

## CHAPTER 3 – AFFECTED ENVIRONMENT

### CHAPTER OVERVIEW

The Affected Environment and Environmental Consequences chapters comprise the Environmental Impact Statement (EIS) for this Draft General Management Plan. The descriptions, data, and analysis presented focus on the specific conditions or consequences that may result from implementing the alternatives. The EIS should not be considered a comprehensive description of all aspects of the human environment within or surrounding the park.

A description of existing environmental conditions give the reader a better understanding of planning issues and establish a benchmark by which the magnitude of environmental effects of the various alternatives can be compared.

### CULTURAL RESOURCES

#### Overview

This section describes the cultural resources at Fort Matanzas. The National Historic Preservation Act recognizes five property types: districts, sites, buildings, structures, and objects. As called for in the act, these categories are used in the National Register of Historic Places, the preeminent reference for properties worthy of preservation in the United States. To focus attention on management requirements within these property types, the NPS Management Policies categorizes cultural resources as archeological resources, cultural landscapes, historic structures, museum collections, and ethnographic resources.

#### National Historic Preservation Act

The intent of this document is to comply with the requirements of Section 106 of the NHPA, as amended, which requires federal agencies to consider the effects of their undertakings on historic properties and affords the Advisory Council on Historic Preservation a reasonable opportunity to comment. Parks are required by Section 110 of the National Historic Preservation Act and National Park Service policies to inventory and evaluate all cultural resources within the park boundaries. The purpose of

Section 106 is to ensure that federal agencies consult with state and local groups before non-renewable cultural resources are impacted or destroyed and ensures that preservation values are factored into Federal agency planning and decisions. Section 106 provides a systematic process for complying with the NHPA. The preparation of this environmental assessment is conducted simultaneously with Section 106 review, enabling agency consultation to occur only once for both processes. All information gathered and correspondence exchanged during the Section 106 review process will be included in this environmental assessment.

#### Archeological Resources

Several archeological surveys and investigations have taken place at Fort Matanzas since the 1960s. These surveys have provided comprehensive coverage of the park and indicated the locations of all archeological sites, provided information on the range of cultural resources, and suggest the likelihood of finding any additional archeological or historical sites.

There are seven recorded archeological sites at Fort Matanzas. Table 8 lists these sites by site number and briefly describes their locations and characteristics.

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**TABLE 8. RECORDED ARCHEOLOGICAL SITES AT FORT MATANZAS**

Site #	Site Name	Location	Description
8SJ28	North Midden	Rattlesnake Island, north of the fort	Shell midden containing artifacts related to the Spanish and British occupations of Fort Matanzas
8SJ44B	Fort Matanzas	Rattlesnake Island	The site number refers to the archeological materials that are related to, but distinct from, the fort
8SJ90	Pompano Farm Midden	Anastasia Island, northern park boundary	Prehistoric shell midden
8SJ3231	West Midden	Rattlesnake Island, west of the fort	Shell midden with artifacts related to the Spanish and British periods of occupation
8SJ3233	Johnson House	Anastasia Island	Prehistoric and historic artifact scatter
8SJ3225	Visitor Center Site	Anastasia Island, parking lot vicinity	Prehistoric and historic midden; camp site
N/A	Marker Midden	Anastasia Island, at massacre marker	Prehistoric artifact scatter

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4 Archeological surveys of the park have been  
5 rather comprehensive and suggest that there is a  
6 low potential of finding additional sites on land.  
7 Much of the southern portion of Anastasia Island  
8 contains accretionary deposits dating to the  
9 twentieth century, and other areas to the south and  
10 east reflect nineteenth- and twentieth-century fill  
11 that was used to reclaim marshy areas. Such  
12 locations have a low potential to contain  
13 significant archeological resources. On  
14 Rattlesnake Island, archeological resources reflect  
15 the Spanish and British military occupations of  
16 Fort Matanzas. Because the island is a low-lying  
17 marsh that would not be attractive for extended  
18 human settlement (except for special purposes  
19 like the fort), it has a low potential to contain  
20 significant unidentified prehistoric and historic  
21 archeological resources. In 1979, an underwater  
22 archeological survey of the river east of Fort  
23 Matanzas did not identify any submerged cultural  
24 resources but suggested that intact resources could  
25 be present under 5-12 feet of overburden.

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27 Climate change may impact archeological sites in  
28 Fort Matanzas National Monument if more  
29 erosion occurs because of increased storm  
30 frequency and intensity or sea level rise. As  
31 archeological and historic resources become

32 submerged or compromised because of climate  
33 change, they become unavailable for  
34 archeological research, artifact recovery, and  
35 visitor enjoyment.

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### 38 **Historic Structures**

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40 **Fort Matanzas.** Located on Rattlesnake Island,  
41 Fort Matanzas is a very simple structure, its main  
42 strengths being the artillery and its strategic  
43 location. Built of coquina masonry and set on a  
44 foundation of pine timbers and oyster shells, Fort  
45 Matanzas includes an elevated gun deck, officer's  
46 quarters, soldiers' quarters, powder magazine, and  
47 a 30-foot high observation deck. The fort is  
48 square, measuring 50 feet on each side. Both  
49 Spanish and British forces used the structure in  
50 their efforts to guard the Matanzas Inlet and St.  
51 Augustine. By the time the U.S. acquired Florida  
52 in 1821, the fort had fallen into a state of  
53 disrepair. Major efforts were made to stabilize  
54 and restore the fort in 1916, 1922, the 1930s, and  
55 the late 1970s. Presently, the fort is in good  
56 condition.

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58 Lime for the mortar was made by burning oyster  
59 shells. A foundation of close-set pine pilings

driven deep into the marshy ground gave the fort stability. Coquina shell rock was quarried south of the inlet and transported to the building site by boat where the rough chunks were squared into blocks. Originally, the entire fort was plastered and whitewashed with perhaps red trim on some of the architectural elements such as the garita (the turret-shaped sentry box on the southwest corner of the fort wall).

**Powder Magazine.** The powder magazine is located within the west wall of the fort and accessed only through the upstairs officer's quarters. The magazine extends down into the wall to the level of the gun deck. The area in front of the powder magazine was used for food storage.

**Gun Deck.** Five cannons once guarded the fortress facing in the three approaching directions. Each cannon could easily reach the inlet, then only a half-mile away. Two original cannon still stand at the fort today. They were made around 1750 (probably in Spain), emplaced at Matanzas in 1793, and left behind by the Spanish when they departed Florida in 1821. The other two cannon now on the gun deck are modern reproductions purchased through donations to the park and used in the park's living history cannon firing demonstrations.

**Cistern.** The fort's cistern is located under the gun deck with its opening under the stairs. The roof of the fort collected rainwater which drained into the cistern through a wooden pipe.

**Sentry Box.** The sentry box or garita, an architectural feature of Spanish Caribbean forts, had fallen off sometime during the 1800s while Fort Matanzas sat abandoned. It was rebuilt of brick in 1927 and again of coquina in 1929 using steel reinforcing rods to attach it to the existing parapet walls.

**Entry Embrasure.** The small opening on the west embrasure was the "door" to the fort. Soldiers would climb a removable wooden ladder to reach the gun deck. If needed, cannons could be moved to point through this opening just like the one on the east side of the gun deck. Today, sturdy stairs allow easy access for visitors to the fort.

**Headquarters and Visitor Center.** The Headquarters and Visitor Center (HQ/VC) is located on Anastasia Island, on the west side of Highway A1A. The HQ/VC consists of two buildings: a multi-use building that serves as both the primary visitor contact point and park housing, and a secondary utility building that now serves as a ranger office. The main building is two-stories, intersected by an arched breezeway on the ground level. The exterior walls on the first floor are constructed of coquina block masonry. The second floor is of wood frame construction faced with wood siding. The secondary utility building is located 50 feet to the north of the main building.

