety of specialized methods, including mechanical treatment of vegetation, prescribed fire, invasive exotic plant and animal management, hydrologic restoration, and restoration of native communities. Scientific monitoring, often facilitated by volunteers, enables managers to gauge the effectiveness of management actions and to develop responsive, proactive approaches.

With a focus on natural systems management, primary emphasis is placed on restoring and maintaining the natural processes that formed the structure, function, and species composition of Sarasota County's diverse native communities as they occurred in pre-development. Single species management for imperiled species is appropriate in County parks and preserves when the maintenance, recovery or restoration of a species or population is difficult due to the requirement of long-term restoration efforts, unnaturally high mortality, or insufficient habitat. Single species management should be compatible with the maintenance and restoration of natural processes and should not imperil other native species or compromise the Park's values.

Prescribed fire is an essential component in natural systems management in Florida. Prescribed fire is used to mimic natural lightning-set fires, which are one of the primary natural forces that shaped Florida's ecosystems. Prescribed burning increases the abundance and health of many wildlife species. Many of Florida's imperiled plant and animal species are dependent on periodic fire for their continued existence. Fire-dependent natural communities gradually accumulate flammable vegetation; therefore, prescribed fire reduces wildfire hazards by reducing these wild land fuels. NAT makes every effort to return fire to its natural role in fire-dependent natural communities. Sarasota County Fire Mitigation Specialists lead a burn team to restore fire back into the natural system. All prescribed burns in Florida are conducted with authorization from the Florida Department of Agriculture and Consumer Services, Florida Forest Service (FFS). The park contains several native communities, including mesic flatwoods, scrubby flatwoods, and scrub, that rely on fire to maintain its plant composition and structure.

Invasive exotic plants and animals are a serious concern for the management of natural systems. Due to Florida's warm climate, non-native plants and animals are able to thrive. Many invasive exotic species outcompete, displace, or inhibit growth of native species and can alter native habitats and communities. If left unchecked without natural controls from their native origin, invasive exotic plants and animals alter the character, productivity, and conservation values of the natural areas they infest. The Florida Exotic Pest Plant Council (FLEPPC) supports the management of invasive exotic plants in Florida's natural areas. FLEPPC compiles invasive species lists that are revised every two years (FLEPPC 2019). Invasive exotic plants are termed Category I species when they alter native plant communities by displacing native species, changing community structures or ecological functions, or hybridizing with natives. Category II species have increased in abundance or frequency but have not yet altered Florida plant communities to the extent shown by Category I species (https://www.fleppc.org/). It is the aim of NAT to eliminate, or if not possible, to reduce FLEPPC Category I and II invasive exotic plants to low ecological impact levels. NAT utilizes the FLEPPC classification system to determine management priorities when managing invasive exotic plants.

Exotic animal species include non-native wildlife species, free-ranging domesticated pets or livestock, and feral animals. Because of the negative impacts to natural systems attributed to exotic animals, PRNR actively removes exotic animals from county parks and preserves, with priority being given to those species causing the greatest ecological damage.

2 NATURAL RESOURCE MANAGEMENT COMPONENT

2.1 NATURAL RESOURCE INVENTORY

2.1.1 Topography

The site received dredge spoil in the 1960s during construction of the ICW. The highest elevations are approximately ten feet above sea level (USGS 2006). The mean high-water line along the beach and ICW boundaries of the Park occur at elevations less than two feet above sea level (Exhibit 4).

2.1.2 Soils

The site includes nine soil types that can be categorized as either hydric or mesic (Exhibit 5, Table 1, USDA 2006). The parent material of each soil type consists of sandy and/or loamy marine deposits.

Table 1. Soil types in the Preserve.

Soil Type	Associated Habitat	Drainage Characteristics
beaches	beaches	hydric, poorly drained, frequent flooding
Delray fine sand	tidal swamp and maritime hammock	hydric, very poorly drained
Kesson and Wulfert mucks	marshes and swamps	hydric, poorly drained
Manatee loamy fine sand	depression wetlands	hydric, very poorly drained
Canaveral fine sand	maritime hammock and coastal strand	mesic, somewhat poorly drained, or moderately well drained
Cassia fine sand	scrub habitat and ruderal areas	mesic, somewhat poorly drained
Pomello fine sand	scrub habitat and ruderal areas	mesic, moderately well drained
EauGallie and Myakka fine sand	flatwoods on marine terraces	mesic or hydric, poorly drained
St. Augustine fine sand	dredge and fill material spread over the surface of former tidal areas	mesic, somewhat poorly drained

2.1.3 Hydrology

The park is situated along the west side of the ICW, from about one-half mile north to one mile south of the bend in the ICW and its confluence with Red Lake (Exhibit 6). Red Lake, historically known as Buzzard Lake, is situated immediately north of the park. It is connected to the ICW by two channels and a drainage ditch that encircle the northern portion of the park. The park's hydrology and landscape were significantly altered by dredge and fill operations associated with construction of the ICW in the late 1960s. Red Lake and the western channel were historically part of the headwaters of Lemon Bay,

connected by tidal swamp. The tidal swamp and the eastern side of the park were utilized as dredge spoil recipient sites.

The park is located in a FEMA special flood hazard area (Exhibit 5).

2.1.4 Natural Communities

Plant communities are defined using the Florida Natural Areas Inventory (FNAI) classification system (Exhibit 7, Table 2, FNAI 2010)

Table 2. Florida Natural Area Inventory (FNAI) Communities in the park.

FNAI Communities	Acres	% of Preserve
beach dune	15	10
maritime hammock	26	17
mangrove swamp	1	1
scrub	34	23
developed	5	3
altered landcover types	69	46

2.1.5 Imperiled Species

Preliminary evaluations have been made to identify species composition, including listed and exotic species.

Flora

Inkberry *(Scaevola plumieri)* is a dense, multi-stemmed shrub with leaves that are light green, succulent, with a waxy covering and are alternately arranged along the stem. Flowers grow in small clusters from the leaf axils near the ends of the stems. Inkberry primarily exists sporadically in the dune system at the Park. BWA manages this species by removing surrounding invasive exotic plants and by deterring unauthorized pedestrian paths through the dunes.

FLORIDA'S NATURAL COMMUNITIES

The Florida Natural Areas Inventory (FNAI) provides a detailed guide to the standard classification system of 81 natural communities (FNAI 2010). The premise of this system is that physical factors such as climate, geology, soil, hydrology, and fire frequency determine the species configuration of an area. Areas that are similar with respect to those factors will tend to have natural communities with similar species compositions. Differences in species composition can occur, however, despite similar physical conditions and the reverse can occur. Some physical influences, such as fire frequency, may vary from FNAI's descriptions for certain natural communities in this plan.

Prickly applecactus *(Harrisia aboriginum)* persists in small populations throughout the western portion of the park. Marie Selby Botanical Gardens completed inspections during 2013 and 2018 to identify the extent of this species in the park. Information generated by this project will be used to inform conservation action plans that focus on the best populations to use for reintroduction projects at both coastal and inland (low fire risk) sites. With sufficient long-term funding, plant material may continue to be produced and planted in suitable habitats in state and federal parks and on public and private lands. The goal is to boost populations to sustainable numbers to achieve delisting from the Federal Register of Endangered Species. The primary management function for BWA is to protect prickly applecactus from human impacts.

Shell mound pricklypear *(Opuntia stricta)* is one of four native *Opuntia* species that occur in Florida. It grows on Florida's east and west coasts and is common along coastal dunes, coastal grasslands, coastal

hammocks, and on shell mounds. The primary management function for BWA is to protect this species from human impacts.

Giant air plant *(Tilandsia uticulata)* is listed as an endangered species primarily due to impacts from the Mexican bromeliad weevil (*Metamasius callizona*). Giant air plant is the largest *Tillandsia* species in the United States, with leaves reaching two feet in length and a flower stalk up to six feet tall. Its fleshy leaves make it look more like tropical bromeliads than other North American species in its genus. It ranges from southern Georgia and Florida south through the Caribbean and from Tamaulipas in northeastern Mexico south through Central America to Venezuela in northern South America. BWA will monitor existing populations for impacts from the weevil. If impacts are observed, plants may be relocated for preservation and seeds saved for future plantings.

See Appendix D for a full list of documented plant species.

Fauna

Loggerheads *(Dermochelys coriacea)* are the most common of the five sea turtles in Florida waters. For the 2018 nesting season Mote Marine Laboratory and Aquarium documented 3,134 loggerhead nests along 35 miles of beach in Sarasota and Manatee counties.

Atlantic green sea turtles *(Chelonia mydas)* in Florida are one of the largest groupings of this species in the western Atlantic. More than 37,000 green sea turtle nests were documented in Florida in 2015, a record number. For the 2020 nesting season, Mote Marine documented 80 green sea turtle nests along 35 miles of beach in Sarasota and Manatee counties. During 2018, nine nests were documented followed by 182 nests in 2019. The impacts from red tide were evident in 2018 nest numbers.

Gopher tortoises *(Gopherus polyphemus)* are well-documented onsite in the dunes, coastal strand, scrub, and ruderal communities; however, no formal surveys or monitoring have been conducted. The gopher tortoise is considered by some to be a keystone species for Florida's natural mesic and xeric pyrogenic communities. Several other species may inhabit or utilize gopher tortoise burrows, including the Florida mouse (*Podomys floridanus*), a State-listed species of special concern, eastern indigo snake (*Drymarchon corais couperi*), a State and Federally listed threatened species, and Florida gopher frog (*Rana capito*), a State-listed species of special concern.

Least Terns *(Sterna antillarum)* nest in small colonies and prefer open beach and similar sandy areas with little vegetation. Their habitat is ephemeral, with nesting sites changing from year to year. The beach is also important habitat for other nesting shorebirds. The Wilson's plover (*Charadrius wilsonia*), while not a State- or Federally-listed species, is classified as imperiled by FNAI and has been observed onsite.

Florida scrub-jays *(Aphelocoma coerulescens)* are endemic to Florida—occurring nowhere else in the world. Scrub-jay surveys occur annually by County staff in coordination with Audubon's Jay Watch Program. Three adult jays were observed during the 2018 census, though nesting pairs were not observed. Currently, it appears that jays using the park are flying over the ICW from Shamrock Park to utilize additional habitat. We believe the limited size of suitable habitat is the biggest factor in the inability of the park to support a nesting pairs of scrub-jays.

Bald eagles *(Haliaeetus leucocephalus)* are occasionally observed in the park, although no nests have been documented onsite. Two groups track bald eagle nests in the area. Audubon EagleWatch seeks information about Bald Eagles, active nest locations, and possible disturbances or threats to nesting activities. The EagleWatch program provides valuable information on nesting activity and the current trends of eagle populations in Florida. The Audubon EagleWatch Program has over 300 dedicated volunteers currently monitoring more than 600 eagle nests in Florida (Audubon Center for Birds of Prey 2019). FWC monitors eagle nests throughout the state. Statewide surveys were performed until 2008, after which a rotating subset of counties were surveyed until 2017. Only a portion of known nests are surveyed each year by FWC (FFWCC 2017). There are four nests located within approximately five miles of the Park: nests SA005 and SA045 were noted as Occupied by EagleWatch in 2019. Nest SA005a was noted as Inactive by EagleWatch in2019. FWC noted nest SA024 as Searched but Not Found by FWC during the 2016–2017 nesting season.

West Indian Manatees *(Trichechus manatus latirostris)* commonly use Lemon Bay, which is considered one of the key manatee habitat areas in Sarasota County. The Venice Bypass Canal (the Intracoastal Waterway) is recognized as an important travel corridor for manatees (Mote Marine Laboratory 2003). The park is situated in and near both areas.

See Appendix E for a full list of documented animal species.

Table 3. Imperiled Flora and Fauna with documented sightings at Caspersen Beach Park.

	Common Name	Scientific Name	Status
Bird	Florida scrub-jay	*Aphelocoma coerulescens*	Threatened (Fed/State)
	American kestrel	*Falco sparverius*	Threatened (State)
	American oystercatcher	*Haematopus palliatus*	Threatened (State)
	black skimmer	*Rynchops niger*	Threatened (State)
	least tern	*Sterna antillarum*	Threatened (State)
	little blue heron	*Egretta caerulea*	Threatened (State)
	reddish egret	*Egretta rufescens*	Threatened (State)
	roseate spoonbill	*Platalea ajaja*	Threatened (State)
	sandhill crane	*Antigone canadensis*	Threatened (State)
	tricolored heron	*Egretta tricolor*	Threatened (State)
Reptile	gopher tortoise	*Gopherus polyphemus*	Threatened (State)
	indigo snake	*Drymarchon corais couperi*	Threatened (Fed/State)
	American alligator	*Alligator mississipiensis*	Threatened (Fed) due to similarity of appearance
	Atlantic green sea turtle	*Chelonia mydas*	Threatened (Fed)
	leatherback sea turtle	*Dermochelys coriacea*	Endangered (Fed)
	loggerhead	*Caretta caretta*	Threatened (Fed)
Amphibian	gopher frog	*Rana capito*	Species of Special Concern (State)
Mammal	West Indian manatee	*Trichechus manatus latirostris*	Threatened (Fed)
Plant	giant airplant	*Tilandsia uticulata*	Endangered (State)
	inkberry	*Scaevola plumieri*	Threatened (State)
	prickly applecactus	*Harrisia aboriginum*	Endangered (Fed/State)
	shell-mound pricklypear	*Opuntia stricta*	Threatened (State)

2.2 Natural Resource Management

Management objectives aim to protect the park from vandalism, degradation, invasive exotic species proliferation, and listed species and their native habitats and communities while providing natural resource dependent recreational opportunities. Management involves three main elements. County staff will conduct frequent regular site visits; natural communities will be restored, and flora and fauna will be monitored to track restoration success; and an annual report will be created to summarize management actions and relevant issues. Based on the annual report, adjustments will be made to rectify any issues that are not addressed in this plan. Historical aerials document significant changes in the status of natural landscapes (Exhibit 9). The site is divided into management zones to coordinate management priorities (Exhibit 10).

2.2.1 Beach Dune

There are approximately 15 acres of beach dunes in the park. The beach dune community is presently a narrow band running northeast to southwest along the Gulf of Mexico boundary of the park. It is a dynamic community and changes noticeably from season to season depending on the frequency of significant storm and tidal events. The non-dune beach area generally does not support vegetation due to forces generated by breaking waves and tides, but is important to many birds, crustaceans, and other animals including racoons, rabbits, and mice. Pioneer dunes are formed immediately landward of the highest tides. The fore dune occurs more landward, where wind-deposited sand accumulates and is stabilized by plant rhizomes. Foot-traffic, erosion, and invasive exotic plants negatively impact the dune system. Although small in length, pedestrian trails reduce the overall coverage of native dune vegetation throughout the park.

Table 4. Common plant species of beach dunes.

Common Name	Scientific Name
railroad vine	*Ipomoea pes-caprae ssp. brasiliensis*
sea oats	*Uniola paniculata*
bitter panicgrass	*Panicum amarum*
dune sunflower	*Helianthus debilis ssp. vestitus*
baybean	*Canavalia rosea*
seashore dropseed	*Sporobolus virginicus*
seacoast marshelder	*Iva imbricata*
beach creeper	*Ernodea littoralis*
inkberry	*Scaevola plumieri*
Brazilian pepper	*Schinus terebinthifolia*

Current Conditions

The beach dune habitat is largely unmanaged. Exotic plants are removed when observed but typical management practices like mechanical vegetation reduction and prescribed fire are not applicable. Approximately 20 percent of the habitat is impacted by public use, boardwalks, staircases, and unauthorized pedestrian paths. Most impacts are in the northern portion of the Park. South of the heavy public use area is a relatively pristine beach with minimal infrastructure. Portions of pavement exist

from a road that connected Venice Island to the north end of Manasota Key. Otherwise, impacts are primarily unauthorized pedestrian paths. Steep eroded areas are present throughout the beach dune habitat. To mitigate beach erosion, rock revetments were installed in the northern portion of the park by the previous landowner. There are no projects planned or scheduled in the next five years to significantly mitigate beach erosion, although it is outlined as a BWA Division goal.

Optimal Conditions

Optimally, beach dune habitat would thrive if it were larger and anthropogenic impacts were reduced. A larger beach would increase the overall nesting habitat for sea turtles. Moreover, having a larger, more robust dune would help protect the shoreline from erosion, along with creating habitat for native species.

Beach replenishment is a common way to revitalize a beach, though it is expensive, intrusive, and can cause environmental impacts. Fast-breaks and jetties are another way to increase beach shoreline but are also expensive and can cause environmental impacts.

Management Guidelines

Considering budgetary and other constraints, increasing native vegetation and reducing foot-traffic in the dunes are the most applicable management approaches to protect beach dunes. BWA regularly plants native vegetation in strategic areas that will persist and provide positive long-term impact. Plantings occur during the rainy season to increase the strength and resiliency of the plants. Priority areas will be identified annually.

Staff has identified beach dune erosion adjacent to the entrance road to the park as a critical threat to park access, infrastructure viability, and long-term sustainability of surrounding habitats. This issue has been placed on the priority list for threat assessment, coastal engineering, and physical improvements. Multiple funding sources will likely need to be identified to address this issue. Other portions of park coastline will also benefit from improvements but are lower priority.