The HQ/VC and the surrounding landscape was designed by the NPS Eastern Division, Branch of Plans and Design, and constructed with funds provided by the federal government. The designed landscape around the HQ/VC includes an exterior staircase, a retaining wall, a stone culvert headwall, and other features such as sidewalks, curbing, flagstone walks, parking areas, and roads. Planned in 1935, the HQ/VC illustrates early NPS design philosophy and is an example of NPS Rustic Architecture.

Since their construction in 1937, the two buildings have been in continual use and have undergone only modest alterations. In addition, the surrounding landscape remains largely unchanged since its initial development in 1937. Both the HQ/VC and its designed setting continue to reflect the intentions of the original development plans and retain their original character and integrity to a high degree. On December 31, 2008, the Fort Matanzas Headquarters and Visitor Center and its surrounding landscape, including the entrance road, parking area, and the access road and parking area for the Atlantic Ocean beach on the east side of Highway A1A, were officially listed in the National Register of Historic Places. These facilities occupy most of the 17.34-acre tract donated to the NPS in 1934 by Ada Corbett.

Turning west from Highway A1A, the park road gently curves as it approaches the HQ/VC. The curve of the road leads into a one-way, elongated loop, with the HQ/VC located at the top of the loop. These facilities also constitute historic resources that date from the park development

era. The loop road expands on the southern side to include a 29-car visitor parking area that features sidewalks finished with coquina curbing; after parking, visitors approach the HQ/VC by way of a pedestrian pathway. The pathway leads to the visitor entrance of the HQ/VC, located in an arched breezeway of the main building, and then continues through the breezeway to the dock where visitors board the boat to Fort Matanzas.

A service road that branches off the northern portion of the loop road leads park employees to the garages (now enclosed) of the utility building. Park vehicles once used the service road, which forms a wide arc, to arrive at the garages, formerly located on the end of the building. The roadway's path maximizes the distance between the visitor use and employee use roads, thereby concealing, behind dense vegetation, the service road from the visitor's sightline. These elements combine to create a residential atmosphere around the HQ/VC, which also complements the natural landscape of mature live oaks, native vegetation, and gently rolling dunes.

**Johnson House.** In the 1960s the scope of the park was greatly expanded with the donation by the Johnson family of most of the southern end of Anastasia Island, including the ocean side beaches, dunes, and maritime forests bisected by Highway A1A. Included in this donation was the Johnson family residence, which is located a few hundred feet south of the visitor center. The two-story house is currently used as park housing and is in good condition.

The Johnson House is somewhat rambling and features a large number of double-hung sash windows. The house is constructed of wood and brick with a roof composed of asphalt shingled gables. The west side of the house features an elongated covered porch that faces out to a lawn and the Matanzas River beyond. It is believed that there are portions of the house that date back more than 50 years. Additional research is necessary to determine the history and age of the structure.

The Rattlesnake Island fortification and other historic structures on Anastasia Island at Fort Matanzas National Monument may be vulnerable to increased severe weather that is anticipated in the future due to climate change (Loehman and

Anderson 2009). Sea level rise and an expected increase in severe weather and precipitation may increase the rate of erosion around the fort and may threaten the historic visitor center and the adjacent Johnson House. Coastal fortifications may also be vulnerable to damage from changes in the freeze/thaw cycle that can affect the fabric of the structures and their foundations.

## Museum Collections

The museum collection at the park is combined with the collection for Castillo de San Marcos National Monument and is considered to be one entity for administrative purposes; however, they are reported and accounted for as two separate collections, each with their own accessioning and cataloging systems. Most all of the objects are stored together. Fort Matanzas has museum collections comprised of archival collections, historic and archeological artifacts, and biological specimens.

Between Fort Matanzas and Castillo de San Marcos NM, approximately 40,085 archeological specimens have been collected through excavations, with historic ceramics representing the majority of the objects. Only 4,100 of these objects are stored at the parks, and some are on loan to the NPS Southeast Archeological Center (SEAC) in Tallahassee, Florida, for analysis, study, and cataloging. The collection that is stored at Fort Matanzas is in a stand-alone insulated modular structure of 384 square feet that was purchased specifically for storing the collection. The structure is superinsulated and has an environment controlled by a dedicated HVAC system. Museum collections not stored at the park or SEAC are stored in the Timucuan Ecological and Historical Preserve museum management facility.

According to the 2010 Collection Management Report, Fort Matanzas's museum collections consist of 46,651 objects and archival materials, 98.98% of which is catalogued. The first accession in the Fort Matanzas accession book was made in 1993; it was a field collection recovered during an archeological monitoring project for the visitor center in 1989. Archeological accessions continued through the mid-1990s. The accessions included archeological

investigations for sewer and power lines, fort stabilization, nearby middens, and boardwalk construction.

Materials found during these projects included architectural samples such as coquina rubble, brick fragments, tabby fragments, and floor samples. Artifacts included glass fragments, a .45 caliber brass cartridge, sherds of slipware, delftware bisque, pearlware, wire nails, and red brick tile fragments. Net floats, corked green wine bottles, a Spanish olive jar, one archaic stemmed point, British brass button, and a variety of ceramic and stoneware sherds were found in archeological excavations at Fort Matanzas between 1935 and 1975.

In 2003, two cannons that had long been on exhibit were accessioned into the collection. The most recent accessions involve natural history specimens and associated records generated through inventorying and monitoring activities. Herpetological, small mammals, plants, and fish inventories were accessioned into the collection from 2004-2006. Also accessioned in 2006 were gopher tortoise specimens.

## **Ethnographic Resources**

Ethnographic resources are landscapes, objects, plants and animals, or sites and structures that are important to a people's sense of purpose or way of life. These peoples are the contemporary park neighbors and ethnic or occupational communities that have been associated with a park for two or more generations (40 years), and whose interests in the park's resources began before the park's establishment. There are several types of studies and research that the NPS uses to determine the extent of ethnographic resources in a particular park. The most comprehensive background study, the Ethnographic Overview and Assessment, reviews existing information on park resources traditionally valued by stakeholders. The information comes mostly from archives and publications; interviews with community members and other constituents—often on trips to specific sites—supply missing data. This study also identifies the need for further research. Fort Matanzas National Monument has not yet been the subject of such an assessment and therefore the existence (or non-existence) of ethnographic resources is unknown. Chapter 2 of this General

Management Plan and Environmental Impact Statement recommends the initiation and completion of an ethnographic overview and assessment.

## **Cultural Landscapes**

Cultural landscapes are complex resources that range from large rural tracts covering several thousand acres to formal gardens of less than an acre. Natural features such as landforms, soils, and vegetation are not only part of the cultural landscape, they provide the framework within which it evolves. In the broadest sense, a cultural landscape is a reflection of human adaptation and use of natural resources and is often expressed in the way land is organized and divided, patterns of settlement, land use, systems of circulation, and the types of structures that are built. The character of a cultural landscape is defined both by physical materials, such as roads, buildings, walls, and vegetation, and by use reflecting cultural values and traditions.

Cultural landscape inventories are conducted to identify landscapes potentially eligible for listing in the National Register, and to assist in future management decisions for landscapes and associated resources, both cultural and natural.

A cultural landscape report (CLR) is the primary guide to treatment and use of a cultural landscape. Based on the historic context provided in a historic resource study, a CLR documents the characteristics, features, materials, and qualities that make a landscape eligible for the National Register. It analyzes the landscape's development and evolution, modifications, materials, construction techniques, geographical context, and use in all periods, including those deemed not significant. Based on the analysis, it evaluates the significance of individual landscape characteristics and features in the context of the landscape as a whole.

There are no designated cultural landscapes at Fort Matanzas National Monument. Therefore, completion of a cultural landscape inventory and a cultural landscape report has been recommended in this general management plan.

Climate change may affect potential cultural landscapes within the boundaries of Fort

Matanzas National Monument, including the historic visitor center and surrounding grounds and facilities and the Johnson House and its environs. As potential cultural landscapes, these areas represent connections between people and the land. Sea level rise, increased storm intensity or frequency, and increased air and water temperature may damage natural or cultural resources in these locations, compromising the cultural landscapes as a whole. Resilience of these landscapes may depend on their ability to withstand both gradual and extreme weather variations.

## **Interpretation and Museum Operations**

Exhibits are located throughout the park. When visitors arrive at the park, they will find several exterior exhibits that establish the context of the fort's history. Interior space at the HQ/VC is extremely limited; a model shows how the fort looked when in use, there is a small sales area, and a staffed sales/information desk. An audiovisual program introduces visitors to the park and suggests on-site activities.

The park offers regular boat trips to the fort supported by ranger talks, recreated settings inside the fort, living history and weapons firing demonstrations in season, and a few interpretive signs.

Rangers also give regular talks on both historical and natural topics. School groups can arrange for programs in advance.

A 0.6-mile nature trail provides visitors with access to a portion of Anastasia Island, and short boardwalks provide access to both the bay and the ocean. There are trailheads and wayside exhibits along the bay and ocean boardwalks.

## **NATURAL RESOURCES**

### **Physical Resources**

This section discusses the physical environment at Fort Matanzas, including soils and geology, floodplains, wetlands, air quality, and noise.

**Soils and geology.** The U.S. Department of Agriculture (USDA) Natural Resource Conservation Services surveyed the soils at Fort Matanzas in 1983. A total of seven soil series were delineated and described in the vicinity of the fort on Rattlesnake Island. The soil series ranged from poorly drained to excessively drained, depending on their topographic position and texture. Textures range from fine sand to silty clay loam, but are mostly fine sand. The soil series located on Rattlesnake Island include St. Augustine fine sand, clayey substratum, Moultrie fine sand, Pellicer silty clay loam, and beaches. The soil series found on Anastasia Island include Fripp-Satellite complex, Satellite fine sand, Pottsburg fine sand, and beaches. Table 9 describes the characteristics of each soil series.

The definition of a hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. Hydric soils are one of three required criteria for a site to be characterized as a wetland and include soils developed under sufficiently wet conditions to support the growth and regeneration of hydrophytic vegetation. Of the seven soils series that occur in the vicinity of the fort, Moultrie fine sand, Pellicer silty clay loam, and beaches are considered hydric soils.

Climate change may impact geological resources and soils in the National Monument as a result of increased storm intensity and duration. These predicted changes are expected to result in shoreline erosion, flooding, and inundation (Loehman and Anderson 2009).

**TABLE 9. CHARACTERISTICS OF SOILS PRESENT AT FORT MATANZAS NATIONAL MONUMENT**

Soil Series	Permeability	Available Water Capacity	Slopes (%)	Flooding	Soil Constraints
St Augustine fine sand, clayey substratum	Moderate to Rapid	Very Low	0-2	Rare	Wetness
Moultrie fine sand	Very Rapid	Very Low	0-1	Frequent	Flooding and wetness
Pellicer silty clay loam	Slow	High	<1	Frequent	Flooding, wetness, slow permeability
Satellite fine sand	Rapid	Moderate	0-2	Frequent	Shallow water table, wetness
Fripp-Satellite complex	Rapid	Moderate	0-2	Frequent	Wetness

Source: USDA, 1983

**Noise.** Current noise sources in the surrounding area are predominantly the result of human activities. These activities include traffic from the local roadways, (primarily Highway A1A), boating traffic along the Matanzas River, including the NPS ferry operation, and human recreational activities in the vicinity of Fort Matanzas.

## Water Resources

**Hydrology.** The main body of water in the vicinity of the fort is the Matanzas River, which is part of the Lower St. Johns River Basin. The Matanzas River is narrow and tidally influenced with a maximum width of approximately 1.5 miles. The river is approximately 17 miles long and extends from St. Augustine through Fort Matanzas and connects to the Atlantic Ocean at the Matanzas Inlet. The Matanzas River is protected from the Atlantic Ocean by Anastasia Island to the east.

The Atlantic Intracoastal Waterway is a series of federally maintained navigation channels along the southeastern seaboard of the U.S. that extend from Norfolk, Virginia to Miami, Florida. The 1200-mile course includes manmade canals, bays protected by barrier islands, natural river channels, and estuaries. The Atlantic Intracoastal Waterway Association was established in 1999 to ensure that the Intracoastal Waterway is

maintained for commerce and recreation. Within St. Johns County, the Intracoastal Waterway is comprised of the Tolomato, Guana, and Matanzas Rivers, and their tributaries.

**Water Quality.** The Florida Department of Environmental Protection (FDEP) created a watershed management program in 1999 to implement the provisions of the Florida Watershed Restoration Act. As part of this watershed management program FDEP created five water management districts that are responsible for managing ground and surface water supply. Fort Matanzas is located in the Northern Coastal Basin of St. Johns River Water Management District. The district established the surface water quality monitoring program in 1983 that maintains water quality monitoring of approximately 73 stations throughout the district. This program also monitors sediments for priority pollutants and benthic community sampling. The data generated under the program are uploaded to the U.S EPA National Water Quality Storage and Retrieval Database. At the regional level, FDEP and the St. Johns River Water Management District are the two main agencies involved in surface water permitting procedures.

The Clean Water Act requires that surface waters for each state be classified according to Florida's designated uses. The Florida Administrative Code applies classifications, criteria, an anti-

degradation policy, and special protection of certain waters in Florida. Water quality classifications are arranged in order of the degree of protection required, with Class I water having the most stringent water quality criteria and Class V the least. These classifications are designed to maintain the minimum conditions necessary to assure the suitability of water for the designated use of the classification. The Matanzas River is designated as Class II waters, which is defined as "Shellfish Propagation or Harvesting." A large portion of the Matanzas River is Conditionally Approved for shellfish harvesting.

Because the authorized boundary of the National Monument extends only to the mean high tide line on both Anastasia and Rattlesnake Islands, neither the waters of the Matanzas River, the Atlantic Intracoastal Waterway, nor the Atlantic Ocean are part of the National Monument.

**Floodplains.** Floodplain Management, Executive Order 11988 issued 24 May 1977, directs all federal agencies to avoid both long- and short-term adverse effects associated with occupancy, modification, and development in the 100-year floodplain, when possible. Floodplains are defined in this order as "the lowland and relatively flat areas adjoining inland and coastal waters including flood prone areas of offshore islands, including at a minimum, that area subject to a one percent greater chance of flooding in any given year." Flooding in the 100-year zone is expected to occur once every 100 years, on average. In addition, NPS proposed actions that may adversely affect floodplains must comply with Director's Order #77-2: Floodplain Management.

All federal agencies are required to avoid building in a 100-year floodplain unless no other practical alternative exists. The NPS has adopted guidelines pursuant to Executive Order 11998 stating that NPS policy is to restore and preserve natural floodplain values and avoid environmental impacts associated with the occupation and modification of floodplains. The guidelines also require that, where practicable alternative exist, Class I action be avoided within a 100-year floodplain. Class I actions include the location or construction of administration, residential, warehouse, and maintenance buildings, non-excepted parking lots, or other manmade features

that by their nature entice or require individuals to occupy the site.

The majority of the park is located within the 100-year floodplain, which has been mapped by the Federal Emergency Management Agency on a Flood Insurance Rate Map issued in 2004.

Climate change is expected to increase the extent and frequency of coastal flooding (Loehman and Anderson 2009). These floods may alter the natural floodplain distribution in the National Monument, leading to changes in vegetation, wildlife habitat, and sand regimes on the islands.