Natural maritime influences are usually sufficient to maintain dune communities, barring major physical, man-made alterations to them or the surrounding landscape. However, dune communities are susceptible to degradation when invasive exotic species proliferate. Annual invasive exotic plant treatment and removal efforts will continue throughout the park. If grant or funding assistance opportunities occur, staff will evaluate the cost-benefits of those opportunities. County staff will continue to complete treatment and removal efforts annually. All efforts, including treatment methods, herbicide types, and record keeping will adhere to Sarasota County's Integrated Pest Management Plan guidelines.

2.2.2 Maritime Hammock

There are approximately 26 acres of maritime hammock in Caspersen Beach Park. Maritime hammock, like coastal strand, also occurs on relic, long-stabilized dunes. A closed canopy of live oak and cabbage palm and buildup of leaf litter and humus combine to create a unique microclimate in the hammock.

Maritime hammock occurs in the northern portion of the Park on the east side of Harbor Drive, parking lots, beach or dune, and coastal strand. There is a hiking trail near the northern parking lot which allows visitors to enjoy this habitat. Along the trail there are picnic areas with tables, grills, and a fishing dock.

Table 5. Common plant species of maritime hammock.

Common Name	Scientific Name
southern red cedar	*Juniperus silicicola*
wild coffee	*Psychotria nervosa*
snowberry	*Chiococca alba*
myrsine	*Rapanea punctata*
coralbean	*Erythrina herbacea*
saffron plum	*Sideroxylon celastrinum*
love oak	*Quercus virginiana*
cabbage palm	*Sabal palmetto*
Brazilian pepper	*Schinus terebinthifolia*
carrotwood	*Cupaniopsis anacardioides*
lantana	*Lantana camara*

Current Conditions

Presently, maritime hammock habitats are in good health with desired native plant species and minimal invasive exotic plants. There is Brazilian pepper scattered throughout this habitat, but a thorough treatment was completed in 2017 and re-treatments have occurred annually. Currently the habitat is healthy with a good mix of native canopy and groundcover.

Optimal Conditions

To restore this ecosystem to its optimal condition, all exotics must be removed. Although Brazilian pepper has been treated in this ecosystem, annual maintenance is required. It would be beneficial to remove any dead Brazilian pepper, but this is not a priority at this time. This management decision is based on the difficulty of accessing the area with mechanical equipment that will not damage this sensitive habitat. Maritime hammock habitat along Harbor Dr and the northern parking can be maintained by routinely checking the areas for new exotic sprouts and treating or removing as needed.

Management Guidelines

Although fire historically managed Florida habitats, we do not advise using prescribed fire in the park's maritime hammock. Some of the factors affecting this preferred management approach are above ground utilities, roadways, the small size of the area, and the large number of resources that would be needed to implement a safe burn. Maritime influences are usually sufficient to maintain maritime hammock communities, barring major physical, man-made alterations to them or the surrounding landscape. However, they are susceptible to degradation when exotic species invade and proliferate.

Though maritime hammock can persist without the implementation of prescribed fire, mechanical vegetation reduction may be necessary in the future. As with all habitats in the park, an annual assessment will be performed to evaluate the necessity of mechanical vegetation reduction.

2.2.3 Mangrove Swamp

There is approximately one acre of mangrove swamp in Caspersen Beach Park. Mangrove swamp occurs as a narrow fringe around the entire perimeter of the northern peninsula, along the west side of the peninsula, along the east side of the maritime hammock, and as a small inclusion in the hammock.

Table 6. Common plant species of mangrove swamps.

Common Name	Scientific Name
red mangrove	*Rhizophora mangle*
black mangrove	*Avicennia germinans*
white mangrove	*Laguncularia racemosa*
buttonwood	*Conocarpus erectus*
falsewillow	*Baccharis spp.*
sea purslane	*Sesuvium portulacastrum*
bushy seaside oxeye	*Borrichia frutescens*

Current Conditions

Brazilian pepper has been treated in this habitat. Some spoil pile areas exist. Vegetation has established. Currently there are no plans to remove the spoil.

Optimal Conditions

Ideal conditions for mangrove swamp consist of a variety of mangroves along with zero invasive exotic plants present. Removal of spoil piles would be beneficial; however, impacts to surrounding plant communities, changes to hydrology, and high costs have prevented further action.

Management Guidelines

Maritime influences are usually sufficient to maintain coastal swamp communities, barring major physical, man-made alterations to them or the surrounding landscape. However, they are susceptible to degradation when exotic species invade and proliferate. Annual monitoring and treatment of Brazilian pepper should continue. To preserve and maintain this habitat, regular treatment of invasive exotic plants shall occur.

2.2.4 Scrub

There is approximately 34 acres of scrub in Caspersen Beach Park. Scrub occurs on the central and eastern portions of the northern peninsula. The scrub is generally overgrown, with few bare, sandy areas. It is also home to the Florida scrub-jay (*Aphelocoma coerulescens*).

Table 7. Common plant species of scrub.

Common Name	Scientific Name
longleaf pine	*Pinus palustris*
Florida slash pine	*Pinus elliottii var. densa*
sand live oak	*Quercus geminata*
Chapman's oak	*Quercus chapmanii*
myrtle oak	*Quercus myrtifolia*
saw palmetto	*Serenoa repens*
hog plum	*Ximenia americana*
coastalplain staggerbush	*Lyonia fruticosa*
shiny blueberry	*Vaccinium myrsinites*

pricklypear	*Opuntia humifusa*
narrowleaf silkgrass	*Pityopsis graminifolia*

Current Conditions

During 2015, a contractor in coordination with Florida Forest Service, was used to remove cabbage palms from management zone 6. This project was not executed to completion. A few dozen palms were removed but several of the spade holes were left. The holes are in the interior of the zone. For public safety and habitat restoration, it is a priority to back-fill these holes. Additional palm removal from all the scrub habitat zones will be an ongoing effort by County staff. In addition to palms, other predator bird perch trees and snags will be targeted for removal. Prescribed fire is currently in an optimal rotation in scrub habitat zones. It is a priority to maintain prescribed fire in an optimal rotation.

Optimal Conditions

Ideally, understory height and duff layer should be reduced and grass and forb densities and open sandy areas for scrub-jays to cache their acorns should be increased.

Management Guidelines

Restoration and management of the scrub community will require prescribed burning coupled with mechanical vegetation reduction, considering the site's proximity to urban areas. Typically, scrub has a fire return frequency of 10–20 years. Shorter burn intervals are necessary to reduce fuel accumulation and to minimize the potential negative impacts of smoke on surrounding areas. Proper prescribed burn intervals of 5–15 years should achieve this and allow for oak species to sufficiently recover in height and acorn-bearing status to provide habitat for resident scrub-jay families.

Since 2010 there have been eight prescribed burns conducted over approximately 26 acres. It is the goal of BWA in coordination and under the leadership of the Sarasota County Fire Department's Fire Mitigation and the Natural Areas and Trails Division to burn at least one zone in the scrub or scrubby flatwoods habitat each year. Burns will be planned so that, on average, no more than 20 percent of the total available nesting habitat in the Park, and no more than 50 percent of available nesting habitat in a single territory, will be burned in any year. Additionally, burning will not occur during scrub-jay nesting season, March–June. Prescribed fire data is saved electronically by the Enterprise Information Technology Department and made available through their GIS services.

Fire Mitigation staff are also responsible for leading an annual hazard assessment for the site. The assessment is based on the standards provided by the National Fire Protection Association's Firewise USA. The Park is rated in the low to moderate hazard identification. It is our goal to keep the park at or below this rating in perpetuity.

Because of long durations between fires, we recommend that mechanical vegetation reduction is done every 5–7 years. We recommend roller-chopping and mulching depending on the interval. Routine treatments and monitoring should be completed on an annual basis for invasive exotics.

Management zone 5 is 1.1 acres and comprised of a vegetated berm. This berm has been identified as a hinderance for scrub-jays to easily traverse between management zones 4 and 9 and management zones 6 and 10. This berm will be considered for removal and/or leveling.

2.2.5 Altered Landcover Types

There are approximately 69 acres of altered landcover types in Caspersen Beach Park. The most prevalent types are roads, spoil, and developed areas. Development includes shelters and pavilions, fitness and hiking trails, boardwalks, parking lots, and restroom facilities. Spoil areas are located adjacent to the ICW from the central portion of the park to the southern boundary. These areas are mostly bare, with dense clusters of cabbage palms. Some native groundcover species exist. One two-lane paved road provides public access to and within the park. The road transitions to a dirt road, which services most of public use amenities in the park.

Table 9. Common plant species of altered landcover types.

Common Name	Scientific Name
cabbage palm	*Sabal palmetto*
pricklypear	*Opuntia humifusa*
dune sunflower	*Helianthus debilis ssp. vestitus*

Current Conditions

FNAI recognizes that not all habitats and landscapes in Florida are in natural condition. Some have been completely converted from their historical natural community for uses like agriculture and pasture, while others have been severely altered by fire suppression or silvicultural activities. These altered habitats do not fit into FNAI's Natural Community Classification. The altered landcovers at the park are predominantly associated with spoil deposition and public use infrastructure. The facilities are maintained to be safe and accessible for park visitors. Facilities are evaluated regularly to determine timelines for repair, enhancement, or replacement. As of January 2012, the integrity of the Gulf boardwalk is of greatest concern due to impacts related to erosion. Spoil deposition areas are a challenge to manage since they are in the remote southern areas of the park. Invasive exotic plant species, especially groundcovers, have become established.

Optimal Conditions

Ideally, public use infrastructure should be well maintained, and enhancement projects should be continually identified based on best management practices and current guidelines related to accessibility. Some of the altered landcover that has occurred from spoil deposition has established invasive exotic plant species such as cogon grass and Natal grass. These species should be targeted for eradication and a maintenance plan incorporated. There are no significant management operations planned to fully restore these areas.

Management Guidelines

Areas with invasive exotic plants will be managed to reduce and eventually eradicate them. The focus will be to reduce the cover class of Management Zone 22 from 3 to 2. This zone is mostly classified as altered and has the highest percentage of invasive exotic plants of any zone in the park. The primary species to be addressed are Natal and cogon grasses. Though these grasses are highly invasive and often difficult to eradicate, it will be priority to manage this zone at a higher level to reduce the seed source for the park and nearby natural areas and parks. Annual surveys and treatment efforts will be conducted to monitor success.

The altered areas of the park have minimal public use infrastructure, though they are destination areas for park visitors due to the amount of bare ground that has not naturally recruited plants after dredge spoil was deposited. These areas are used for hiking and biking as well as unauthorized uses such as camping, fires, and unauthorized access to the beach. Staff regularly patrols these areas for unauthorized uses.

2.2.6 Management Zones

To coordinate management efforts and maintain data history pertaining to prescribed fire and invasive exotic species control, the preserve is divided into 22 management zones (Exhibit 8).

Table 10. Management Zones used to track prescribed fire and invasive exotic species control.

Management Zones with Acreage						
Zone	Acres		Zone	Acres	Zone	Acres
1	1.4		9	2.7	17	13.9
2	2.6		10	2.9	18	8.7
3	1.8		11	7.2	19	7.7
4	2.9		12	6.4	20	34.6
5	1.1		13	2.8	21	3.5
6	1.6		14	1.0	22	25.5
7	1.9		15	5.1		
8	2.5		16	15.6		

Table 11a. Annual burn plan intervals and targets.

Natural Community	Acres	Burn Interval (yrs)	Annual Burn Target (acres)
scrub	34	10 -20	2.5

Table 11b. Annual IPM rotation intervals and targets.

Natural Community	Acres	Technique(s)	Annual Target (acres)
scrub	34	foliar and cut stump	34
maritime hammock	26	foliar and cut stump	26
mangrove swamp	1	foliar and cut stump	1
beach dune	15	foliar and cut stump	15
altered landcover	69	foliar and cut stump	69
developed	5	foliar and cut stump	5

2.2.7 Special Considerations

Beach erosion

The long stretch of coastline is dynamic in nature and heavily eroded. Recent storms, including hurricanes Irma and Michael and tropical storms Colin and Eta, have increased erosion. Parts of the boardwalk have been removed or repaired. Moreover, steep drop-offs have been created along the coastline, some 5–6 ft in height. Post storm and tidal event monitoring will continue to occur. Damages to existing structures will be assessed to determine the viability of repair. Coordination with the Florida Department of Environmental Protection as well as the County's Environmental Permitting Department will occur when repairs to structures are necessary.

Red Tide and Seaweed

Red tide can significantly impact Caspersen Beach. It is important to maintain a beach access point at the southern end of the pedestrian road for mechanical equipment to access the beach. This access is just to the south of the existing accessible dune walkover ramp. Clean up of seaweed and dead animals and other red tide debris can be done by hand by County staff, participants in the Sarasota County Sherriff's Work Offender Program, and mechanical equipment like the beach rake. Roll-off dumpsters and dump trucks are often utilized for disposal. Beached dead marine life of special management concern, such as goliath grouper, sharks, and dolphins shall be reported to FWC. Mote Marine Laboratory shall be contacted if dead sea turtles wash ashore. Beach cleaning shall comply with the County's Beach Cleaning Policy Related to Special Conditions.

Fossil Mining

The southern portion of the park has been illegally excavated for fossils. The secluded nature of this portion of the park and ease of access by boat provides an opportunity for these activities to exist with very little enforcement of park rules. During 2016, the dirt trail that leads to this portion of the park was improved by trimming vegetation so that a utility vehicle or truck can be used for access. This improvement has allowed for regular patrols of the area. Also, during 2016, existing excavation areas were backfilled by County staff and enforcement signs were installed. Since that time, excavation for fossils has greatly diminished. County staff will continue to have a regular resource protection presence.

Overnight Camping

Overnight camping should be regularly monitored throughout the park, especially in the southern portion. During 2016–2020, dozens of camps were removed. County staff coordinates with SCSO for camps that contain life-sustaining valuables. Trash should be properly collected and disposed. If camps are inhabited, County staff will attempt to provide SCSO Homeless Outreach Team contact information if the individual is interested in receiving public assistance.

Non-Native Fauna

Raccoons, armadillos, spiny-tailed iguanas, dogs, and feral cats can be particularly troublesome to natural area parklands. They are known to prey on shorebirds, sea turtles, and tortoise nests. Exotic and invasive exotic species can negatively impact native fish and wildlife, cause costly damage, and pose a threat to human health and safety.

Several species of nuisance and exotic wildlife reside at Caspersen Beach Park. County staff has focused removal efforts on smaller species like racoons and armadillos that have harmful impacts on sea turtle

nests. Black spiny tailed iguanas have been observed in the southern portion of the park. Routine inspections and visits to the park's natural communities by staff will take care to note any evidence of nuisance or exotic animals. An annual contract has been established for trapping and removing raccoons. In addition, the County has entered into an agreement with the United States Department of Agriculture to perform similar services throughout the County. Trapping efforts will increase in conjunction with sea turtle nest protection operations.

In coordination with the Coastal Wildlife Club, County staff monitor traps and remove trapped animals in accordance with state laws. Due to staffing constraints, in-house efforts are not conducted throughout the year. Instead, management typically begins one month prior to sea turtle nesting season and continues throughout the season on an as-needed basis. These seasonal activities are dictated by volunteer observations by the Coastal Wildlife Club when they conduct nest inspections. The club tracks all activities of each nest, which includes predation by species type.

Management of Invasive Exotic Plants

Protecting the park from significant degradation due to invasive exotic species, is a basic management priority. Habitat restoration efforts can be hindered by unchecked populations of undesirable vegetation. There are at least six plant species in the Park that are classified as Category I or Category II invasive species by the Florida Exotic Pest Plant Council (FLEPPC). Site management will concentrate on eradicating FLEPPC Category I species.

Staff utilizes FWC's exotic plant cover class system for assigning exotic plant percent coverage classifications to each management zone. Cover classes are assigned based on field observations and monitoring specific to the percent cover of exotic plant species present in each management zone. Classifications are based on all exotic plant species present and not individual species. The coverage classes are: 1) < 1 percent, 2) 1-5 percent, 3) 6-25 percent, 4) 26-50 percent, 5) 51-75 percent, 6) 75-95 percent, 7) 96-100 percent. The goal is to manage the park so that all zones are brought below cover class 3 and maintained in perpetuity within the cover classes 1 and 2.

Until recently, Brazilian pepper was largely unmanaged. By applying for and receiving funding through FWC's Upland Invasive Assistance Program, the entire property has been treated multiple times by contractors for Brazilian pepper and other invasive exotic plants including carrotwood and kalanchoe. During the initial project, approximately 45 percent of the property was classified in cover classes 3, 4, or 5. The remainder of the site was classified in cover classes 1 and 2. Since initial treatment and subsequent three years of funding assistance, approximately 17 percent of the Park is classified as cover class 3 (Management Zone 22) and the remainder cover class 2. Management Zone 22 is substantially impacted by historical dredge spoil, which has provided enabled exotic plant species to become established. Natal and cogon grasses are the primary invaders in this zone and have gone largely unchecked, though staff has treated the cogon grass on multiple occasions since 2017.

Retreatments of all exotic plant species have occurred annually since funding was obtained in 2017. Annual treatments have been completed using contractors and County staff. Beach vitex is present on adjacent properties but has not been identified in the park. Monitoring efforts will include observations of this species. Kalanchoe is the biggest threat to native groundcover. Staff and volunteer workdays are coordinated for hand removal efforts.