## Natural Resources

**Overview.** Natural resources are in abundance within the boundary of Fort Matanzas. The park contains river and ocean beaches, wetlands, and distinct habitats that harbor a number of species, several of which are listed as endangered or threatened. The ocean beach at Fort Matanzas provides a nesting area for the threatened loggerhead and endangered green and leatherback sea turtles, the ghost crab, least tern, Wilson's plover and other migratory shorebirds and seabirds, including the endangered piping plover. The gopher tortoise, a species of special concern in Florida, is found in the adjacent dune and scrub habitat along with the endangered Anastasia Island beach mouse, the threatened eastern indigo snake, and five-lined skink. Herons, egrets, and endangered wood storks feed on the mud flats, which are also the home of fiddler and hermit crabs. Ospreys, bald eagles, black skimmers, brown pelicans, and various other shorebirds and seabirds can be seen flying over Fort Matanzas National Monument, and it is not unusual to sight dolphin or even the endangered manatee within the Matanzas River and inlet.

**Coastal Barriers.** Coastal barriers are landscape features that shield the mainland from the full force of wind, wave, and tidal energies, and can take on a variety of forms such as bay barriers, tombolos, barrier spits, or barrier islands. Coastal barriers include barrier islands, which are coastal barriers completely detached from the mainland. Both Anastasia and Rattlesnake Islands are considered coastal barrier islands. Other examples of mapped coastal barriers in St. Johns County



include Guana River, Usinas Beach, Conch Island, and Matanzas River. The floodplain map issued in 2004 by FEMA (shown in Figure 3-1) indicates that the entire project area has been designated an "Otherwise Protected Area," which is defined in the Coastal Barrier Resources Act as "an undeveloped coastal barrier within the boundaries of an area established under Federal, State, or local law, or held by a qualified organization, primarily for wildlife refuge, sanctuary, recreational, or natural resource conservation purposes."

**Coastal Hammock (Maritime) Forest.** The oldest and highest part of the barrier island (Anastasia Island) is covered with a forest called a hammock -- an ancient dune on which larger plant species have taken root in the thin layer of decayed remains from pioneer species. Cabbage palm, red bay, magnolia, and live oak provide a canopy under which diverse animal species can thrive.

Spiders, lizards, snakes, great horned owls, cardinals and Carolina wrens, raccoons, opossum, and even a bobcat all live here. A small herd of white tail deer finds shelter in the forest on Rattlesnake Island. Understory plants such as wax myrtle, saw palmetto, yaupon holly, beauty berry, and grape vines provide food for some of these animals as well as for migrating birds that stop for a rest in the maritime forest.

On the ocean side of Anastasia Island are the sand dunes. Sea oats and other grasses, vines like beach morning glory, and other salt-tolerant plants grow on the dunes and help stabilize them with their extensive root systems. These plants also provide cover and shade for the few hardy species that live here.

These grasses and dunes also act like styrofoam, giving a little, but mostly absorbing the force of storm winds and waves, thus protecting the island from storms. What might happen in a big storm in areas where the dunes have been destroyed or built on?

**Coastal Scrub.** Between the hammock and the dunes grow dense thickets of scrub live oak interspersed with thick stands of saw palmetto, bay and cedar, and an occasional sabal palm, all laced together by a tangle of grape and other

vines. Prickly pear cacti grow in the more open, areas. Sandy and dry, scoured by harsh, salt-laden winds, the scrub is a harsh environment for animals, but a beautiful garden for wildflowers in the spring and summer.

**Estuary and Salt Marsh.** Behind the dunes and the coastal forest lie the tidal creeks and marshes of the estuary where salt water meets fresh. The open water between Anastasia Island where the visitor center is located and Rattlesnake Island where the historic fort sits is called the Matanzas River. Not a true river, it is actually a long, thin sound with a mouth at both ends-- the St. Augustine Inlet to the north and the Matanzas Inlet at Fort Matanzas National Monument at the south.

The estuary and salt marsh is the most diverse habitat of the island in terms of animal species. Great blue herons, great egrets, snowy egrets, and little green herons feed on the rich soup of fish and crustaceans living in the tidal flats and salt marshes.

**Salt Marsh Plants.** Plants must have special adaptations in order to live in the salt marsh where their roots and even much of their tops might be covered by salt water for much of the day. Many plants like the salt marsh cordgrass (*Spartina alterniflora*), the predominate plant of the marsh, has pores which secrete the salt the plant takes up. A film of salt crystals is visible on their stems and leaves.

Pickleweed (*Salicornia sp.*) rids itself of excess salt by means of joints which allow a part of the plants to be broken off. The plant sends salt to its tips and, in the fall, these compartments dry up and break off.

Mangroves, one of the few trees of the salt marsh, can survive because of specially adapted roots. The red mangrove can be identified by its prop roots which stabilize the plant in soft muddy soil and which exposes more root surface to the oxygen in the air. Black mangroves can be identified by numerous finger-like projections called pneumatophores which serve the same purpose.

Both of these mangroves are at the northern-most extent of their range at Fort Matanzas National Monument. It has only been because of

several years without major freezes that these trees survive here in north Florida at all.

**Wetlands.** Executive Order 11990 – *Protection of Wetlands*, directs all federal agencies to avoid, to the extent possible, the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative. In the absence of such alternatives, parks must modify actions to preserve and enhance wetland values and minimize degradation. Consistent with E.O. 11990 and Director’s Order #77-1: *Wetland Protection*, NPS adopted a goal of “no net loss of wetlands.” Director’s Order #77-1 states that for new actions where impacts to wetlands cannot be avoided, proposals must include plans for compensatory mitigation that restores wetlands on NPS lands, where possible, at a minimum acreage ratio of 1:1.

Wetlands are characterized by soil type and a diversity of vegetation, including trees, shrubs, and herbaceous ground covers. Wetlands provide a variety of beneficial functions from supplying habitat for a variety of wildlife, storage and attenuation of floodwaters, trapping silts and other sediments during floods, to biologically filtering contaminants from surface waters. The National Wetlands Inventory (NWI) of the U.S. Fish and

Wildlife Service (USFWS) produces information on the characteristics, extent, and status of the nation’s wetlands and deepwater habitats. National Wetlands Inventory maps are prepared by the USFWS from the analysis of high altitude imagery and wetlands are identified based on vegetation, visible hydrology and geography. Based on the NWI maps at the site from the USFWS and NPS definition of wetlands, roughly half (147.4 acres) of the total acreage of Rattlesnake Island and Anastasia Island is mapped as wetlands. Roughly 100 acres of this total wetlands figure is on Rattlesnake Island.

In the vicinity of Fort Matanzas, the northeastern shoreline of Rattlesnake Island and the southwestern shoreline of Anastasia Island are mapped by the inventory as an estuarine, intertidal, unconsolidated shore that is regularly flooded. The majority of Rattlesnake and Anastasia Islands are mapped by the inventory as an estuarine, intertidal, emergent/scrub-shrub broad-leaved evergreen wetland. South of the fort on Rattlesnake Island, a small estuarine wetland exists and on Anastasia Island inland from the shoreline, a linear excavated estuarine wetland.

The wetland classifications within Fort Matanzas have been classified by U.S. Fish and Wildlife Service’s National Wetlands Inventory as the following:

**TABLE 10. WETLANDS PRESENT IN FORT MATANZAS**

NWI Mapping Code	NWI Wetland Classification	Project Area
E2EM/SS3U	Estuarine, intertidal, emergent/scrub-shrub broadleaved evergreen, uplands	Rattlesnake Island and Anastasia Island
E2USN	Estuarine, intertidal, unconsolidated shore, regularly flooded	Rattlesnake Island and Anastasia Island Shorelines
E2USP	Estuarine, intertidal, unconsolidated shore, irregularly flooded	South of the fort, Rattlesnake Island
E1UBL	Estuarine, subtidal, unconsolidated bottom, subtidal	Matanzas River
E1UBLx	Estuarine, subtidal, unconsolidated bottom, subtidal, excavated	Anastasia Island open water canal

In addition to the National Wetlands Inventory maps, the St. Johns County Soil Survey has mapped hydric soils (one of the three wetland indicators) on both Anastasia and Rattlesnake

Islands. On Rattlesnake Island in the vicinity of Fort Matanzas, the soil series Pellicer silty clay loam, Moultrie fine sand, and Beaches are all classified as hydric soils. Portions of the shoreline

of Anastasia Island are also mapped as hydric soils, including Pellicer silty clay loam and Beaches.

Also noteworthy, the Matanzas River, a navigable waterway of the U.S., is characterized as an estuarine, subtidal wetland with unconsolidated bottom. Several state and Federally listed species that occur or may occur within this habitat include the West Indian manatee (*Trichechus manatus*) and five species of both state and federally listed sea turtles, including the Loggerhead turtle (*Caretta caretta*), Green sea turtle (*Chelonia mydas*), Leatherback sea turtle (*Dermochelys coriacea*), Hawksbill sea turtle (*Eretmochelys imbricata*), and Kemp's Ridley sea turtle (*Lepidochelys kempii*).

**Terrestrial Resources.** This section discusses natural resources, including terrestrial vegetation and wildlife found at Fort Matanzas. Federally

listed threatened and endangered species potentially found at Fort Matanzas are discussed below.

**Vegetation.** A vegetative survey of Fort Matanzas was conducted in 2003 and 2004. A total of 237 species of vascular plants were identified representing 189 genera and 73 families. Of the 237 species identified, 125 species were identified on Rattlesnake Island and 197 were identified on Anastasia Island.

Six major community types have been described for the park, including Matanzas River open beach, foredune, backdune, maritime forest, salt marsh, and disturbed areas.

Table 11 provides a list of common species found within the six major community types.

**TABLE 11. COMMON SPECIES WITHIN MAJOR COMMUNITY TYPES AT FORT MATANZAS**

Scientific Name	Common Name
<b>Backdunes</b>	
<i>Andropogon glomeratus</i>	Bushy bluestem
<i>Gaillardia pulchella</i>	Blanket flower
<i>Helianthus debilis</i>	Beach sunflower
<i>Hydrocotyle bonariensis</i>	Pennywort
<i>Ipomopsis rubra</i>	Standing cypress
<i>Muhlenbergia capillaries</i>	Purple muhly grass
<i>Oputina supp.</i>	Prickly pear cactuses
<i>Spartina patens</i>	Cordgrass
<b>Disturbed Areas</b>	
<i>Acalypha graciliens</i>	Slender threeseed
<i>Conyza canadensis</i>	Canadian horseweed
<i>Oxalis corniculata</i>	Creeping woodsorrel
<i>Pteris vittata</i>	Ladder brake
<i>Salvia lyrata</i>	Lyreleaf sage
<b>Foredune</b>	
<i>Atriplex cristata</i>	Crested saltbush
<i>Cakile edulenta</i>	American searocket
<i>Cakile lanceolata</i>	Coastal searocket
<i>Chamaesyce bombensis</i>	Dixie sandmat
<i>Gaillardia pulchella</i>	Firewheel
<i>Helianthus debilis</i>	Cucumberleaf sunflower
<i>Ipomoea imperati</i>	Beach morning-glory
<i>Ipomoea pes-caprae</i>	Bayhops
<i>Iva imbricata</i>	Seacoast marshelder
<i>Panicum amarum</i>	Bitter panicgrass
<i>Salsola kali</i>	Russian thistle
<i>Sesuvium portulacastrum</i>	Shoreline seapurslane
<i>Spartina patens</i>	Saltmeadow cordgrass
<i>Sporobolus virginicus</i>	Seashore dropseed
<i>Uniola paniculata</i>	Seaoats

Scientific Name	Common Name
<b>Maritime Forest</b>	
<i>Callicarpa americana</i>	American beautybush
<i>Cnidoscolus stimulosus</i>	Stinging spurge
<i>Erythrina herbacea</i>	Coralbean
<i>Illex vomitoria</i>	Yaupon holly
<i>Juniperus salicicola</i>	Southern red cedar
<i>Myrica cerifera</i>	Wax myrtle
<i>Nephrolepis exaltata</i>	Boston fern
<i>Persea borbonia</i>	Red bay
<i>Polypodium polypodioides</i>	Resurrection fern
<i>Quercus virginiana</i>	Live oak
<i>Sabal palmetto</i>	Cabbage palm
<i>Serenoa repens</i>	Saw palmetto
<i>Vitis spp.</i>	Wild grape
<i>Zamia pumila</i>	Coontie
<i>Zanthoxylum clava-heculis</i>	Hercules club
<i>Magnolia grandiflora</i>	Southern magnolia
<b>Open Beach</b>	
<i>Panicum amarum</i>	Bitter panic grass
<i>Ipomoea pes-caorae</i>	Railroad vine
<i>Uniola paniculata</i>	Sea oats
<b>Salt Marsh</b>	
<i>Avicennia germinans</i>	Black mangrove
<i>Batis maritima</i>	Saltwort
<i>Juncus roemerianus</i>	Black needlerush
<i>Salicornia spp.</i>	Glasswort
<i>Spartina alteriflora</i>	Saltmarsh cordgrass

**Wildlife.** The diversity of habitats found at Fort Matanzas supports a rich variety of wildlife. Major habitats present on Anastasia Island include open beach, backdunes, foredunes, maritime forest, Florida coastal scrub\*, and coastal hammock. Major habitats present on Rattlesnake Island include slash pine and redbay woodlands, cedar/wax myrtle/cabbage palm forests, salt marshes, tidal creeks, and mangroves. There are a limited number of mammals found on the beach and sand dunes of Rattlesnake and Anastasia Islands. Table 12

provides a list of common wildlife species found within habitats at Fort Matanzas (Source: *FINAL ENVIRONMENTAL ASSESSMENT, Proposed Shoreline Stabilization Features and Boat Dock Replacement*, National Park Service, June 2006) \*The Florida coastal scrub habitat is described as “characterized by sand pine and/or scrub oaks and/or rosemary and lichens” on the Florida Native Plant Society website, <http://www.fnps.org/pages/plants/vegtypes.php> , accessed 1-7-2011.

**TABLE 12. COMMON WILDLIFE SPECIES AT FORT MATANZAS**

Scientific Name	Common Name	Habitat
<b>Birds</b>		
<i>Ardea alba</i>	Great egret	Nests and roosts in colonies in woody vegetation over water, and on islands. Feeds in wetlands, including marshes, tide flats, and along inlets and estuaries.
<i>Ardea herodias</i>	Great blue heron	Nests and roosts in colonies in woody vegetation over water, and on islands. Feeds in wetlands, including marshes, tide flats, and along inlets and estuaries.
<i>Butorides virescens</i>	Little green heron	Nests and roosts in colonies in woody vegetation over water, and on islands. Feeds in wetlands, including marshes, tide flats, and along inlets and estuaries.
<i>Calidris alba</i>	Sanderling	Roosts and feeds along beaches, mud flats, inlets, and