Invasive exotic plants will continue to be removed or treated. Coverage will be evaluated quarterly to assess treatment success and to determine the need for additional control. Control methods are designed to reduce or eradicate nuisance exotic populations. Control methods used are based on the latest techniques detailed by FDEP's Bureau of Invasive Species and other local, regional, and federal resource management agencies.

All treatments of exotic plant species will be completed in accordance with Sarasota County's Integrated Pest Management Procedural Guidelines, effective June 22, 2015 (Resolution No. 2005-110, Sarasota County 2015). Integrated Pest Management (IPM) is a practice of promoting sustainable pest management methods that minimize health, environmental, and economic risks. It uses a combination of techniques that are consolidated in a unified program so that pests are kept at acceptable levels in a safe, effective, and economical manner.

A viable IPM program requires the adoption of a sustainable chemicals management policy that should be based on the principle of substitution as the primary criteria for chemical management. The principle of substitution states that hazardous chemicals should be systemically substituted by less hazardous alternatives or preferably alternatives for which no hazards can be identified. The Sarasota County IPM program will assiduously apply this principle as it reviews the approved chemical list each year. It is the goal of Sarasota County Government to reduce the risk to human health and the environment by minimizing the use of pesticides through application of integrated pest management practices and emphasizing proven, effective, least toxic and non-toxic approaches and products. The use of biocontrols is also a priority of the program.

2.2.8 Research and Monitoring

The park was acquired, in part, to preserve native habitats and communities. To practice adaptive management, flora and fauna must be monitored for shifts in diversity, total populations, and demographics. More detailed surveys can identify the presence of additional rare or protected species. Any occurrence of rare or listed plant and wildlife species will be reported to agencies and the FNAI. Species-specific management strategies will be developed to ensure persistence of these species. Continued monitoring of the scrub-jays and gopher tortoises will help track successes of management strategies formulated with their specific habitat requirements in consideration.

Monitoring targets include, but are not limited to, floral and faunal species that are protected, are critical to the health of the environment (e.g., keystone species), or are detrimental to the health of the environment (e.g., invasive exotic species). Target communities are usually those that are native to the site and need to be restored, maintained, or are necessary for other management goals. Monitoring targets at the park are scrub-jay families that inhabit or otherwise utilize the park, gopher tortoises and burrow commensal species, sea turtles, and nuisance or invasive exotic plant species, together with the natural communities they inhabit.

The monitoring program should, at a minimum, include the following components:

- Habitat assessments should be conducted annually to determine fuel loads and habitat structure, and to develop recommendations for management activities.
- Coarse filter flora and faunal surveys should be conducted annually to gage the effectiveness of management actions as related to monitoring targets.

- Fine filter surveys should be conducted as recommended upon completion of the initial coarse filter surveys.
- Exotic species monitoring should be conducted quarterly in all natural and ruderal communities of the park to assess the success of treatment and the need for additional follow-up control.
- Sea turtle monitoring should be a continuation of established monitoring of nesting beach areas by Mote Marine Laboratory and Aquarium and the Coastal Wildlife Club during nesting season (May through October).
- Scrub-jay monitoring should be conducted in collaboration with FWC, at a minimum, during the annual Jay Watch survey that typically occurs during July when young of the year may still be identifiable by plumage, and the Fall (September through October) when territorial displays are most vigorous. Monitoring will help track territorial ranges, foraging habits, and nesting success.
- Qualitative post-burn evaluations should be conducted within six months of all prescribed burns to determine if stated burn objectives were met. Post-burn assessments can also provide information useful to guide future burns. Several monitoring points should be selected in each burn zone and evaluated as to crown scorch, charring of tree trunks, and burn severity.
- Site stewardship should occur at least weekly. Staff should make inspections to assess issues related to security, encroachment, and site conditions for public use and access. Staff should report back to the site's designated manager.

Coarse filter surveys should occur at a minimum of once every five years for natural area lands managed at Level III (Survey Protocol for Master Land Management Plan of Sarasota County). Permanent survey locations will be established to allow management progress to be tracked. Survey methods are designed to efficiently provide managers with site-specific flora and fauna inventories, characterizing species richness and not abundance. Through time, data can be tracked by repeating the surveys with the development of management plan updates. If these coarse filter surveys document listed species use, these species may be targeted for more intensive surveys. Habitat-specific species richness trends, or the lack thereof, can be identified by comparison of findings on any five-year coarse filter survey.

Fine filter surveys are more intensive and designed to provide statistically defensible data to ascertain the effectiveness of land management techniques. As of January 2021, we do not recommend fine filter surveys. Based on coarse filter surveys, additional surveys may be warranted. These are likely to focus on two target species: the gopher tortoise and scrub-jay. Species-specific surveys will be conducted for scrub-jays (via FWC) and gopher tortoises upon adoption of this management plan and every five years thereafter. Surveys will be used to gage the effectiveness of land management strategies, including habitat restoration. Species-specific surveys will adhere to the methods developed by FWC.

Sarasota County will continue to coordinate scrub-jay nest or banding efforts with the FWC and request records of their methods, findings, and recommendations. Jay Watch is a monitoring collaboration between Audubon Florida and Sarasota County. Data are typically collected during June or July. Additional information can be accessed on the Florida Audubon website.

Sea turtle nesting is monitored every year by County staff with a large group of volunteers. Sarasota County has participated in the Statewide Nesting Beach Survey Program since its inception in 1979. During sea turtle nesting season, May through October, volunteers patrol the beach to track the number of nests, false crawls, and nest success rates. Nighttime volunteers tag nesting sea turtles. Sarasota

County Natural Resources' Sea Turtle Protection Program coordinates sea turtle monitoring, volunteers, and public education and outreach. For sea turtle nest monitoring, the County will continue to participate and coordinate with the Coastal Wildlife Club for nest monitoring and Mote Marine Laboratory for nest monitoring and tagging operations.

The Sea Turtle Tagging and Monitoring Program was established in 1986 as a collaboration between Mote Marine Laboratory and Sarasota County Government. Sea turtle tagging operations take place in July, along Manasota Key and Caspersen Beach Park. Fieldwork is coordinated by County staff with assistance from volunteers and Mote Marine Laboratory staff. Additional information is on Mote's website. The Sea Turtle Nest Monitoring and Data Collection Program is a collaboration between Coastal Wildlife Club, Sarasota County Government, and Mote Marine Laboratory. Operations occur May–October. Additional information is on Coastal Wildlife Club's website.

As of January 2021, no specific research needs are identified; although, many research opportunities exist that would enhance the County's ability to manage this and other natural areas. Opportunities include:

- Long-term monitoring of the effects of increased recreational use on scrub-jay families inhabiting the park.
- Sea turtles and sea turtle populations have long been the subjects of research conducted by Mote Marine Laboratory, FWC, the National Marine Fisheries Service, and the U. S. Fish and Wildlife Service. The County should seek opportunities to contribute to or share data with ongoing research.
- Monitoring effects of increased recreational use on fauna.
- Monitoring gopher tortoise movement and burrow selection patterns in relation to ecological characteristics of the park and land management actions.
- Research into auditory exotic versus native anuran species would be valuable in understanding the extent to which exotic species intrude into small isolated green spaces. The Frog Listening Network has conducted a study of this type in Pinellas County with funding from the Pinellas County Environmental Foundation (2003). This research could be conducted by local volunteers here, such as the local chapter of the Frog Listening Network.
- Research into the carrying capacity of park use before detrimental impacts occur to native habitats and communities.
- Evaluation of native vs. exotic plant species recolonization following treatment and/or removal of invasive nuisance and exotic species. This may assist managers is identifying dispersal mechanisms as well as treatment needs in a suburbanized setting.
- Additional investigation into the park's potential to contain historical, archaeological, or other cultural resources.
- Other monitoring programs that track the effectiveness of future mitigation or management efforts.

3 CULTURAL RESOURCE MANAGEMENT COMPONENT

3.1 CULTURAL RESOURCE INVENTORY

3.1.1 Archeological Sites

Because of the park's frontage along a tidal waterway and the Gulf of Mexico, we expect that Native American and European and African settlers utilized the site or exploited its natural resources. At least three prehistoric archaeological sites have been recorded in the park (Exhibit 11).

Gory Site, number 8SO24, was recorded in the Florida Master Site File (FMSF) as located in Section 30-31, Township 39 South, Range 19 East. The site is from the Pre-Columbian period and is thematically classified as aboriginal. The site, which included a Paleo-Indian burial area, could not be found in a 1998 archaeological survey (Almy et al. 1998). FMSF records indicate that the site was approximately five acres in size, extending north about a half mile from around the north side of the mouth of Alligator Creek and east from the Gulf of Mexico about a quarter mile. It was impacted by construction of the ICW, when eight feet of fill material was placed over its surface. The name "Gory" is derived from Mr. Vincent Gory who discovered the site in 1969.

Horse and Chaise Site, number 8SO063 was recorded in the FMSF as located at the north tip of Intracoastal Park and extending north onto adjacent City of Venice owned property (Almy et al. 1998). The site is from the Pre-Columbian period and is thematically classified as aboriginal. It is an intermittently submerged shell midden approximately 2,000 square meters in size. The site is reported to have been impacted by mosquito ditching and construction of the ICW. During a 1998 survey, it was situated 20–35 inches below the surface of the mangrove swamp and bisected by the canal located adjacent to the northern boundary of the Park (Almy et al. 1998). The midden consisted of marine shell, fossilized fauna, and sand-tempered plain sherds.

Red Lake Site, site number 8SO436, was recorded in the FMSF as located near the north tip of the park. Its period and thematic classification are unknown. It was a lithic scatter site that was destroyed when the Venice Golf Course was constructed.

3.1.2 Historical Structures and Uses

Caspersen Beach has a rich history. During the 19th century, a strand of slash pines directly north of the park served as a navigational landmark for merchant ships. Viewed from the Gulf, these pines resembled a horse drawn carriage and was aptly named Horse and Chaise Point. Some of these pines still exist on what is now Brohard Beach Park. During the summer of 1847, deputy surveyor A.H. Jones surveyed the section lines of what is now Caspersen Beach Park. Though many of the land features were not included on his map, Jones did make notes that included Red Lake and Horse and Chaise Point.

Jesse Knight, a cattle rancher and minister, was first American to settle in the Horse and Chaise region, which included all of present-day Nokomis and Venice. To utilize better pastureland, the Knight family created a trail from Miakka to Horse and Chaise in 1868. Knight's Trail served as a main artery to the area for fifty years afterwards. To hold his 22,000 head herd in 1911, Knight constructed a three-mile split rail fence, which together with land and water features enclosed over 150 square miles. Though it is

doubtful that the Caspersen Beach Park parcel was grazed by many cattle, it was included in the area used by Knight.

In 1880, The Florida Land and Improvement Company purchased approximately four million acres of land from Florida, including the area that is now Caspersen Beach Park. The land changed hands several times between then and 1944, when it was purchased by the Caspersen family. Prior to their purchase, the land was likely timbered and used as a military training area during World War II. The Caspersen family refrained from building on their land, eventually making it one of the last stretches of barrier island in Southwest Florida left in a natural state. This changed in 1967 with the completion of an eight-mile Venice canal which was the final link to a six-county Intracoastal Waterway. Approximately 6–8 feet of dredge material from the canal were placed on the Caspersen Beach parcel.

In 1965, The West Coast Inland Navigation District (WCIND) built a sand dike at the northern end of the property to contain spoil dredged from the ICW. This area was not filled as anticipated and became recognized as a prolific mosquito breeding area. To improve the environmental quality of the stagnant freshwater marsh and to alleviate the mosquito problem, Sarasota County reconnected the marsh with Red Lake Run, a saltwater body off the ICW. The cut allowed saltwater to continually flush the marsh. Soon after this cut was established, invasive exotic plants were removed, native plants were installed, the banks were graded, and swales were constructed.

During 1966, the Caspersen family applied for a major work permit for the construction of a series of six groins. These rock revetments were installed to help mitigate erosion. At the time of installation, these rock revetments were placed along the dune line and 40 feet into the Gulf of Mexico, spaced approximately 500 feet apart. These revetments are still visible today.

In 1967, Sarasota County entered into a twenty-year lease of the property. In exchange for the right to construct a park, Sarasota County waived the property taxes for the Caspersen family. Soon after this lease agreement and in collaboration with the City of Venice, a section of paved road was constructed connecting Harbor Drive with Manasota Key Road. Precipitated by winter storms from 1980 through 1988, much of the road has since eroded. Remnants still exist along the coast of Caspersen Beach Park. In 2016, approximately 1,000 square feet of the asphalt and road base material was removed to prevent it from eroding into the dune system. This section of the old road is located near the beach access dune walk-over, just south of the Gulf-side restrooms.

During the 1960s, the South Venice Civic Association owned a strip of land sandwiched between two parts of the Caspersen Beach parcel. A ferry transported South Venice residents across the ICW from Lemon Bay Drive to the beach. In 1968, the Association dredged a shoal further south, and the ferry's dock was moved just to the south of Caspersen Beach Park. This move was facilitated by a land swap in 1980 which gave Sarasota County a contiguous parcel while the Association received a more accessible parcel for their operations. The ferry is still in operation.

The first years of County control of the park were marked by a great deal of land abuse. Visitors would typically park on the dune system and the beach was used for unauthorized activities. During this time, Sarasota County began planning for the implementation of environmental assessments, recreational development, habitat restoration, and additional land acquisition.

The Board of County Commissioners approved a park development plan and allocated $100,000 to the construction of parking lots, dune walkovers, and a restroom facility. These amenities were constructed and opened to the public in 1982. Shortly thereafter, nature trails were also constructed.

No known historic structures are present.

3.2 Cultural Resource Management

3.2.1 Considerations for Protection

Condition assessment

All sites have been impacted by human activities, including dredging of the ICW, creation of ditches, infrastructure, and roads. These impacts reduce the conditions of each site.

Level of Significance

Each site had a high level of ecological and cultural significance before the human disturbance. The Horse and Chaise and Gory sites are considered to have a high level of significance due to the potential existence of possible artifacts. The Horse and Chaise Site is significant enough to warrant protective measures and is considered potentially eligible for listing in the National Register of Historic Places (Almy et al. 1998). Since the site is situated within both City and County jurisdictions, Sarasota County, including PRNR, should coordinate with the City of Venice on protective measures. The 1998 archaeological survey indicated that the northern portion of the site is the most important component to preserve, and it may lie within City limits (Almy et al. 1998). Gory has been classified as a Category B site, which deems it eligible for a nomination to the National Register (Sarasota 1990). The Red Lake site is subjective in its level of significance due to enormous impacts to the site. There is a potential for site findings, but currently the site is under several feet of muck and mangroves.

Special Considerations

Future public use facilities, such as trails, picnic areas, and overlooks, should be situated such that impacts to cultural resources are avoided. Additionally, County and City staff should be aware of the location of cultural resources to avoid unnecessary disturbance. Although construction is not currently proposed in this area, other potential, or unintentional disturbances—such as natural erosion, land management activities, trail construction, or feral animal disturbance—may damage the site. If any artifacts surface, they should be documented as to provenance, collected carefully, and transported to the Sarasota Historical Resources Division.

Sarasota County Historical Resources should be contacted before any earth moving projects begin. Even if the earth movement is not in a designated cultural site, there is still potential for archeological findings and significance.

Protections Currently in Place and Proposed.

Sarasota County Code of Ordinance – Historic Preservation – Chapter 66.

Cultural Resource Management Goals, Objectives, and Actions

All sites in Caspersen Beach Park should be managed with care and all needed steps should be taken to preserve these sites. No action other than preservation and protection should be taken at this time.

4 LAND USE COMPONENT

4.1 CURRENT LAND USES, AMENITIES, AND FACILITIES

The zoning districts that make up the park and adjacent lands are Residential Single Family (RSF-1), Open Use Conservation (OUC), Marine Park (MP), and Government Use (GU).

See Appendix B for land use agreements and easements.

4.1.1 Agriculture

Not applicable

4.1.2 Public Access and Recreational Uses

Parking, picnic facilities, and trails were established to minimize impacts occur to the park's natural resources (Exhibit 12). The main beach access is by way of several dune walkovers along and adjacent to the boardwalk. Informational signs inform the public about plants and animals, Sarasota County's Healthy Beaches Program, and its identification as a Blue Wave Beach. Two designated nature trails exist. One goes through the maritime hammock adjacent to the main beach parking area and a second leads from the Gulfside restrooms to the southern portion of the park. Increasing visitor use is likely to occur because of existing recreational amenities, increased population, and the multi-use recreational trail along Venetian Waterway Park.

The park is a popular location for events and gatherings. In addition to birthday parties, weddings, and other celebrations, the park is also used for race and school events.

Table 12. Current condition and maintenance requirements of facilities and amenities.

Type	Improvement	Condition Assessment	Maintenance Goal
public	parking areas (3)	fair – dirt parking lots with paved ada spaces	weekly grading
public	boardwalks and dune walkovers	fair – chainlink fence is in poor condition and the boardwalk is impacted by erosion	monitor after tidal and storm events; removal may be required
public	benches	good	monitor during quarterly inspections
public	picnic shelters	good – boardwalk shelters impacted by erosion	monitor during quarterly inspections; removal may be required
public	small pavilion	good	monitor during quarterly inspections
public	large pavilion	good	monitor during quarterly inspections
public	picnic tables	good	monitor during quarterly inspections
public	beach accesses	fair – impacted by erosion; multiple unauthorized paths	monitor during quarterly inspections
public	Gulf of Mexico access	good	monitor during quarterly inspections

public	nature trails	good	monitor during quarterly inspections; mow and trim on a monthly basis
public	multi-purpose trail with fitness equipment	good – fitness equipment is outdated	monitor during quarterly inspections
public	fishing pier	good	monitor during quarterly inspections
public	canoe and kayak launch	fair – accessibility issues and adjacent ADA space does not meet requirements	monitor during quarterly inspections; potential improvement project to consider
public	playground	good	monitor during quarterly inspections
public	bathroom facilities (2)	good	monitor during quarterly inspections
public	outdoor shower	good – additional showers are needed	monitor during quarterly inspections; potential improvement project
public	connection to the Venetian Waterway Park	good	monitor during quarterly inspections
support	maintenance garage and staff breakroom	good	monitor during quarterly inspections

Sings in the main park entrance and parking areas clearly identify permitted and prohibited activities. Similar signs will be installed at the entrance from the Venetian Waterway Park trail. Fencing is warranted along the northern boundary of the Intracoastal Park peninsula, which adjoins the Venice Golf Club. Regular patrols by Parks and Recreation staff will help to assure that unauthorized access does not occur.

Table 13. Potential or known unauthorized uses. Potential unauthorized uses or activities are set forth in the County Facility Rules, in addition to applicable rules in Chapter 90 of the Sarasota County Code of Ordinances.

Unauthorized Use	Potential	Known
fossil mining		x
overnight camping		x
unauthorized fires		x
unauthorized paths to the beach		x

4.1.3 Outreach and Education

Outreach and education opportunities at the park include self-guided nature study, volunteer projects, and guided nature walks. The addition of directional, educational, and informational signs at key points and provision of a brochure and trail map could help to exclude visitors from sensitive habitat areas, educate visitors about the park's unique and sensitive resources, and protect natural resources. An educational kiosk or sign could also educate visitors about restoration efforts.

4.1.4 Land Use on Adjacent Lands

Multiple land uses surround the park (Exhibit 3).

North

The City of Venice owns land near Caspersen Beach Park, including South Brohard Park, Venice Municipal Airport and Lake Venice Golf Club. Through an interlocal agreement, Sarasota County Parks, Recreation and Natural Resources manages South Brohard Park. Amenities there include four restrooms, vehicle and RV parking, outdoor shower, water fountain, and two dune walkovers to access the beach. Venice Municipal Airport is operated solely from the airport enterprise fund. The airport receives no monies from the City's general fund. Venice Municipal Airport generates revenues and manages all commercial aeronautical leases operating onsite. Lake Venice Golf Club is a 27-hole public course and not part of a housing development.

Lake Venice Golf Club (GU) and a portion of South Brohard Park, including Red Lake, (MP) make up the north boundary line of Caspersen Beach Park.

South

Caspersen Beach Park's south boundary is bordered by lands owned by the South Venice Beach Endowment Trust. This organization is a not-for-profit public trust that was established to preserve and protect the boat ramp and beach ferry property located at 4800 Lemon Bay Drive. The Trust provides beach ferry service, boat ramp and canoe and kayak launch. The Trust works in coordination with the South Venice Civic Association to provide ferry services from south Venice across the ICW to the beach.

East

The ICW makes up the east boundary of Caspersen Beach Park. Adjacent to the ICW are residential single-family properties, conservation easements (OUC), and South Venice Beach Endowment Trust properties, as well as Shamrock Park and Nature Center (GU). Shamrock Park and Nature Center is owned by Sarasota County and managed by the Natural Areas and Trails Division of the Parks, Recreation and Natural Resources Department. The park offers a wide array of amenities including basketball and tennis courts, nature trails, playground, restroom, environmental center, and paved multi-use trails.

West

The entire western boundary of the park abuts the Gulf of Mexico.

4.2 Proposed Land Uses, Amenities, and Facilities

No land use changes are proposed for Caspersen Beach Park. As of January 2021, no new facilities are proposed, though the southern portion of the park has been identified as an underutilized public use resource. Due to impacts from spoil depositions, the area could be considered for additional park development, such as camping, an improved trail system, educational signs, and other recreational uses.

Accessibility enhancements and upgrades are possible for existing public use facilities. These improvements are part of a departmental plan to meet and in some cases exceed federal accessibility requirements. Additional park enhancements to existing public use amenities may occur, but these are anticipated to be general maintenance items.

The dynamic nature of this beach regularly causes erosion issues along dune walkovers and boardwalks. These facilities may need to undergo substantial changes or even removal if the safety of park visitors is compromised. Environmental assessments in these areas have been conducted in the past but an action plan for shoreline stabilization has not been proposed or implemented.

All adjacent properties are in public ownership and there are no proposed land use changes.

4.3 Current and Proposed ADA Components

During 2015, PRNR initiated a contract with Accessibility Consultation and Training Services, Inc. to assist in completing accessibility assessments and establishing an accessibility plan for improvements and enhancements throughout the department.

Existing ADA components at Caspersen Beach Park include twelve parking spaces in five separate parking lots, five accessible family restrooms and one accessible stall in each of the men and women restrooms, restroom components (hand dryers, soap dispensers, and sinks), beachside boardwalk accessibility with two picnic shelters, dune walk-over ramp for beach access, picnic pavilion, picnic shelter, access to the paved Venetian Waterway Trail, water fountain, and shower tower. An accessible grill and associated concrete pad were installed during 2020 at the large pavilion located next to the playground.

The most challenging of these components to manage have been the beachside boardwalk and the dune walkover. These are frequently impacted by erosion from seasonal tides and storms. Since 2015, two of the four beach access staircases associated with the boardwalk have been removed because of damage caused by erosion. A portion of the boardwalk that originally connected to the dune walkover has also been removed, though the dune walkover is now a stand-alone structure that provides beach access. An additional beach access staircase that was located just to the south of the dune walkover was also removed during the same timeframe.

There are no short-term plans to mitigate for erosion in these areas. Staff monitors these components after tidal events and storms. If public safety is compromised, staff closes these to public access. If closures occur, divisions in PRNR coordinate to facilitate repairs. If the needed repairs are significant, contractors have been utilized. This most recently occurred during 2018, when the structural integrity of the staircases was compromised. General repairs by PRNR staff occur annually on an as needed basis.

4.4 Visitor Use Management And Carrying Capacity

The Park has several user groups enjoying its amenities. There is potential for conflict among the various user groups and complaints are addressed as they arise. If a specific use or activity has a negative effect on native habitats or communities or the experience of other park visitors, that use or activity will be reviewed and may be deemed inappropriate for the park. If this occurs, there may be limitations placed on the use or activity or it may no longer be permitted. As of 2020, the carrying capacity of the park for visitor use has not been identified. Understanding carrying capacity is useful for avoiding negative impacts to native habitats and communities and the visitor experience.

5 Operations Component

Land management activities are accomplished using a combination of County staff, County resources, and outside contractors. Sarasota County is responsible for all property maintenance activities. Key activities include administration, trash removal, trail and fence maintenance, recreational amenities upkeep, and habitat management. Staff of PRNR or their designee will provide property maintenance on a weekly basis.

5.1 Current Staff

Two full time County park attendants are responsible for daily maintenance operations like trash removal and janitorial services. These employees focus on keeping the park clean and safe. Schedules vary but typically there are two attendants working together four days per week and one attendant working three days per week. Typical work hours are 6:30am–3:00pm with overtime allocated as needed and for holidays. There no evening shift, though the facilities are open until 10:00pm and the park is open to vehicles until 12:00am. These employees are also responsible for providing similar services at South Brohard Park and Brohard Paw Park. These parks are owned by the City of Venice and managed by PRNR. Additional core County employees providing services for Caspersen Beach Park, include an area Parks Supervisor, Crew Leader, and Environmental Specialist II. One contracted trades-worker also assists in general maintenance and sometimes daily cleaning duties. Additional County employees providing routine and as-needed support are Parks and Recreation Specialists, Facilities Maintenance and Maintenance Services Skilled Trades Workers, Equipment Operators, and Horticultural Specialists.

5.2 Optimal Staff

Current staffing allows for public use amenities like restrooms, pavilions, and parking lots to be maintained at an optimal level. However, for maintenance of natural areas, it would be ideal to have park attendants focus all activities at Caspersen Beach Park rather than being split among three parks. We also recommend that Park Attendants be reclassified to Trades Workers, which would increase the range of potential park maintenance responsibilities for those individuals. For example, they could treat invasive exotic plants, operate equipment greater than small engines, and perform minor repairs like plumbing and carpentry. A job reclassification would provide opportunities for these employees to build skills that are more beneficial to the organization, provide a classification step that does not currently exist for Park Attendants in the Beaches and Water Access Division, and relieve other staff of routine operations, so they could perform more skilled operations.

Another operational gap is that the current work schedule for Park Attendants does not provide oversight from 3:00pm–6:00am. The biggest impacts from this gap are seasonal increases during the peak visitor seasons and after-hours vandalism. These seasonal impacts include increased trash and janitorial needs. The burden of these impacts is significant as staff returning in the morning face heavy maintenance volumes, which do not provide them the opportunity to address additional park needs outside of trash and janitorial duties. This, in turn, increases the needs of Trades Workers to perform less skilled duties on a regular basis, which also takes away from the time they must work at the other BWA parks. As visitation increases, an optimal level of staffing will likely require nighttime Park

Attendant staff to be present on the weekends, at a minimum, during peak season. Over time, we anticipate that visitation volume will increase to a level that a nighttime shift will be required throughout the year and possibly seven days a week to maintain the current level of customer satisfaction.

With an increase in visitor numbers comes an increase in impacts to existing natural resources. Currently, the BWA Division has one of each Environmental Specialist (I, II, and III) position classification. The Environmental Specialist III's responsibilities focus on waterway safety and management throughout the county. This leaves two full time positions to lead the natural area management for the entire Division. Optimally, the Park and the Division would have another Environmental Specialist (ES). Currently, the Park does not need a full time ES to manage the natural resources. Additional support to complete environmental monitoring, operations, and programming with more consistency would benefit the park and the visitor experience. If staffing does not increase, it will be difficult to achieve the natural area management goals included in this plan.

5.3 Agency and NGO Partners

In addition to the previously mentioned partners and partnerships that are associated with the Park, several other notable relationships have been established that assist in overall maintenance and operations.

The Sarasota County Sheriff's Office (SCSO) provides as needed assistance with park operational needs through their Sheriff's Work Offender Program (SWOP). SWOP provides a coordinator, supplies, equipment, and the non-violent offender labor to complete small projects, like spreading mulch and trash pick-up, and large projects, like removing debris during red tide events and after storms. SWOP is typically at Caspersen Beach 3–4 times a year. SCSO also conducts regular patrols of the park and enforces issues related to trespass.

City of Venice's Police Department occasionally patrols the park. Given the connectivity between City and County owned parks and an interlocal agreement, a relationship has been established. Resources are often shared to complete overlapping goals.

Florida Forest Service and the County have an agreement for FFS to assist with containment if a wildfire occurs. FFS also provides fire mitigation operations to include fireline construction and vegetation management.

Sarasota County Emergency Services provides initial response to wildfires and conducts wildfire hazard assessments. Additionally, Fire Mitigation, working in conjunction with Natural Areas and Trails, provides technical assistance, personnel, and equipment for all prescribed burns. PRNR funds all necessary preparatory work and conducts public notifications. They also provide lifesaving and emergency services to visitors utilizing the park and the Gulf waters.

Sarasota County History Center and the Florida Department of State, Division of Historical Resources will be contacted for methods of preserving any historical and archaeological sites and resources that may be found. The History Center will be contacted for collection and curation of any artifacts found, prior to development of any additional public use amenities, and with any research proposals. The Division of Historical Resources will be contacted should any additional potential archaeological sites be identified.

Parks Advisory and Recreation Council makes recommendations to the Board of County Commissioners on issues regarding beaches, parks, and recreation.

5.4 Volunteers

Friends of Sarasota County Parks, Inc. (FOSCP) was established in September 2003, as a federally qualified 501(c)3 independent nonprofit corporation organized and existing under the laws of the State of Florida, to promote, enhance and maintain community support for Sarasota County parks and public recreational lands through activities, fundraising, and volunteer efforts. Friends includes a parent organization plus park chapters (Friends of Sarasota County Parks 2019). The chapters vary in number and reflect the changing interests of the groups. A chapter has not been established at Caspersen Beach Park. This opportunity will be under consideration in the coming years as staff identify volunteer projects and routine activities, and as the number of organizations and individuals interested in volunteering at the park increase. School, youth, church, and adult groups routinely schedule to complete litter control at the park.

Keep Sarasota County Beautiful (KSCB) coordinates annual litter control events. KSCB is a county-wide beautification program that initiates community cleanup projects to help keep the community free of litter. Established in 1987, the organization is an affiliate of Keep America Beautiful Inc., a national, non-profit organization that inspires and educates people to act every day to improve and beautify their community environment. KCSB hosts several county-wide cleanup events throughout the year including The Great American Cleanup (spring), The Liberty Litter Cleanup (summer), and International Coastal Cleanup (fall) at the park.

Keep Venice Beautiful, Inc. (KVB) is a 501(c)3 organization that provides volunteer services. In Caspersen Beach Park, KVB focuses on managing vegetation and maintaining signs and benches along the Venetian Waterway Trail. They typically provide these services 3–5 times per year.

5.5 Law Enforcement and Security

The primary law enforcement response is provided by the Sarasota County Sheriff's Office with support when necessary from the Venice Police Department. The most common request for support is related to vandalism and overnight camping. Both agencies have watercraft and provide those services when necessary, or upon request. FWC also provides law enforcement services for wildlife violations upon request.

Sarasota County contracts with security services to provide facility observations and monitoring and opening and closing services at County parks. The frequency of their activities at the park varies through the year, but they typically are on site 2–3 times a week after 10:00pm. They patrol the parking lots and restroom facilities to mitigate unauthorized activities.

5.6 Funding

Most of maintenance and operations funding is provided through the Tourist Development Tax (TDT). For FY2020, beach maintenance received 24 percent of TDT and beach renourishment received 10 percent. Fifty percent of the initial two percent levy (20 percent of TDT) for beach maintenance is allocated to the County and municipalities based on population. Additional funding is provided through

general funds allocated to each Division in PRNR. Grants and other funding opportunities are often received through organizations like FWC and WCIND.

5.7 Costs

The costs listed in the tables below are rough estimates taken from current actual expenditures in August 2020 (see Appendix F). In all but the salaries, costs were slightly increased to account for inflation, but escalators were not applied. Salaries are fully loaded, and escalators are built in for the 10-year estimates. Site managers estimated the amount of time each staff position would spend on the natural area and divided annual salary accordingly to determine salary costs for given natural areas. See Appendix F for the annualized cost schedule for NAT.

	ACTIVITY	ESTIMATED 10-YR COST ($)
NATURAL RESOURCES	prescribed fire preparation	13,500
	prescribed fire	41,000
	prescribed fire monitoring	10,000
	integrated pest management surveying	30,000
	integrated pest management treatment	30,000
	hydrologic restoration	10,000
	mechanical vegetation management	15,000
	TOTAL COSTS	**149,500**
CULTURAL RESOURCES	surveying	3,000
	monitoring	3,000
	TOTAL COSTS	**6,000**
LAND USES	*Maintenance*	
	Fencing, post, and rope	10,000
	trail markers	1,500
	benches	10,000
	tools and equipment	25,000
	parking lots	250,000
	road repairs	75,000
	restrooms	250,000
	portable toilets	15,000
	grills	5,000
	tables	5,000

	pavilions	15,000
	grounds mowing	200,000
	power washing	24,000
	building maintenance	150,000
	trails	10,000
	Recreation and Visitor Services	
	kiosks	10,000
	maps	5,000
	programs, guided and self-guided	10,000
	events	20,000
	playgrounds	50,000
	TOTAL COSTS	**1,140,500**
OPERATIONS	salary of Manager II	40,000
	salary of Supervisor	165,000
	salary of Crew Leader	130,000
	salary of Park Attendant	250,000
	salary of Trades Worker	80,000
	salary of Administrative Assistant	35,000
	office equipment	2,000
	utilities (water, sewer, electric, garbage)	750,000
	offices	5,000
	security	20,000
	alarm monitoring	0
	fleet (UTVs and trucks)	50,000
	TOTAL COSTS	**1,527,000**

Notes:

1. Current loaded salary is based on FY 21.
2. Salary multiplier is 2.5%.
3. Average hourly rate for salary is based on 2080 total hours per year.