Scientific Name	Common Name	Habitat
		estuaries.
<i>Catoptrophorus semipalmatus</i>	Willet	Nests under woody brush or in tall grass near marsh. Roosts and feeds along beaches, mud flats, inlets, and estuaries.
<i>Charadrius vociferous</i>	Killdeer	Nests in open areas, often near water. Feeds in moist substrate along beaches, inlets, and mudflats.
<i>Haliaeetus leucocephalus</i>	Bald eagle	Nests in tree tops. Feeds in open water, often where perches are nearby.
<i>Larus argentatus</i>	Herring gull	Found along beaches, inlets, mudflats, and estuaries.
<i>Larus atricilla</i>	Laughing gull	Found along beaches, inlets, mudflats, and estuaries.
<i>Mycteria americana</i>	Wood stork	May nest in mangroves. Feeds in fresh, brackish, and salt water.
<i>Pandion haliaetus</i>	Osprey	Nests in trees or manmade structures. Feeds in fresh, brackish, and salt water, often where perches are nearby.
<i>Pelecanus occidentalis</i> *	Brown pelican	Nests and roosts along coast. Feeds in ocean and estuarine waters.
<i>Phalacrocorax auritus</i>	Double-crested cormorant	Nests and roosts in woody vegetation along coast. Roosts in woody vegetation or on the ground. Feeds in ocean and estuarine waters.
<i>Sterna antillarum</i>	Least tern	Nests and roosts on sand and shell beaches and spoil banks along coast. Feeds in ocean and estuarine waters.
<i>Sterna maxima</i>	Royal tern	Nests and roosts on sand and shell beaches and spoil banks along coast. Feeds in ocean and estuarine waters.
<b>Mammals</b>		
<i>Didelphis virginiana phasma</i>	Opossum	Dens in tree cavities, hollow logs, brush piles, underground burrows, or manmade structures. Feeds in a variety of natural and disturbed coastal habitats.
<i>Peromyscus polionotus</i>	Oldfield mouse	Inhabit burrows in well-drained, sandy soils.
<i>Procyon lotor</i>	Raccoon	Inhabits a variety of habitats, from uplands to wetlands.
<i>Sylvialagus palustris</i>	Marsh rabbit	Inhabit freshwater and estuarine wetlands.
<b>Reptiles</b>		
<i>Cnemidophorus sexlineatus</i>	Six-lined racerunner	Found in dry grassy or sandy areas, and open woodlands.
<i>Columer constrictor</i>	Southern racer	Found in pinelands, hardwood hammocks, prairies, sandhills, scrub, and cypress strands.
<i>Crotalus adamanteus</i>	Eastern diamondback rattlesnake	Found in pine flatwoods, longleaf pine and turkey oak, sand pine scrub areas, and coastal barrier islands
<i>Elahpe obsolete</i>	Yellow rat snake	Found in a variety of habitats, including forested areas, wetland margins, and around manmade structures.
<i>Elaphe guttata</i>	Corn snake	Found in sandy upland habitat, including areas around manmade structures.
<i>Gopherus polyphemus</i>	Gopher tortoise	Found in coastal dunes and other well-drained soils with abundant low vegetation cover.
<i>Masticophis flagellum</i>	Eastern coatwhip	Found in coastal dunes and other open habitat with well-drained soils.
<i>Opheodrys aestivus</i>	Rough green snake	Found in a variety of habitats, including open forests and wetland margins.
<i>Terrapene carolina</i>	Florida box turtle	Found in a variety of upland and seasonally flooded habitats.

1  
2 **Birds.** Formal bird surveys of the islands for  
3 shorebirds and forest birds have been and  
4 continue to be conducted. More than 125 species  
5 of birds have been seen throughout the years at  
6 Fort Matanzas. The park lies on the eastern  
7 flyway allowing a large number of migrating  
8 birds to be observed from February through April  
9 and again in September and October.

10

11 Responsibilities of Federal agencies to protect  
12 migratory birds are governed by the Endangered  
13 Species Act, the Migratory Bird Treaty Act, and  
14 Executive Order 13186 (President William  
15 Jefferson Clinton, January 10, 2001). Among  
16 other requirements, EO 13186 required each  
17 Federal agency taking actions that would or could  
18 have a measurable negative effect on migratory  
19 bird populations to develop and implement a

memorandum of understanding with the U.S. Fish and Wildlife Service to promote conservation of migratory bird populations. On April 12, 2010, the directors of the NPS and the Fish and Wildlife Service signed the required memorandum of understanding.

Fort Matanzas has been selected as a stop on the Great Florida Birding Trail by the Florida Fish and Wildlife Conservation Commission. The Great Florida Birding Trail is divided into four sections: East Florida, West Florida, Panhandle Florida, and South Florida. Each Birding Trail section consists of a series of clusters, with each cluster containing 1 to 15 sites highlighting communities and special ecosystems. This 2,000-mile, self-guided highway trail connects nearly 500 birding sites throughout Florida. Other Birding Trail sites in the vicinity of Fort Matanzas include Anastasia State Park, Faver-Dykes State Park, Fort Mose Historic State Park, and the Guana Tolomato Matanzas National Estuarine Research Reserve.

Least terns (*Sterna antillarum*) nest in great numbers on the beach. The area known to be a nesting area for least terns is initially marked with flags, string, and signs. The area is expanded as needed if the birds expand their nests beyond the initial boundaries. Wilson's plovers (*Charadrius wilsonia*) and willets (*Tringa semipalmata*) also nest within the park.

State-listed species of concern that have the potential to be seen at Fort Matanzas include the

snowy egret (*Egretta thula*), white ibis (*Eudocimus albus*), brown pelican (*Pelecanus occidentalis*), and black skimmer (*Rynchops niger*).

**Reptiles and Amphibians.** Herptile (both reptile and amphibian) surveys were conducted from 2001-2002 and in 2009. A total of 30 species were identified on Anastasia Island (29 species) and Rattlesnake Island (18 species). Nine additional species have been identified on Anastasia Island during other systematic collections. The northern end of Rattlesnake Island and its eastern shoreline consist of white sand dunes and storm water overwash areas. The most abundant reptiles in these dunes meadows include the six-lined racerunner and the state-listed species of concern gopher tortoise (*Gopherus polyphemus*). The gopher tortoise is one of the most abundant reptiles within Fort Matanzas and can be found in all open dry habitats, dunes, dunes meadows, and areas between patches of forest.

**Aquatic Resources.** The Matanzas River is considered an estuary, where salt water from the Atlantic Ocean and freshwater from the tributaries flowing into the Matanzas River mix to form brackish water. The Matanzas River supports a large number of fish, shellfish, and crustaceans. Table 13 provides a list of finfish species and marine mammals found in the Matanzas River. Federally listed threatened and endangered species are discussed below.

**TABLE 13. FINFISH SPECIES AND MARINE MAMMALS AT FORT MATANZAS**

Scientific Name	Common Name
<b>Finfish Species</b>	
<i>Archosargus probatocephalus</i>	Sheepshead
<i>Coryphaena hippurus</i>	Dolphin
<i>Mugil cephalus</i>	Striped mullet
<i>Mugil spp.</i>	Mullet
<i>Paralichthys spp.</i>	Flounder
<i>Pomatomus saltatrix</i>	Bluefish
<i>Sciaenops ocellatus</i>	Red drum
<i>Trachinotus carolinus</i>	Florida pompano
<b>Marine Mammals</b>	
<i>Trichechus manatus</i>	West Indian manatee
<i>Tursiops truncatus</i>	Bottlenose dolphin

**Finfish Species.** The Florida Fish and Wildlife Conservation Commission (FWCC) manages

Florida's fish and wildlife resources. The Fish and Wildlife Research Institute was established by

Florida FWCC to monitor marine and freshwater resources, monitor wildlife habitats, and conduct research. The Matanzas River supports commercial and recreational fishing. The majority of commercial fishing in St. Johns County is performed in the vicinity of the Matanzas Inlet. Recreational anglers on St. Johns County beaches outnumber commercial fisherman. St. Augustine and Matanzas Inlets are among the most popular areas for recreational fishing.

**Shellfish.** Shellfish thrive in estuaries and include oysters, clams, and mussels. Shellfish are filter feeders, meaning they intake large quantities of water across their gills for food and oxygen. During this process, shellfish take in bacteria, viruses, and chemical contaminants that can be stored in their digestive systems. Waters are classified for harvest of shellfish as approved, conditionally approved, restricted, conditionally restricted, prohibited, and unclassified. The Matanzas River in the vicinity of Fort Matanzas is classified by the state as a Class II conditionally approved harvesting area. A conditionally approved area is defined as an area periodically closed to shellfish harvesting based on events that may increase pollution in the harvesting area, such as rainfall or increased river flow.

The Matanzas River at Fort Matanzas supports living oyster beds that provide a great habitat in the estuarine ecosystem. Oyster beds provide many crevices for other animals to hide in, such as juvenile fish, crabs, and algae. In addition, clams and ribbed mussels reside in this area. Shellfish are harvested in the vicinity of Fort Matanzas.

**Marine Mammals.** Two marine mammals, the federally endangered West Indian manatee (*Trichechus manatus*) and the bottlenose dolphin (*Tursiops truncatus*), are found in the Matanzas River. These marine mammals are offered federal protection under the Marine Mammal Protection

Act of 1972, which is enforced by USFWS. The Act established a moratorium on the taking or harassment of marine mammal species, and the West Indian manatee is further protected as a depleted stock under the Act.

**Threatened and Endangered Species.** Certain species of plants and animals are protected by federal regulations under the Endangered Species Act (ESA) of 1973. The primary state law that allows and governs the listing of endangered species is the Florida State Endangered Species Act of 1976. The FWCC maintains a state list of threatened and endangered animals, and the Florida Department of Agriculture and Consumer Services maintains a list of plants. Threatened and endangered (T&E) species are those plant and animal species that are most in need of conservation efforts due to habitat loss and declining populations.

Under Section 7[a] of the ESA, the NPS is required to consult with USFWS and National Marine Fisheries Service (NMFS) if federally protected T&E species may be present in the area affected by a proposed project. NMFS and USFWS share authority over certain federally protected species and have total jurisdiction over others.

This section, along with the impacts analysis for the preferred alternative in Chapter 4 of this plan, fulfills the NPS's obligation under Section 7 to document federally listed species and impacts of the preferred alternative on these species via an embedded Biological Assessment.

Table 14 lists the federally protected T&E species and depicts the federal agency associated with each species. There are no federally listed plant species known to occur within the park boundaries.

**TABLE 14. FEDERALLY PROTECTED THREATENED AND ENDANGERED SPECIES**

Scientific Name	Common Name	Federal Status	Federal Agency with Jurisdiction
<b>Birds</b>			
<i>Charadrius melodus</i>	Piping plover	Threatened	USFWS
<i>Aphelocoma coerulascens</i>	Florida Scrub-jay	Threatened	USFWS
<i>Mycteria americana</i>	Wood stork	Endangered	USFWS
<b>Mammals</b>			

<i>Peromyscus polionotus phasma</i>	Anastasia Island Beach Mouse	Endangered	USFWS
<i>Trichechus manatus latirostris</i>	West Indian (Florida) Manatee	Endangered/Critical Habitat Designated	USFWS
<b>Reptiles</b>			
<i>Caretta caretta</i>	Loggerhead Sea Turtle	Threatened	USFWS/NMFS
<i>Drymarchon corais couperi</i>	Eastern Indigo Snake	Threatened	USFWS
<i>Chelonia mydas</i>	Green sea turtle	Endangered	USFWS/NMFS
<i>Dermochelys coriacea</i>	Leatherback sea turtle	Endangered	USFWS/NMFS
<i>Eretmochelys imbricata</i>	Hawksbill sea turtle	Endangered	USFWS/NMFS
<i>Lepidochelys kempii</i> turtle	Kemp's Ridley sea	Endangered	USFWS/NMFS

Source: U.S. Fish & Wildlife Service, North Florida Ecological Services Office, Federally Listed Species Website: <http://www.fws.gov/northflorida/CountyList/Johns.htm> , (Accessed 12-15-2010).

The park has developed the following Endangered Species Protection Protocols/Best Management Practices:

The park patrols the beach on a daily basis and when injured or stranded turtles are discovered, they are delivered to a sanctuary for rehabilitation and ultimate re-release into the wild.

Shore Birds: Piping plovers winter in Florida along inlets and adjacent shorelines, including beaches and intertidal wetlands within and contiguous to Fort Matanzas. Wood storks do not nest on the beach but use habitats within Fort Matanzas for loafing and foraging. The park closes a portion of the beach from April 15 through August 31 each year. These dates are flexible and the closure could begin earlier if nests are discovered earlier and could end later if nesting is still occurring.

Dune species (including Anastasia Island beach mouse and eastern indigo snake): The dune system at Fort Matanzas is closed to pedestrian and vehicle access all year. Boardwalks provide pedestrian access from roadside parking areas to the beach. The conservation zone extends 15 ft. seaward from the toe of the dune. The park patrols the beach and monitors the dune system year round.

**Ecologically Critical Areas.** The Endangered Species Act of 1973, as amended has a provision that provides for the designation of habitat critical to the conservation and recovery of threatened and endangered species. Critical habitat is defined in the ESA as a specific geographic area that contains habitat features

essential for the conservation of a threatened or endangered species. Designated critical habitat can include both occupied and unoccupied habitat if the latter is deemed necessary to the recovery of the species. There is no federally designated critical habitat within Fort Matanzas boundaries.

The Matanzas Inlet is state designated as an active Critical Wildlife Area for the state-listed least tern from 1 April to 1 September, which is also suitable habitat for the federally listed piping plover and several other state-listed species. The designated Florida Critical Wildlife Area covers an area located within the park at the southernmost point of Anastasia Island. The park has recognized this area as an important "Least Tern Nesting Area".

**Designated Natural Areas.** Fort Matanzas is situated within the boundaries of the Guana Tolomato Matanzas (GTM) Reserve, which is part of the National Estuarine Research Reserve System. This system is a network of protected areas established for long-term research and education. The GTM Reserve encompasses approximately 55,000 acres and includes salt marsh habitats, mangrove tidal wetlands, oyster bars, estuarine lagoons, and upland habitats. The reserve is separated into a northern and southern section, and Fort Matanzas is located in the southern section of the reserve. The Matanzas River from Moses Creek to south of Pellicer Creek is included in the reserve. The Matanzas Inlet, located within the GTM Reserve, is one of the last natural, unaltered inlets on Florida's Atlantic coast.