6 GOALS, OBJECTIVES, AND ACTIONS IMPLEMENTATION MATRIX

	GOALS / OBJECTIVES / ACTIONS		MEASURE (metric)	TARGETS 2021	2022	2023	2024	2025
NATURAL RESOURCES	**GOAL 1**	**Restore and maintain native habitats and communities.**						
	OBJECTIVE 1.1	Maintain scrub habitat and adjacent zones with an optimal fire return interval of 5–15 years by 2031.						
	Action	Update annual burn plan.	Update completed.	X	X	X	X	X
	Action	Maintain fire dependent communities by burning one management zone per year.	One management zone burned per year.	X	X	X	X	X
	OBJECTIVE 1.2	Reduce and maintain coverage of invasive exotic plants to less than five percent of the park by 2031.						
	Action	Establish or update plans for managing groundcover invasive exotic species.	New or updated plan completed.	X	X	X	X	X
	Action	Treat invasive exotic plants in all management zones each year.	All management zones treated.	X	X	X	X	X
	OBJECTIVE 1.3	Remove all detrimental vegetation in scrub habitat by 2031.						
	Action	Assess number of palms to be removed.	Assessment completed.	X	X	X	X	X
	Action	Remove palm trees.	# palm trees removed.	12	12	12	12	12

OBJECTIVE 1.4	Control nuisance and exotic animal species.						
Action	Inspect native habitats and communities	# monthly inspections per year.	12	12	12	12	12
Action	Remove raccoons, armadillos, iguanas, and other sea turtle nest predators	Reduction in sea turtle nest predations each year.	10%	10%	10%	10%	10%
OBJECTIVE 1.5	Restore and maintain the shoreline.						
Action	Complete an environmental engineering study to assess the current and dynamic condition of the shoreline, related amenities, and existing rock revetments and propose mitigation to restore and maintain the shoreline.	Study completed.			X		
Action	Secure contracts and permits for mitigation determined in the study.	Contracts and permits secured.				X	
Action	Complete design phase and construction for mitigation determined in the study.	Design and construction completed.					X
OBJECTIVE 1.6	Conduct annual plant and wildlife surveys to monitor the success of restoration and preservation strategies.						
Action	Monitor plants and wildlife using coarse filter surveys and evaluate habitat-specific species richness trends	Monitoring and evaluation completed.	X	X	X	X	X
Action	Evaluate sea turtle nesting data with partners Mote Marine Laboratory and the Coastal Wildlife Club annually	Evaluation completed.	X	X	X	X	X
Action	Monitor scrub-jays during nesting season.	Monitoring completed.	X	X	X	X	X

CULTURAL RESOURCES	**GOAL 2**	**Protect, preserve, and maintain cultural resources.**						
	OBJECTIVE 2.1	Follow Sarasota County History Center protocol when ground disturbance is possible.						
	Action	Inform Sarasota County History Center of potential ground disturbance activity outside of normal management activities.	History Center informed.	TBD	TBD	TBD	TBD	TBD
	Action	Evaluate the condition of newly discovered and known sites (Sarasota County History Center staff or designee) as needed.	Evaluation completed.	TBD	TBD	TBD	TBD	TBD
LAND USES	**GOAL 3**	**Maintain public access and passive recreational opportunities without adversely impacting native habitats and communities.**						
	OBJECTIVE 3.1	Maintain public use amenities along the shoreline.						
	Action	Use the shoreline restoration plan to assist in determining whether to restore, maintain, or demolish all or portions of existing structures.	Plan of action established and potential funding sources identified.		X			
	Action	Secure contract(s), permits, and other deliverables.	Contracts, permits, and other deliverables secured.					X
	Action	Complete design phase and restoration, maintenance, or demolition.	Design and restoration, maintenance, or demolition completed.					X

OBJECTIVE 3.2	Manage public use and safety.							
Action	Monitor status of golf course development, and if necessary, evaluate whether fencing may be warranted along the northern boundary of the Intracoastal Park peninsula, which adjoins the Venice Golf Club.	Contracts and permits in place. Construction completed.	TBD	TBD	TBD	TBD	TBD
Action	Conduct regular patrols to ensure that unauthorized access does not occur.	Weekly patrols completed.	X	X	X	X	X
Action	Evaluate and install signs describing permitted and prohibited activities at the park entrance from the Venetian Waterway Park trail.	Signs evaluated and installed.	TBD	TBD	TBD	TBD	TBD
OBJECTIVE 3.3	Provide for outdoor recreational amenities while still protecting and educating the public about the natural resources of the Park.							
Action	Maintain all amenities to include trails, facilities, pavilions, shelters, playground, fitness station, tables, benches and parking lots.	Maintenance completed.	X	X	X	X	X
OBJECTIVE 3.4	Assess impacts of recreational activities to ensure the health of native habitats and communities.							
Action	Assess the dune system for recreational impacts	Assessment completed.	X	X	X	X	X
Action	Mitigate negative impacts to native habitats and communities.	Natural areas that need to be closed to the public or improved identified.	X	X	X	X	X
GOAL 4	**Provide nature based educational and interpretive opportunities.**							
OBJECTIVE 4.1	Provide educational and interpretive materials to protect resources and improve visitor enjoyment.							

	Action	Incorporate new and maintain existing public access, directional, educational, and informational signs, brochures, kiosk, and trail map.	Educational assets created or maintained.	X	X	X	X	X
	OBJECTIVE 4.2	Provide environmental education at the park.						
	Action	Host educational events.	# events hosted annually.	4-6	4-6	4-6	4-6	4-6
OPERATIONS	**GOAL 5**	**Provide administrative and fiscal support.**						
	OBJECTIVE 5.1	Continue day-to-day administrative support at current levels.						
	Action	Fully fund existing full-time positions.	Full time positions fully funded.	X	X	X	X	X
	OBJECTIVE 5.2	Maintain accountability according to the Beaches and Water Access Environmental, Policies, and Procedure Manual.						
	Action	Confirm all Division Staff review the Beaches and Water Access Environmental, Policies, and Procedure Manual.	Review completed and confirmed.	X	X	X	X	X

7 REFERENCES

Archaeological Consultants, Inc. 1998. *Archaeological Assessment Services for the Preparation of a Resource Management Plan for Archaeological Resources in Sarasota County, Florida.* Report to the Sarasota Board of County Commissioners by Archaeological Consultants, Inc. Sarasota, Florida. 19 pages.

Audubon Center for Birds of Prey. 2019. *EagleWatch Program*. https://cbop.audubon.org/conservation/about-eaglewatch-program

FLEPPC (Florida Exotic Pest Plant Council). 2019. *2019 FLEPPC List of Invasive Plant Species*.

FNAI (Florida Natural Areas Inventory). 2010. *Guide to the Natural Communities of Florida: 2010 Edition*. https://www.fnai.org/index.cfm

Friends of Sarasota County Parks. 2019. https://foscp.org/

Mote Marine Laboratory. 2003. *Sarasota County Manatee Protection Plan*. Mote Marine Laboratory Technical Report No. 894. Prepared for Sarasota County Government by Mote Marine Laboratory in consultation with Sarasota County staff and Florida Fish and Wildlife Conservation Commission. 218 pages.

Florida Department of Environmental Regulation. 1990. *An Historic Resources Survey of the Coastal Zone of Sarasota County, Florida*. 236 pages.

Sarasota County. 2004. *Land Management Master Plan of Sarasota County*. 53 pages.

Sarasota County. 2015. *Sarasota County Integrated Pest Management Procedural Guidelines*. 13 pages.

PEER, Inc. (Preserving the Environment through Ecological Research). 2004. *Survey Protocol for Master Land Management Plan of Sarasota County*. 77 pages.

USGS (US Geological Survey). 2006. *Venice Quadrangle, 7.5-minute topographic map*. The National Map. http://nationalmap.gov/.

USDA (US Department of Agriculture). 2006. *Soil Survey of Sarasota County, Florida.* Natural Resources Conservation Services Web Soil Survey. http://websoilsurvey.nrcs.usda.gov

8 EXHIBITS

EXHIBIT 1 – LOCATION MAP

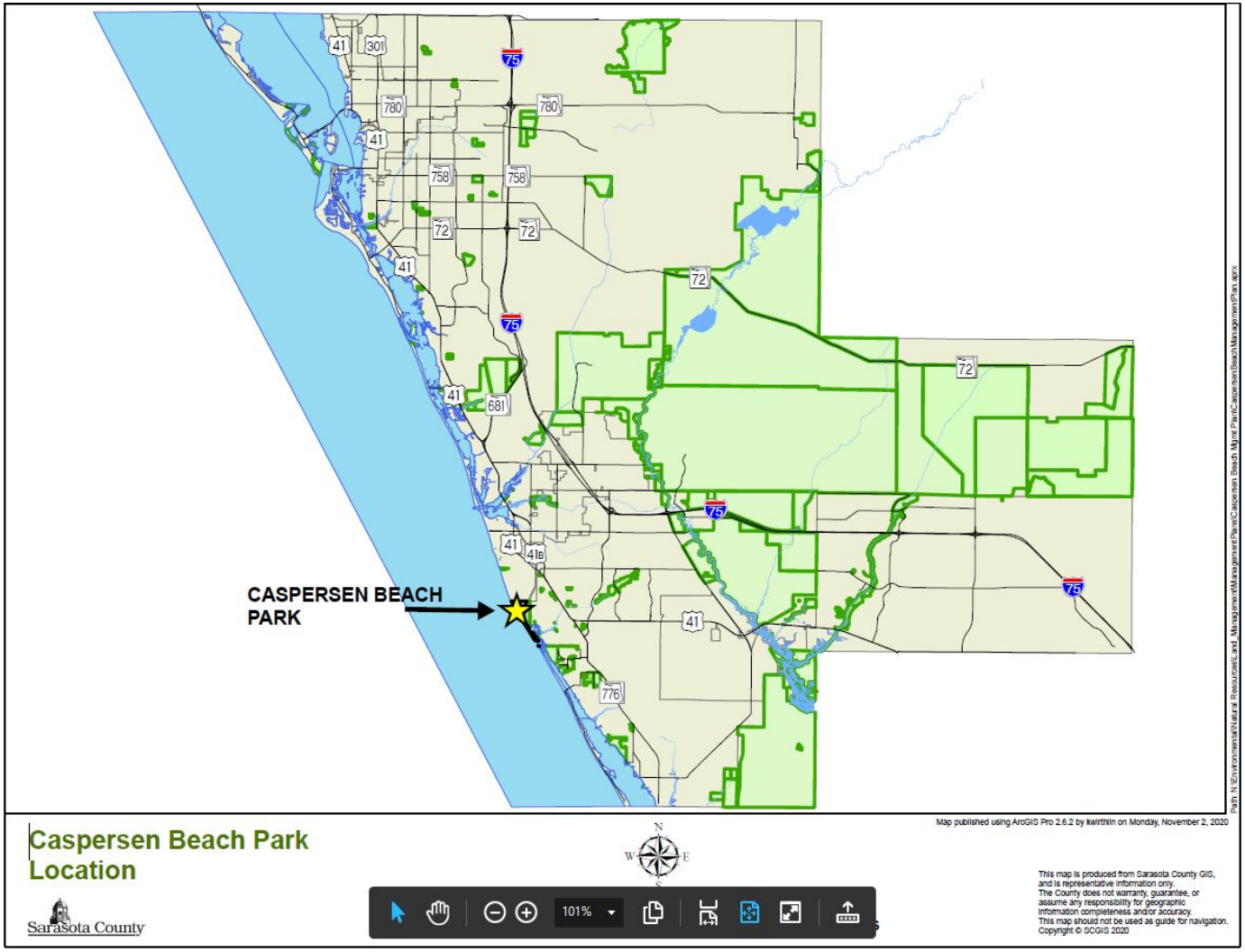


EXHIBIT 2 – BOUNDARY MAP

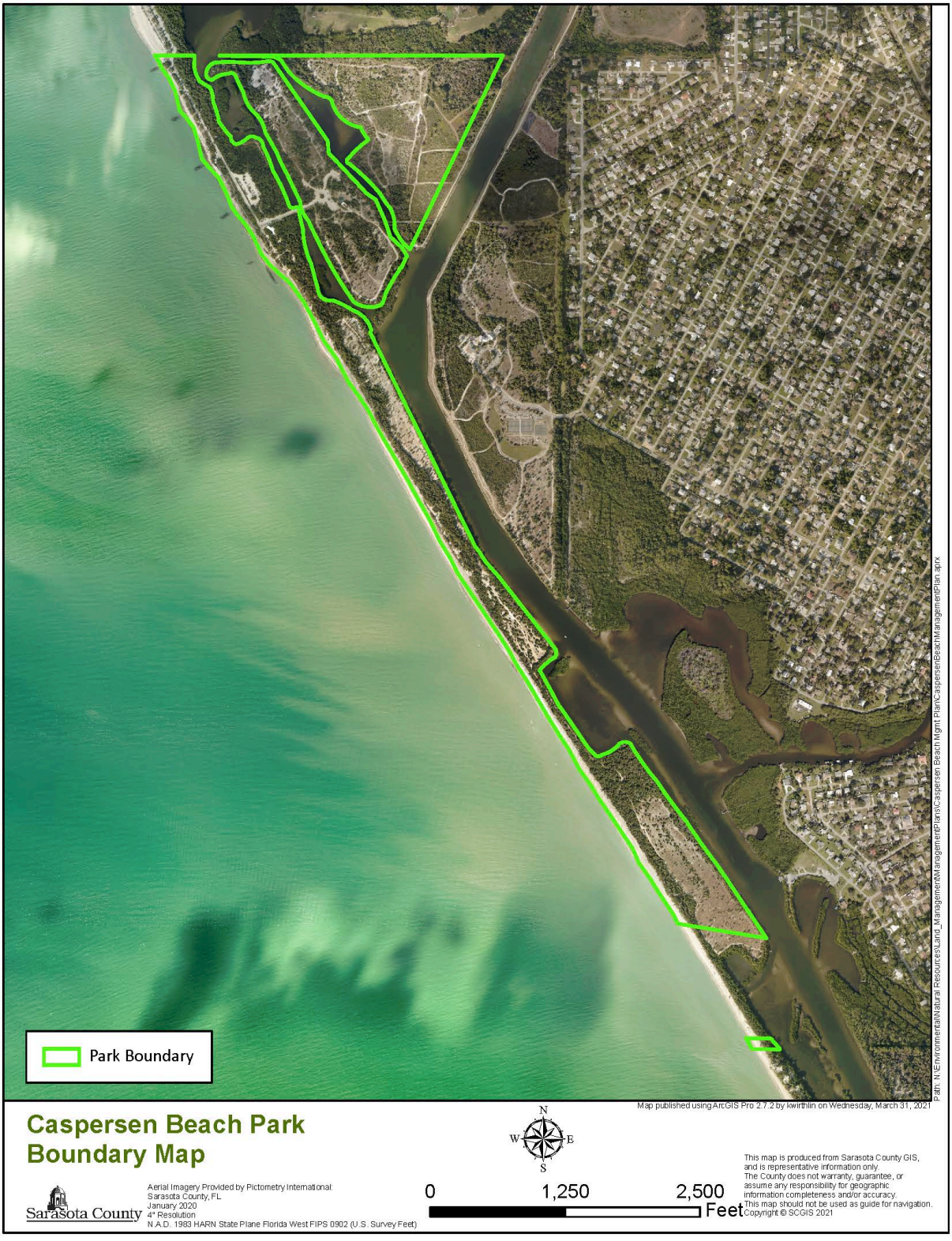


EXHIBIT 3 - ZONING MAP

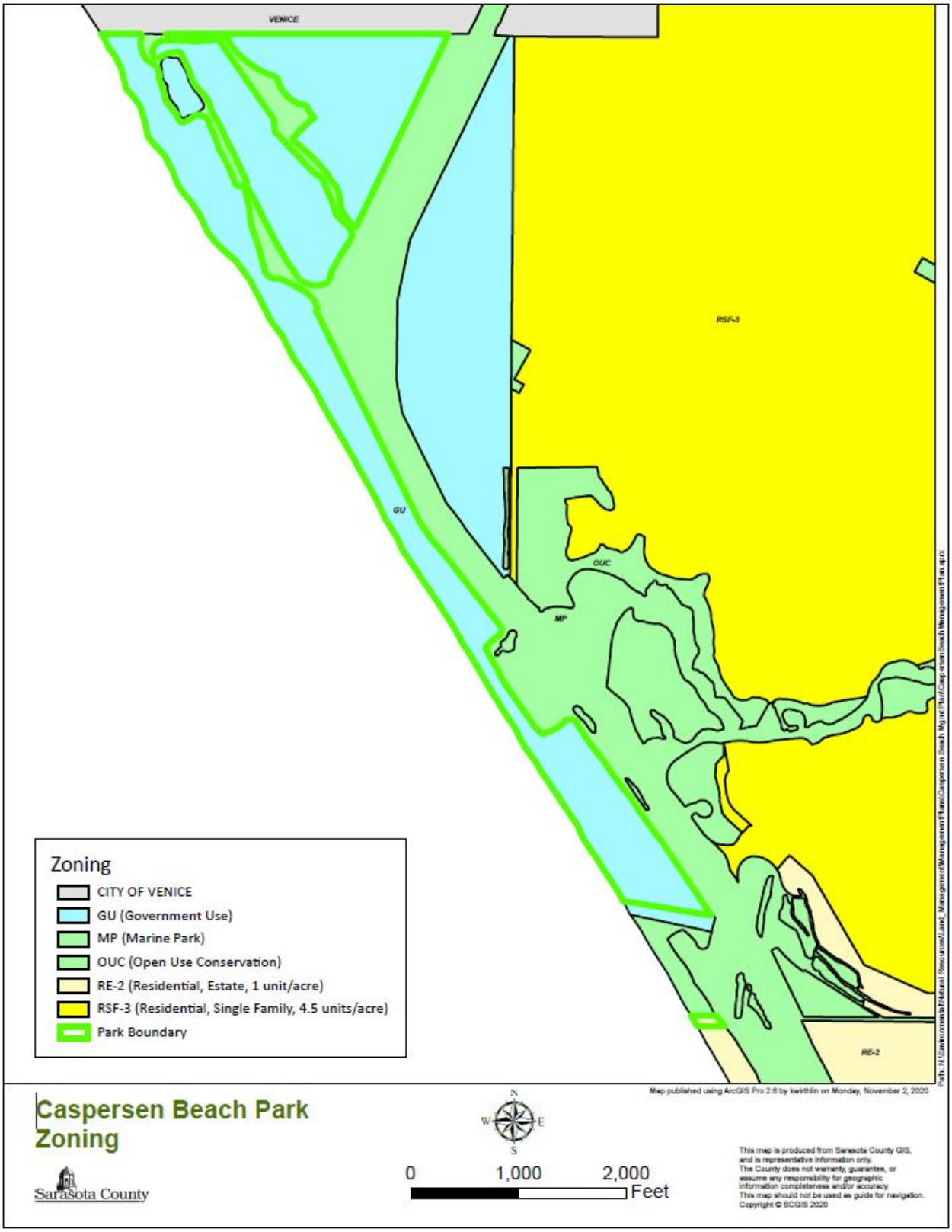


EXHIBIT 4 – ELEVATION MAP

EXHIBIT 5 – SOILS MAP

EXHIBIT 6 – FLOOD MAP

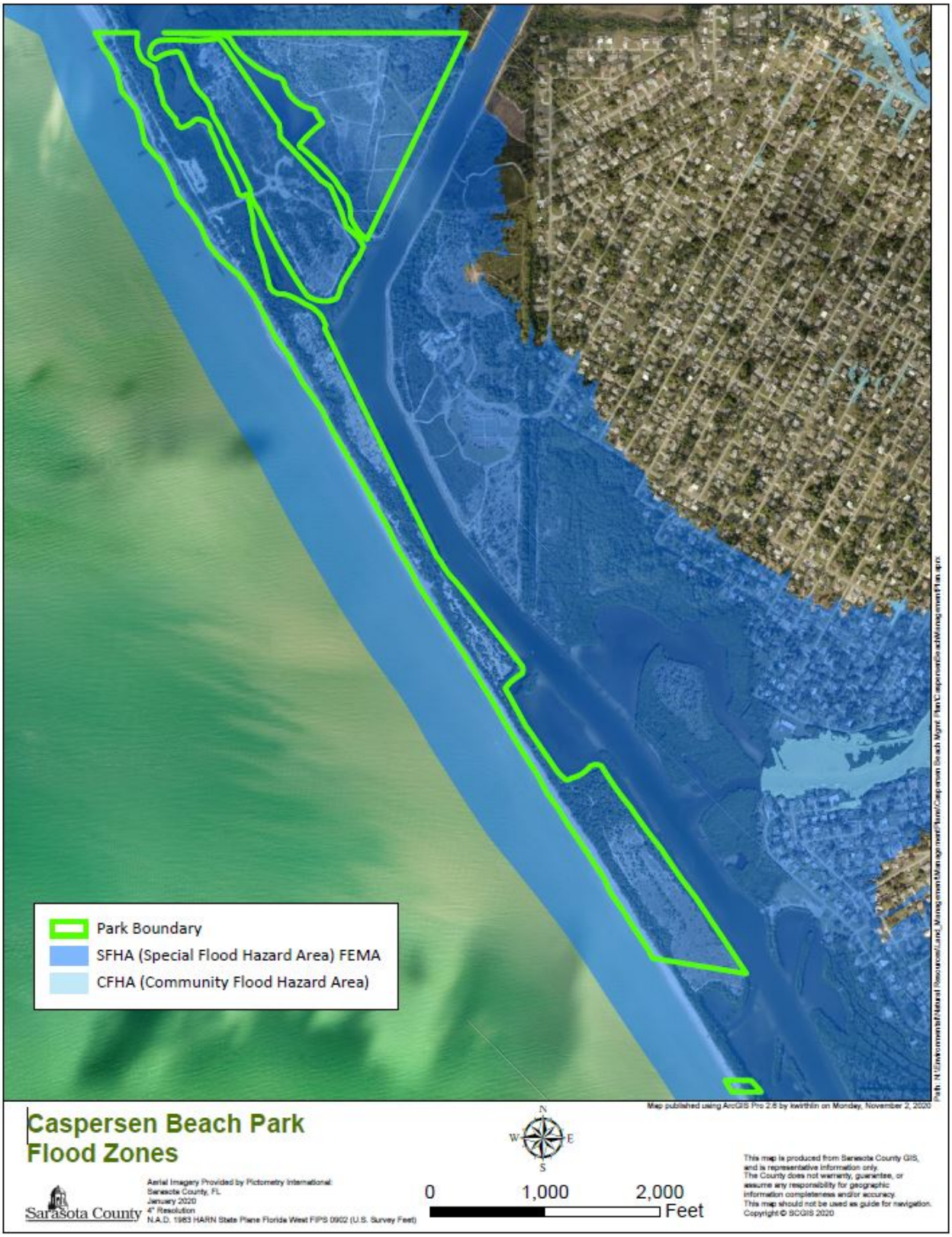


EXHIBIT 7 – NATURAL COMMUNITIES MAP

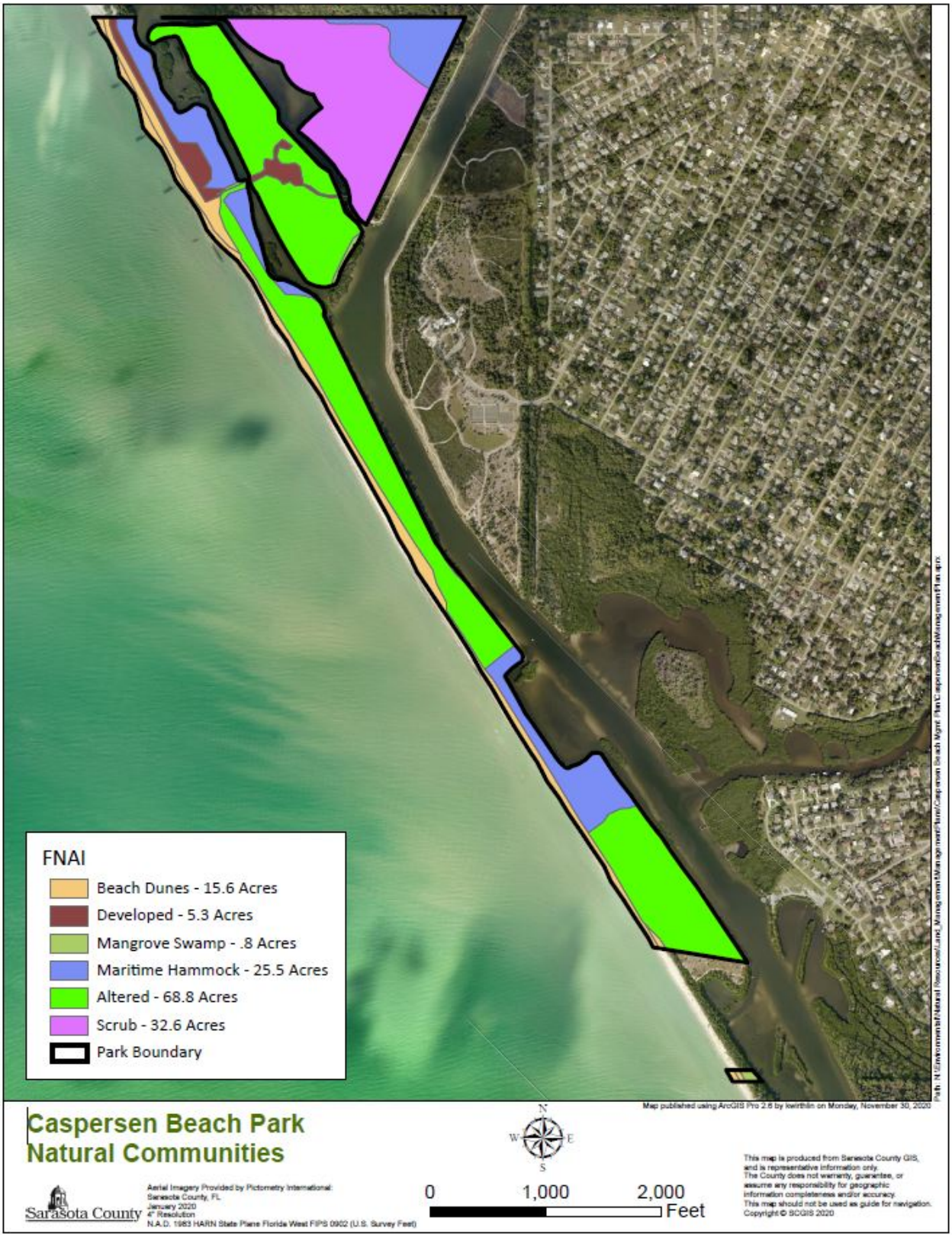


EXHIBIT 8 – EXOTIC PLANT COVER CLASS MAP

EXHIBIT 9 A – HISTORIC AERIALS

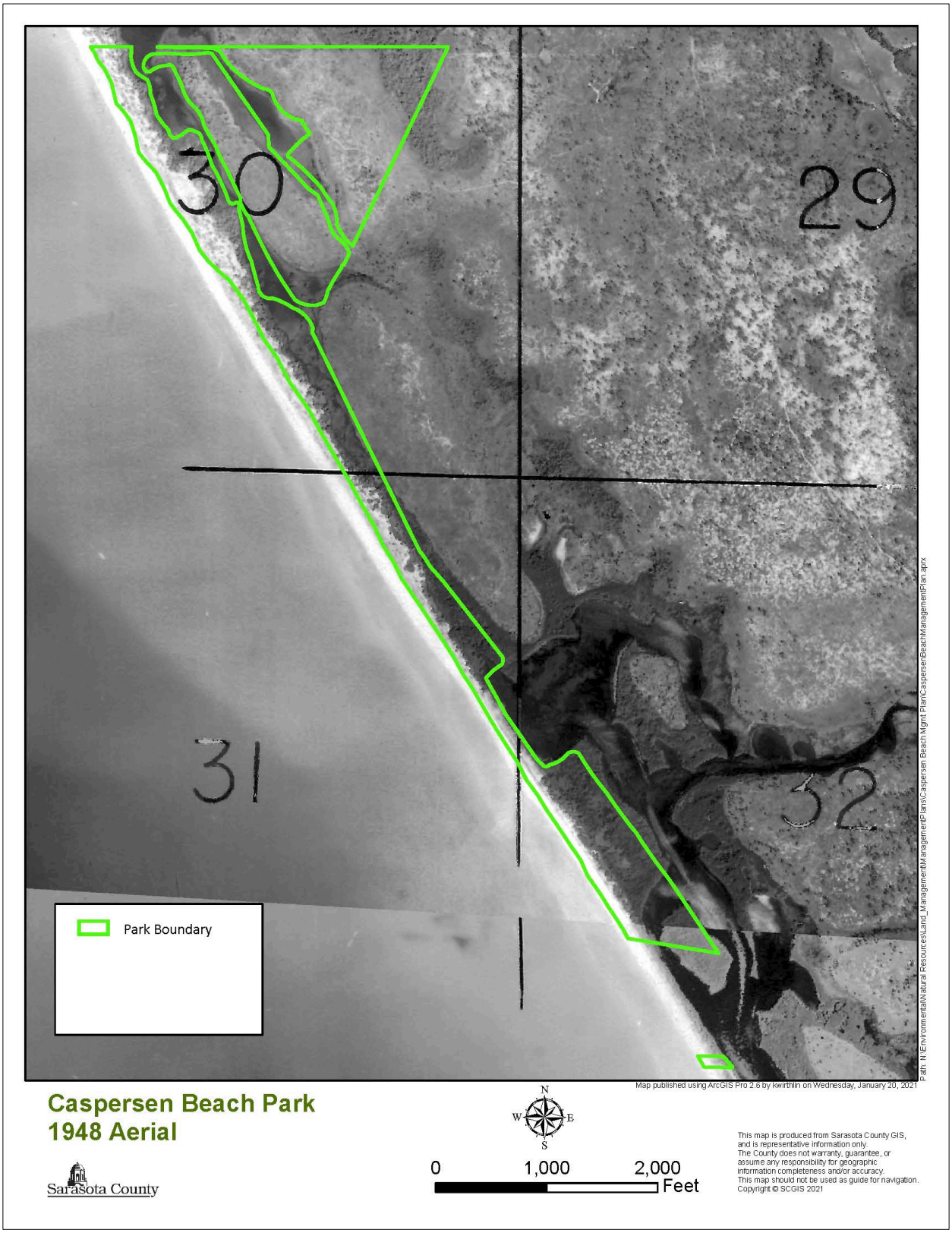


EXHIBIT 9 B – HISTORIC AERIALS

EXHIBIT 9 C – HISTORIC AERIALS

EXHIBIT 9 D – HISTORIC AERIALS

EXHIBIT 9 E – HISTORIC AERIALS

EXHIBIT 9 F – HISTORIC AERIALS

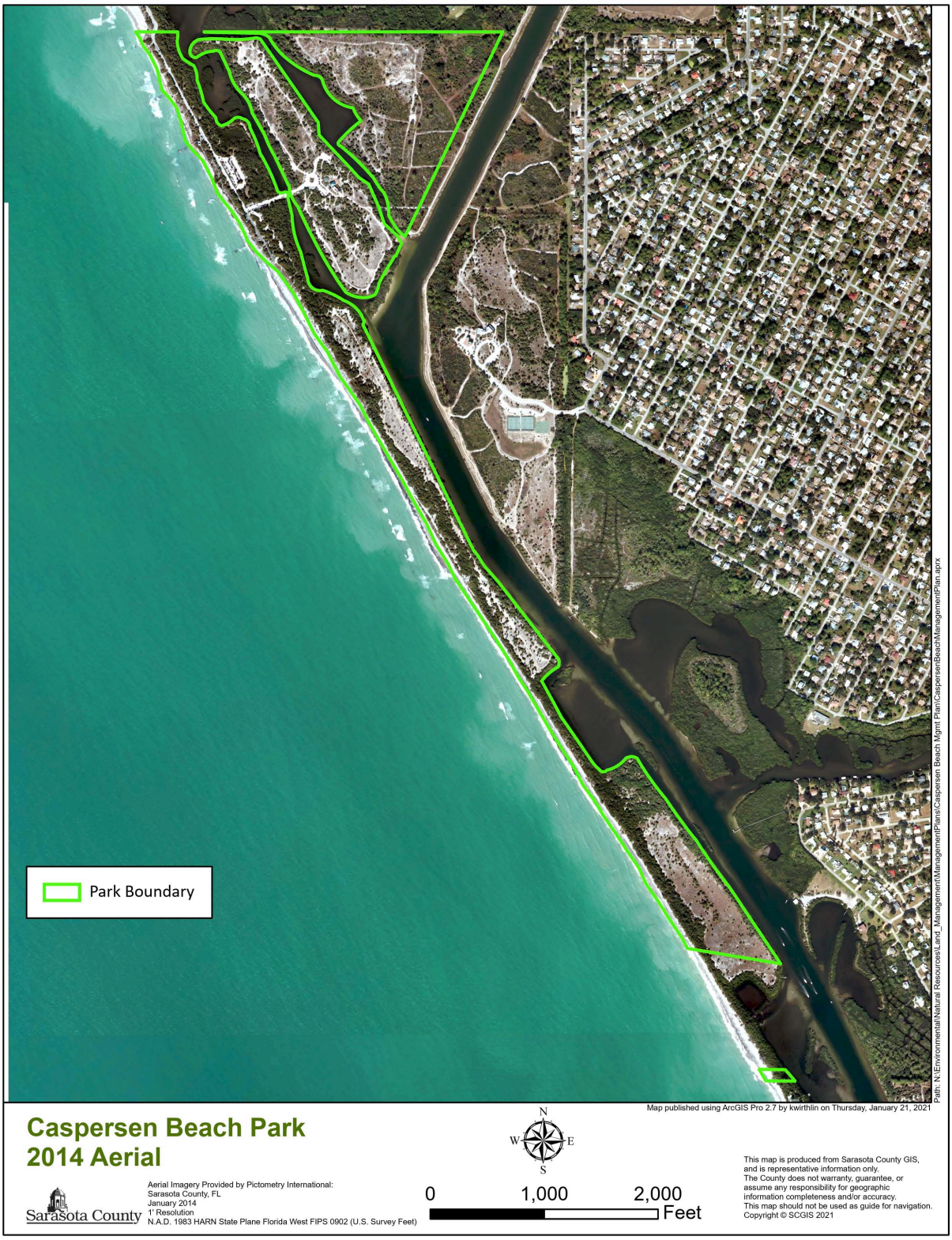


EXHIBIT 9 G – HISTORIC AERIALS

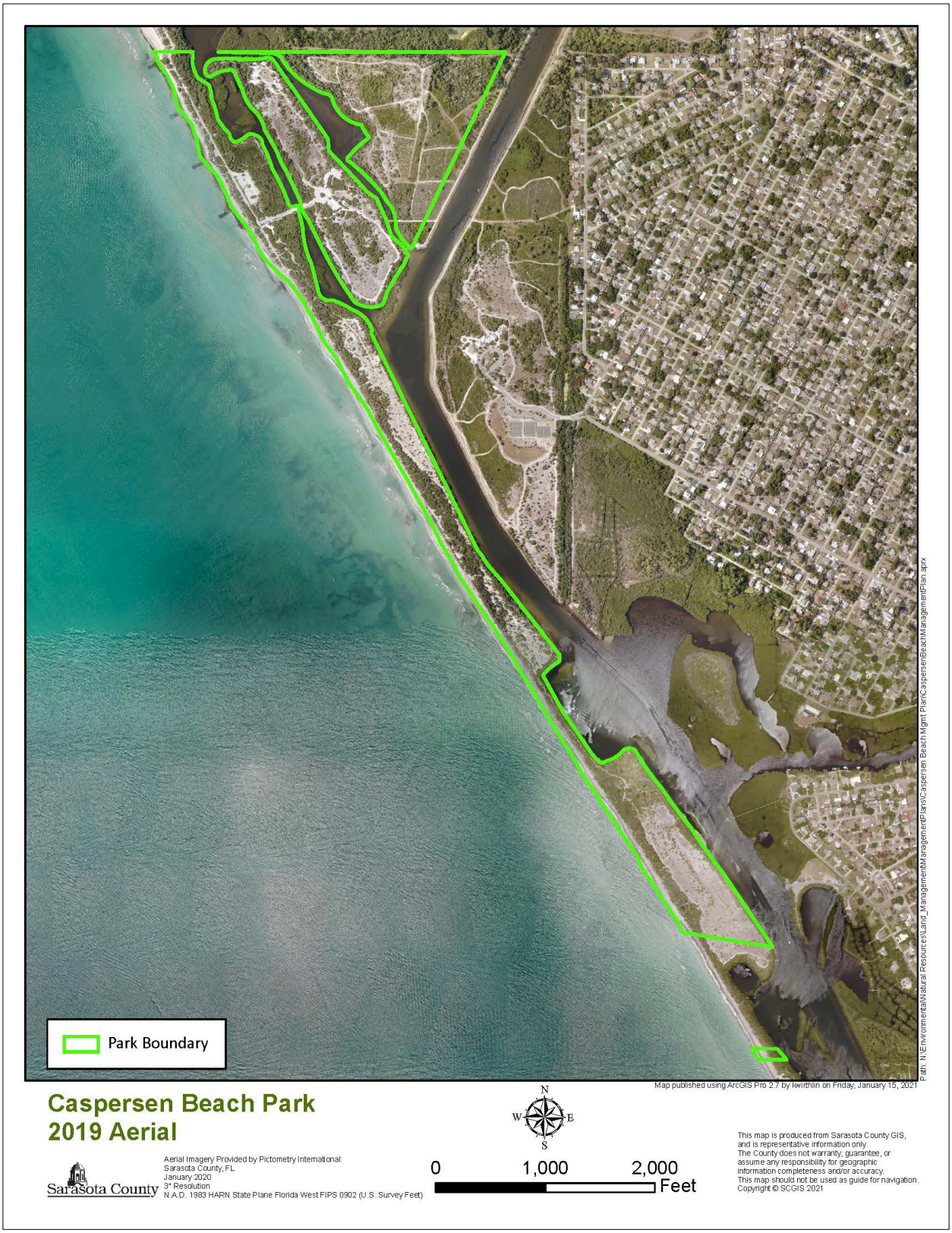


EXHIBIT 10 – MANAGEMENT ZONE MAP

ZoneID	Acreage
No Burn 1	1.43
2	2.55
3	1.81
4	2.88
5	1.09
6	1.60
7	1.95
8	2.53
9	2.65
10	2.91
11	7.18
12	6.39
13	2.84
14	0.96
15	5.15
16	15.64
17	13.86
18	8.68
19	7.67
20	34.65
21	3.49
22	25.46

EXHIBIT 11 – HISTORICAL RESOURCES MAP

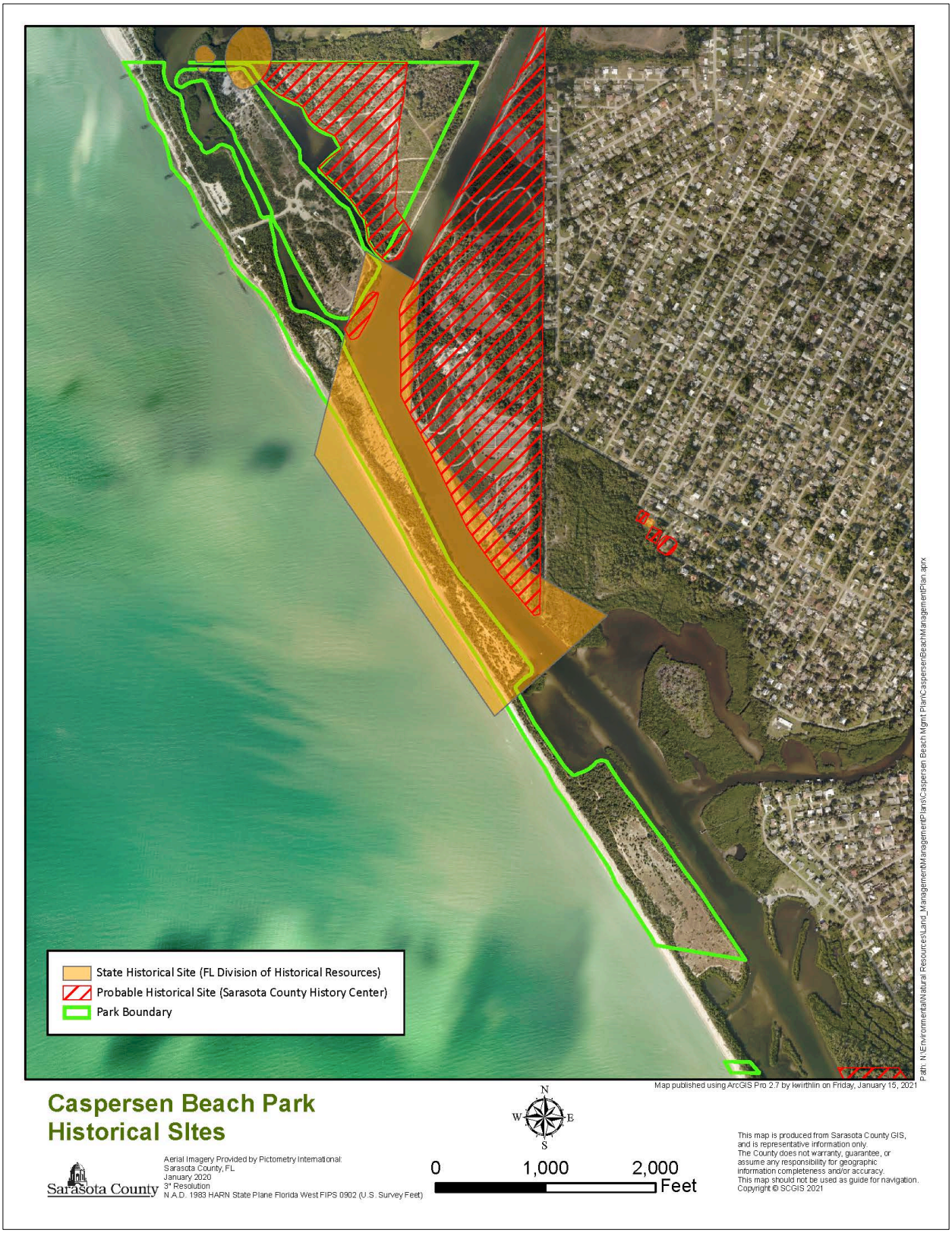
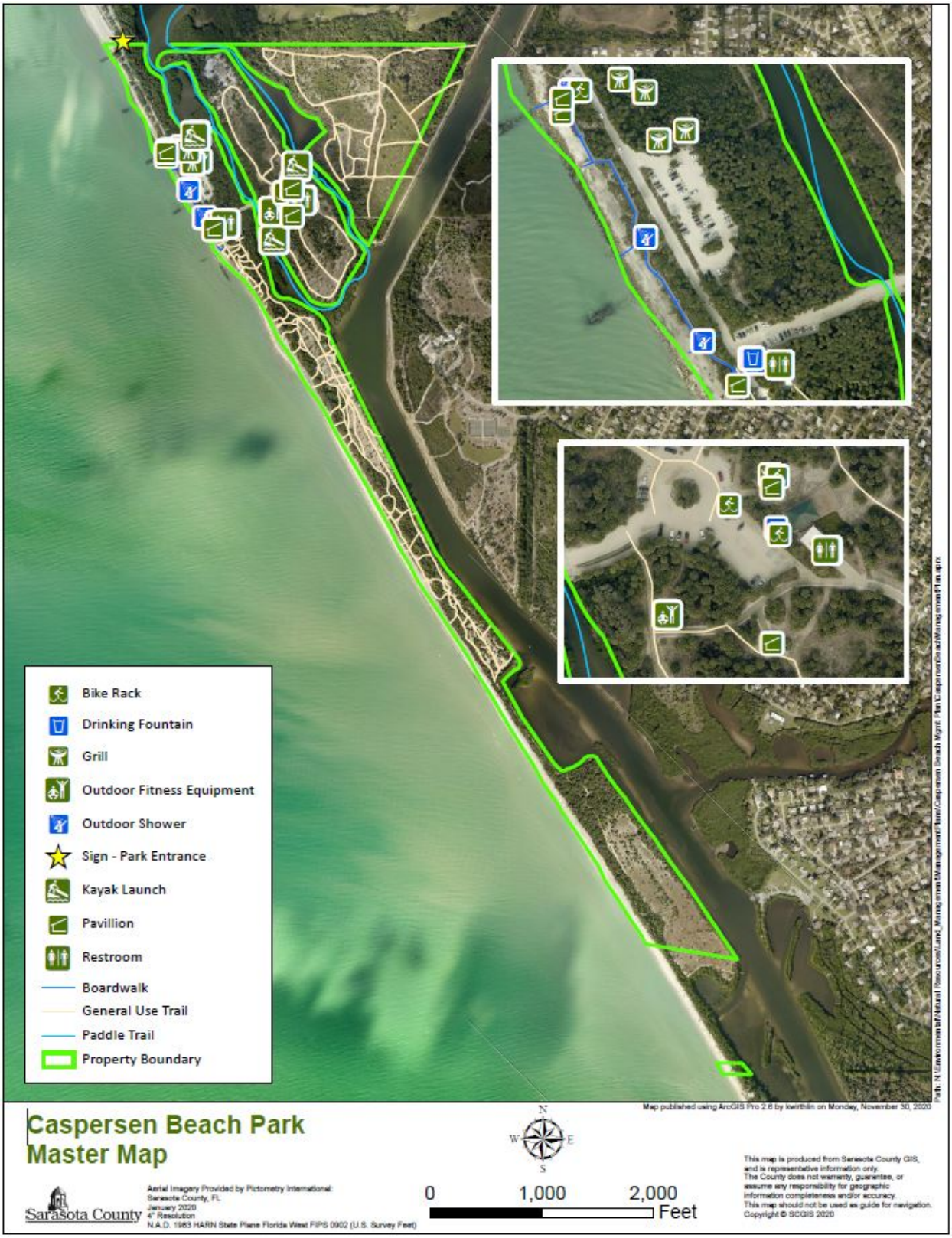


EXHIBIT 12 – FACILITIES, IMPROVEMENTS AND PUBLIC ACCESS AMENITIES MAP



9 APPENDICES

APPENDIX A – ACQUISITION DOCUMENTS

Documents can be accessed and viewed via Smartsheet.

Deeds of Sale

1. Fee Simple Deed (12/10/1956) ERPS #7425 – OR 3 PG 258
2. Special Warranty Deed (12/29/1967) ERPS #7420 – OR 709 PG 444
3. Trustee's Deed (02/04/1987) ERPS #7418 – OR 1930 PG 2152

Land Exchange

4. BCC Resolution Exchange of Lands (12/28/1982) ERPS #7420 & 7425 – OR 1556 PG 1012

Survey

5. Survey (06/21/2006) ERPS #7422

APPENDIX B – LAND USE AGREEMENTS AND EASEMENTS

Documents can be accessed and viewed via Smartsheet.

1. Access Easement (03/07/1979) ERPS #7419 – OR 1341 PG 1915
2. Permanent Easement (12/13/1994) ERPS #7419 – OR 2700 PG 2986
3. Order of Taking (01/27/1964) OR 463 PG 564
4. Right of Way Easement (02/20/1968) OR 723 PG 353
5. Coastal Construction Control Line Definition (F.A.C. 16B-26.009) OR 2102 PG 2632

APPENDIX C – GOVERNING DOCUMENTS AND ORDINANCES

1. The Sarasota County Comprehensive Plan (2016) provides for the protection and management of the county's native habitats balanced with the need for public resource-based, ecologically benign, and non-consumptive recreation.
   https://www.scgov.net/Home/ShowDocument?id=35042

2. Sarasota County Land Management Master Plan (Sarasota County 2004) to provide guidelines to those managing natural areas for conservation or preservation in Sarasota County.
   https://www.scgov.net/Home/ShowDocument?id=1306

3. Sarasota County Code of Ordinances Chapter 90 focuses on parks, recreation, and natural lands within Sarasota County.
   https://library.municode.com/fl/sarasota_county/codes/code_of_ordinances?nodeId=PTIICOOR_CH90PAREPULA

4. Sarasota County Code of Ordinances Chapter 130 focuses on waterways within Sarasota County.
   https://library.municode.com/fl/sarasota_county/codes/code_of_ordinances?nodeId=PTIICOOR_CH130WA

5. Sarasota County Code of Ordinances Chapter 66 focuses on the historical preservation of resources within Sarasota County.
   https://library.municode.com/fl/sarasota_county/codes/code_of_ordinances?nodeId=PTIICOOR_CH66HIPR

6. Sarasota County Strategic Plan
   https://www.scgov.net/government/county-administration/strategic-plan

APPENDIX D – LIST OF PLANT SPECIES

The preliminary plant list has been compiled for the park as a partial listing of currently known species. As new species are discovered, their identification will be confirmed according to Wunderlin (1998) and added to the existing species list. Survey information on the occurrence of listed plant species will be forwarded to the Florida Natural Areas Inventory (FNAI) in accordance with their procedures.

FAMILY	SCIENTIFIC NAME	COMMON NAME(S)	STATUS
Agavaceae	*Yucca aloifolia*	Spanish bayonet	
Aizoaceae	*Sesuvium portulacastrum*	Sea purslane	
Amaranthaceae	*Blutaparon vermiculare*	samphire	
Anacardiaceae	*Schinus terebinthifolius*	Brazilian pepper tree	FLEPPC I
Anacardiaceae	*Rhus copallinum*	winged sumac; shining sumac	
Anacardiaceae	*Toxicodendron radicans*	poison ivy	
Ananthacea	*Avicennia germinans*	black mangrove	
Apocynaceae	*Catharanthus roseus*	Madagascar periwinkle	
Arecaceae	*Sabal palmetto*	cabbage palm; sabal palm	
Arecaceae	*Serenoa repens*	saw palmetto	
Asteraceae	*Sphagneticola trilobata*	wedelia	FLEPPC II
Asteraceae	*Bidens alba var. radiata*	Spanish needles; beggarticks	
Asteraceae	*Pityopsis graminifolia*	narrowleaf silkgrass	
Asteraceae	*Solidago sempervirens*	seaside goldenrod	
Asteraceae	*Heterotheca subaxillaris*	camphorweed	
Asteraceae	*Ambrosia artemisiifolia*	common ragweed	
Asteraceae	*Helianthus debilis subsp. vestitus*	dune sunflower	
Asteraceae	*Palafoxia feayi*	feay's palafox	
Asteraceae	*Iva frutescens*	bigleaf sumpweed	
Asteraceae	*Iva imbricata*	seacoast marshelder	
Asteraceae	*Baccharis halimifolia*	sea myrtle; groundsel tree	
Asteraceae	*Helenium amarum*	Spanish daisy; bitterweed	
Bignoniaceae	*Bignonia capreolata*	crossvine	
Blechnaceae	*Blechnum serrulatum*	swamp fern	
Boraginaceae	*Heliotropium angiospermum*	scorpion's tail	
Bromeliaceae	*Tillandsia utriculata*	giant air plant	Endangered
Bromeliaceae	*Tillandsia recurvata*	ball moss	
Bromeliaceae	*Tillandsia usneoides*	Spanish moss	
Burseraceae	*Bursera simaruba*	gumbo limbo	
Cactaceae	*Harrisia aboriginum*	prickly applecactus	Endangered
Cactaceae	*Opuntia stricta*	shell-mound pricklypear	Threatened
Cactaceae	*Opuntia mesacantha*	pricklypear	
Casuarinaceae	*Casuarina equisetifolia*	Australian pine	FLEPPC I
Chrysobalanaceae	*Licania michauxii*	gopher apple	
Cistaceae	*Helianthemum corymbosum*	pinebarren frostweed	

Combretaceae	*Conocarpus erectus*	silver buttonwood	
Combretaceae	*Laguncularia racemosa*	white mangrove	
Commelinaceae	*Commelina erecta*	whitemouth dayflower	
Convolvulaceae	*Ipomoea pes-caprae*	railroad vine	
Cucurbitaceae	*Momordica charantia*	balsampear	FLEPPC II
Cucurbitaceae	*Melothria pendula*	creeping cucumber	
Cupressaceae	*Juniperus virginiana*	redcedar	
Cyperaceae	*Cyperus spp.*	flatsedge	
Dioscoreaceae	*Dioscorea bulbifera*	air potato	FLEPPC I
Ericaceae	*Lyonia fruticosa*	coastalplain staggerbush	
Ericaceae	*Vaccinium myrsinites*	shiny blueberry	
Euphorbiaceae	*Cnidoscolus stimulosus*	tread softly; finger rot	
Euphorbiaceae	*Euphorbia cyathophora*	wild poinsettia	
Fabaceae	*Chamaecrista fasciculata*	partridge pea	
Fabaceae	*Erythrina herbacea*	eastern coralbean	
Fabaceae	*Galactia elliottii*	Elliott's milkpea	
Fabaceae	*Canavalia rosea*	baybean	
Fabaceae	*Desmodium sp.*	beggar’s lice	
Fabaceae	*Dalbergia ecastaphyllum*	coinvine	
Fabaceae	*Caesalpinia bonduc*	gray nicker	
Fabaceae	*Vigna luteola*	hairypod cowpea	
Fabaceae	*Centrosema virginianum*	spurred butterfly pea	
Fabaceae	*Macroptilium lathyroides*	wild bushbean	
Fabaceae	*Sophora tomentosa*	yellow necklacepod	
Fagaceae	*Quercus geminata*	sand live oak	
Fagaceae	*Quercus virginiana*	live oak	
Fagaceae	*Quercus chapmanii*	chapman's oak	
Fagaceae	*Quercus myrtifolia*	myrtle oak	
Fagaceae	*Quercus elliottii*	running oak	
Goodeniaceae	*Scaevola plumieri*	inkberry	Threatened
Lamiaceae	*Vitex trifolia*	simpleleaf chastetree	FLEPPC II
Lamiaceae	*Trichostema dichotomum*	forked bluecurls	
Lamiaceae	*Monarda punctata*	spotted beebalm	
Malvaceae	*Urena lobata*	caesar weed	FLEPPC I
Myricaceae	*Myrica cerifera*	wax myrtle	
Myrsinaceae	*Myrsine cubana*	myrsine	
Myrtaceae	*Syzygium cumini*	java plum	FLEPPC I
Olacaceae	*Ximenia americana*	tallowwood; hog plum	
Oleaceae	*Forestiera segregata*	Florida privet	
Onagraceae	*Gaura angustifolia*	southern beeblossom	
Passifloraceae	*Passiflora incarnata*	purple passionflower	
Petiveriaceae	*Rivina humilis*	rougeplant	
Pinaceae	*Pinus elliottii var. densa*	South Florida slash pine	

Poaceae	*Imperata cylindrica*	cogon grass	FLEPPC I
Poaceae	*Melinis repens*	rose natalgrass	FLEPPC I
Poaceae	*Dactyloctenium aegyptium*	durban crowfootgrass	FLEPPC II
Poaceae	*Sporobolus indicus*	smutgrass	non-native
Poaceae	*Andropogon spp.*	bluestem	
Poaceae	*Artistida stricta var. beyrichiana*	wiregrass	
Poaceae	*Eragrostis spectabilis*	lovegrass	
Poaceae	*Panicum amarum*	bitter panicum	
Poaceae	*Cenchrus spinifex*	coastal sandbur	
Poaceae	*Digitaria sp.*	crabgrass	
Poaceae	*Eustachys sp.*	fingergrass	
Poaceae	*Muhlenbergia capillaris*	hairy muhly	
Poaceae	*Spartina patens*	marshhay cordgrass	
Poaceae	*Stenotaphrum secundatum*	St. Augustine grass	
Poaceae	*Distichlis spicata*	saltgrass	
Poaceae	*Spartina bakeri*	sand cordgrass	
Poaceae	*Uniola paniculata*	sea oats	
Poaceae	*Paspalum vaginatum*	seashore paspalum	
Polypodiaceae	*Phlebodium aureum*	golden polypody	
Polypodiaceae	*Coccoloba uvifera*	seagrape	
Pteridaceae	*Pteridium aquilinum*	bracken fern	
Rhizophoraceae	*Rhizophora mangle*	red mangrove	
Rosaceae	*Rubus sp.*	blackberry	
Rubiaceae	*Ernodea littoralis*	beach creeper	
Rubiaceae	*Hamelia patens*	firebush	
Rubiaceae	*Chiococca alba*	snowberry	
Rubiaceae	*Psychotria nervosa*	wild coffee	
Sapindaceae	*Cupaniopsis anacardioides*	carrotwood	FLEPPC I
Sapindaceae	*Dodonaea viscosa*	varnishleaf; Florida hopbush	
Smilacaceae	*Smilax sp.*	greenbriar; catbriar	
Solanaceae	*Physalis sp.*	groundcherry	
Verbenaceae	*Lantana strigocamara*	shrub verbena	FLEPPC I
Verbenaceae	*Callicarpa americana*	beautyberry	
Verbenaceae	*Phyla nodiflora*	fogfruit	
Verbenaceae	*Lantana involucrata*	wild lantana	
Vitaceae	*Vitis rotundifolia*	muscadine	
Vitaceae	*Vitis aestivalis*	summer grape	
Vitaceae	*Parthenocissus quinquefolia*	Virginia creeper	
Zamiaceae	*Zamia integrifolia*	coontie	

APPENDIX E – LIST OF WILDLIFE SPECIES

The preliminary animal list has been compiled for the Preserve as a partial listing of currently known species.

	FAMILY	SCIENTIFIC NAME	COMMON NAME	STATUS
AMPHIBIANS				
	Bufonidae	*Anaxyrus quercicus*	oak toad	
	Bufonidae	*Anaxyrus terrestris*	southern toad	
	Eleutherodactylidae	*Eleutherodactylus planirostris*	greenhouse frog	Non-Native
	Hylidae	*Osteopilus septentrionalis*	Cuban treefrog	Non-Native
	Hylidae	*Hyla cinerea*	green treefrog	
	Hylidae	*Hyla squirella*	squirrel treefrog	
	Ranidae	*Lithobates capito*	gopher frog	FWC (SSC)
REPTILES				
	Alligatoridae	*Alligator mississipiensis*	American alligator	T (USFWS) Appendix II; SSC (FWC)
	Anguidae	*Ophisaurus ventralis*	eastern glass lizard	
	Cheloniidae	*Chelonia mydas*	Atlantic green sea turtle	E (FWC) E (USFWS) S2 (FNAI) Appendix I
	Cheloniidae	*Caretta caretta*	loggerhead sea turtle	T (FWC) T (USFWS) S3 (FNAI) Appendix I
	Colubridae	*Coluber constrictor priapus*	southern black racer	
	Colubridae	*Diadophis punctatus punctatus*	southern ringneck snake	
	Colubridae	*Drymarchon corais couperi*	eastern indigo snake	T (FWC) S3 (FNAI)
	Colubridae	*Elaphe obsoleta quadrivittata*	yellow rat snake	
	Colubridae	*Elaphe guttata guttata*	red rat snake; corn snake	S2 (FNAI)
	Colubridae	*Masticophis f. flagellum*	eastern coachwhip	
	Colubridae	*Thamnophis sirtalis sirtalis*	common garter snake	
	Dactyloidae	*Anolis carolinensis*	green anole	
	Dactyloidae	*Anolis sagrei*	brown anole	Non-Native

	Dermochelyidae	*Dermochelys coriacea*	leatherback sea turtle	E (FWC) E (USFWS) S2 (FNAI) Appendix I
	Iguanidae	*Ctenosaura similis*	black spinytail iguana	Non-Native Appendix II
	Scincidae	*Eumeces inexpectatus*	southeastern five-lined skink	
	Scincidae	*Scincella lateralis*	ground skink	
	Testudinidae	*Gopherus polyphemus*	gopher tortoise	SSC (FWC) C2 (USFWS) S3 (FNAI) Appendix II
BIRDS				
	Accipitridae	*Accipeter cooperii*	Cooper's hawk	
	Accipitridae	*Haliaeetus leucocephalus*	bald eagle	BGEPA (USFWS)
	Alcedinidae	*Megaceryle alcyon*	belted kingfisher	
	Anatidae	*Melanitta americana*	black scoter	
	Anatidae	*Aythya affinis*	lesser scaup	
	Anatidae	*Anas fulvigula*	mottled duck	
	Anatidae	*Oxyura jamaicensis*	ruddy duck	
	Anhingidae	*Anhinga anhinga*	anhinga	
	Ardeidae	*Ardea herodias*	great blue heron	
	Ardeidae	*Bubulcus ibis*	cattle egret	
	Ardeidae	*Ardea alba*	great egret	
	Ardeidae	*Buotrides virescens*	green heron	
	Ardeidae	*Egretta caerulea*	little blue heron	T (FWC)
	Ardeidae	*Egretta rufescens*	reddish egret	T (FWC)
	Ardeidae	*Egretta thula*	snowy egret	
	Ardeidae	*Egretta tricolor*	tricolored heron	T (FWC)
	Ardeidae	*Nyctanassa violacea*	yellow-crowned night heron	
	Cardinalidae	*Cardinalis cardinalis*	northern cardinal	
	Cathartidae	*Coragyps atratus*	black vulture	
	Cathartidae	*Cathartes aura*	turkey vulture	
	Charadriidae	*Pluvialis squatarola*	black-bellied plover	
	Charadriidae	*Charadrius vociferus*	killdeer	
	Charadriidae	*Charadrius semipalmatus*	semipalmated plover	
	Columbidae	*Columbina passerina*	common ground dove	
	Columbidae	*Streptopelia decaocto*	Eurasian collared-dove	

Columbidae	*Zenaidura macroura*	mourning dove	
Columbidae	*Columba livia*	rock pigeon	
Corvidae	*Aphelocoma coerulescens coerulescens*	Florida scrub-jay	T (FWC) T (USFWS) S3 (FNAI)
Corvidae	*Corvus ossifragus*	fish crow	
Corvidae	*Corvus brachyrhynchos*	American crow	
Corvidae	*Cyanocitta cristata*	blue jay	
Falconidae	*Falco sparverius*	American kestrel	T (FWC) S3 (FNAI) Appendix II
Gaviidae	*Gavia immer*	common loon	
Gruidae	*Antigone canadensis*	sandhill crane	T (FWC)
Haematopodidae	*Haematopus palliatus*	American oystercatcher	T (FWC) S2 (FNAI)
Hirundinidae	*Hirundo rustica*	barn swallow	
Hirundinidae	*Progne subis*	purple martin	
Hirundinidae	*Tachycineta bicolor*	tree swallow	
Icteridae	*Quiscalus major*	boat-tailed grackle	
Icteridae	*Quiscalus quiscula*	common grackle	
Icteridae	*Sturnella magna*	eastern meadowlark	
Icteridae	*Agelaius phoeniceus*	red-winged blackbird	
Laniidae	*Lanius ludovicianus*	loggerhead shrike	
Laridae	*Rynchops niger*	black skimmer	T (FWC) S3 (FNAI)
Laridae	*Sterna forsteri*	Forster's tern	
Laridae	*Larus argentatus*	herring gull	
Laridae	*Leucophaeus atricilla*	laughing gull	
Laridae	*Sterna antillarum*	least tern	T (FWC)
Laridae	*Larus delawarensis*	ring-billed gull	
Laridae	*Thalasseus maxima*	royal tern	
Laridae	*Sterna sandvicensis*	sandwich tern	
Mimidae	*Dumetalla carolinensis*	gray catbird	
Mimidae	*Mimus polyglottos*	mockingbird	
Mimidae	*Mimus polyglottos*	northern mockingbird	
Pandionidae	*Pandion haliaetus*	osprey	
Parulidae	*Setophaga palmarum*	palm warbler	
Parulidae	*Setophaga discolor*	prairie warbler	
Parulidae	*Setophaga coronata*	yellow-rumped warbler	
Passeridae	*Passer domesticus*	house sparrow	

	Pelecanidae	*Pelecanus erythrorhynchos*	American white pelican	
	Pelecanidae	*Pelecanus occidentalis*	brown pelican	S3 (FNAI)
	Phalacrocracidae	*Phalacrocorax auritus*	double-crested cormorant	
	Picidae	*Dryobates pubescens*	downy woodpecker	
	Picidae	*Colaptes auratus*	northern flicker	
	Picidae	*Melanerpes carolinus*	red-bellied woodpecker	
	Picidae	*Sphyrapicus varius*	yellow-bellied sapsucker	
	Polioptilidae	*Polioptila caerulea*	blue-gray gnatcatcher	
	Psittacidae	*Myiopsitta monachus*	monk parakeet	
	Scolopacidae	*Calidris canutus*	red knot	
	Scolopacidae	*Arenaria interpres*	ruddy turnstone	
	Scolopacidae	*Calidris alba*	sanderling	
	Scolopacidae	*Tringa semipalmata*	willet	
	Sturnidae	*Sturnus vulgaris*	European starling	
	Sulidae	*Morus bassanus*	northern gannet	
	Threskiornithidae	*Plegadis falcinellus*	glossy ibis	
	Threskiornithidae	*Platalea ajaja*	roseate spoonbill	T (FWC)
	Threskiornithidae	*Eudocimus albus*	white ibis	
	Troglodytidae	*Thryothorus ludovicianus*	Carolina wren	
	Troglodytidae	*Troglodytes aedon*	house wren	
	Turdidae	*Turdus migratorius*	American robin	
	Tyrannidae	*Sayornis phoebe*	eastern phoebe	
	Tyrannidae	*Myiarchus crinitus*	great crested flycatcher	
	Vireonidae	*Vireo griseus*	white-eyed vireo	
MAMMALS				
	Dasypodidae	*Dasypus novemcinctus*	nine-banded armadillo	non-native
	Canidae	*Canis latrans*	Coyote	
	Didelphidae	*Didelphis virginiana*	Virginia Opossum	
	Felidae	*Lynx rufus*	Bobcat	
	Leporidae	*Sylvilagus floridaus*	Eastern Cottontail	
	Procyonidae	*Procyon lotor*	raccoon	
	Sciuridae	*Sciurus carolinensis*	grey squirrel	
	Trichechidae	*Trichechus manatus latirostris*	West Indian Manatee	T (USFWS)

KEY TO WILDLIFE LISTED STATUS		
FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION (FWC) DESIGNATIONS	E	endangered
	T	threatened
	SSC	species of special concern
UNITED STATES FISH AND WILDLIFE SERVICE (USFWS) DESIGNATIONS	E	endangered
	T	threatened
	C2	candidate for listing with some evidence of vulnerability, but for which not enough information exists to justify listing
CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES OF WILD FAUNA AND FLORA (CITES) DESIGNATIONS	I	Appendix I species
	II	Appendix II species
FLORIDA NATURAL AREAS INVENTORY (FNAI) DESIGNATIONS	S2	imperiled within the state because of rarity (6–20 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 throughout its range (21–100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction because of other factors
	S4	apparently secure within the state (may be rare in parts of state)

APPENDIX F – ANNUALIZED COST SCHEDULE

RESOURCE MANAGEMENT	Units	Cost per unit
prescribed fire preparation	per mile	$ 250.00
prescribed fire	per acre	$ 40.00
prescribed fire monitoring	per hour	$ 50.00
integrated pest management surveying	avg per acre	$ 30.00
integrated pest management treatment	avg per acre	$ 125.00
hydrologic restoration	per mile	$ 8,000.00
mechanical vegetation management	per acre	$ 150.00
cultural resource management	per site	$ 500.00
ADMINISTRATION and OPERATIONS		
salary of land manager	per hour	$ 47.00
salary of supervisor	per hour	$ 50.00
salary of administrative assistant	per hour	$ 30.00
annual cost of computers, printers, phone	per year	varies
utilities	per year	varies
offices	per year	varies
security	per year	$ 13,000.00
fleet	per year	$ 4,000.00
MAINTENANCE		
fencing - board	1 linear foot	$ 29.00
fencing - wire	1 linear foot	$ 12.00
trail markers	1 marker	$ 16.00
benches	1 bench	$ 160.00
tools	1 site	$ 4,000.00
parking lots - aggregate material	cost per parking spot	$ 60.00
parking lots - grass	cost per parking spot	$ 10.00
road repairs	1/2 mile	$ 20,000.00
restrooms	cost per toilet	$ 750.00
portable toilets	cost per toilet	$ 1,440.00
grills	1 grill	$ 400.00
tables	1 table	$ 250.00
pavilions	square foot	$ 1.00
camp sites	per campsite	$ 300.00
grounds mowing (x12 events/per yr)	per acre	$ 600.00
power washing	per hour	$ 100.00
building maintenance	per structure	$ 500.00
RECREATION and VISITOR SERVICES		
Kiosks and signs - replacement costs	per unit	$ 1,000.00
brochures	per brochure	$ 5,000.00
events (Firefest)	per event	$ 3,500.00

visitors center (staffing and contents)	per year	$	4,000.00
camping	per campsite	$	200.00
permitted events	per event	$	320.00

Notes:

1. Current Loaded Salary based on FY 21.
2. Assumed 2.5% multiplier for salary.
3. Divided salary total hours by 2080 for average hour rate