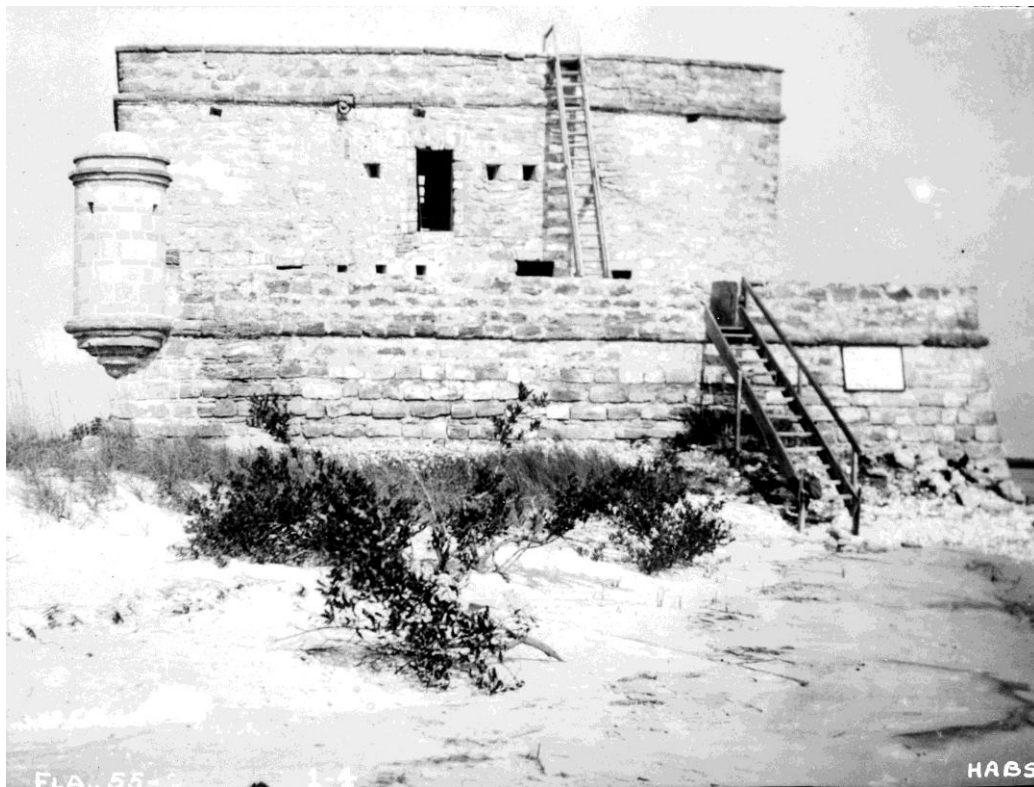
**Soundscape.** Current noise sources in the surrounding area are predominantly the result of human activities. These activities include traffic from the local roadways (Highway A1A), boating traffic along the Matanzas River, including the ferry operating at Fort Matanzas, and human recreational activities in the vicinity of Fort Matanzas. A secondary source of sound in the vicinity of the site is natural and includes calls from birds and other wildlife, wind, and surf.

## HUMAN ENVIRONMENT

**Recreation.** Fort Matanzas offers a variety of recreational activities throughout the park, including bird watching, boating, fishing, kayaking, nature walks, swimming, and wildlife viewing. The park offers a 0.5-mile self guided nature trail on a boardwalk through a coastal maritime forest and through the dunes to a beach

overlook. Fishing is permitted along the shoreline of the Matanzas River. No license is required for Florida residents or children under the age of 16. In addition, boating using powered boats or canoes/kayaks is permitted on the Matanzas River. Walking along the river shoreline, watching for wading birds and crabs, is also one of the recreational uses for the park. Fort Matanzas offers excellent bird watching; it has been selected as a stop on the Great Florida Birding Trail. The park also offers guided boat tours to the fort on the Matanzas Queen ferryboat.

**Demographics, Income and Ethnic Composition.** According to U.S. Census estimates as of 2009, the population of St. Johns County was 187,436. The median household income for St. Johns County was \$67,238. Persons below the poverty level were 7.9%. The composition of the county is provided in Table 15.



**Fort Matanzas - 1934 - Historic American Buildings Survey Photo**

**TABLE 15. POPULATION COMPOSITION OF ST. JOHNS COUNTY AND THE STATE OF FLORIDA.**

Category	St. Johns County	Florida
Population, percent change, April 1, 2000 to July 1, 2009	52.2%	16.0%
Persons under 5 years old, percent, 2008	5.5%	6.2%
Persons under 18 years old, percent, 2008	20.6%	21.8%
Persons 65 years old and over, percent, 2008	14.8%	17.4%
Female persons, percent, 2008	50.9%	50.9%
White persons, percent, 2008	90.1%	79.8%
Black persons, percent, 2008	6.4%	15.9%
American Indian and Alaska Native persons, percent, 2008 (a)	0.2%	0.5%
Asian persons, percent, 2008	2.0%	2.3%
Persons reporting two or more races, percent, 2008	1.1%	1.4%
Persons of Hispanic or Latino origin, percent, 2008	4.7%	21.0%
White persons not Hispanic, percent, 2008	85.7%	60.3%

2

3 **Aesthetics.** The aesthetic nature of the area  
4 surrounding Fort Matanzas is well preserved as  
5 most of the surrounding lands have been set aside  
6 for conservation and open space. There are  
7 several residences across the Matanzas River from  
8 the fort on Anastasia Island, and a waterfront  
9 community called Summer Haven is located south  
10 of Rattlesnake Island on the south side of the  
11 bridge that crosses the Matanzas Inlet. These  
12 residences, the bridge, and several other man-  
13 made structures are visible from the fort.  
14 Currently within Fort Matanzas, aesthetic  
15 resources are in good condition. The grounds are  
16 maintained daily throughout the park.

17

18 **Public Health and Safety.** The number of  
19 parking areas and spaces available for visitors  
20 going to the ocean beach on Anastasia Island as  
21 well as the shore of the western side of the island  
22 on the Matanzas River is inadequate on many  
23 summer weekends. The three available parking  
24 areas frequently fill up early and visitors park on  
25 the shoulders of Highway A1A, which bisects the  
26 Anastasia Island section of the park. Beach users  
27 also park in the visitor center parking lot which is  
28 intended for visitors desiring to take the boat to  
29 the fort on Rattlesnake Island. On most summer  
30 weekends the parking lots on the east and west  
31 sides of Highway A1A fill early and parking on  
32 the shoulders of the road creates dangerous  
33 conditions for both pedestrians and drivers.

34

35

36 Some visitors to Fort Matanzas National  
37 Monument may be unaware of dangers presented  
38 by a Florida barrier island environment. Although  
39 the NPS attempts to inform visitors of dangers  
40 through signs, bulletin boards, brochures, and  
41 individual contacts, the National Monument  
42 continues to present a variety of hazards. These  
43 include the possibility of drownings and near  
44 drownings as a result of rough surf conditions,  
45 strong ocean currents, and rip tides; getting struck  
46 by sudden lightning storms (central Florida  
47 receives more lightning strikes than any other  
48 section of North America); sunburn and heat  
49 stroke/exhaustion; and jellyfish/Portuguese man-  
50 of-war stings (in the ocean surf).

51

52 **Visitor Use and Experience.** Fort Matanzas  
53 consists of 298 acres on Anastasia and  
54 Rattlesnake Islands north of Matanzas Inlet where  
55 the NPS owns and manages both oceanfront and  
56 riverfront property. Most of the parkland on  
57 Anastasia Island is accessible to the public.  
58 Anastasia Island includes the entrance to the park,  
59 visitor center, boardwalk, picnic area, and parking  
60 lots. A majority of the land on Rattlesnake Island  
61 is closed to the public. Fort Matanzas is open to  
62 the public from 9 am to 5:30 pm every day of the  
63 year, except December 25. There are no fees to  
64 enter the park or to take the ferry to the fort. Fort  
65 Matanzas currently has approximately 56,000  
66 visitors annually that use the ferry to see the fort;  
67 however, other areas of the park, including the  
68 beach on Anastasia Island, receive close to one

1 million visitors annually. The number of visitors  
2 is highest March through Labor Day and during  
3 the December holidays. Visitation is at its lowest  
4 from mid-September through mid-November. The  
5 park is busiest on holiday weekends throughout  
6 the year. There is a small visitor center, open from  
7 9 am until 4:30 pm, which offers displays, an 8-  
8 minute video, and various books and materials for  
9 sale. Park staff offer 45 minute guided boat tours  
10 to the fort. Other features available for visitor use  
11 include nature trails and beaches, and special  
12 programs are frequently offered, such as living  
13 history and guided nature walks.

14  
15 **Park Operations.** This section describes the  
16 existing conditions related to park operations and  
17 administration. Most of the operations necessary  
18 to manage the park occur on Anastasia Island, as  
19 there are few daily operations related to  
20 maintaining the dock and fort structures on  
21 Rattlesnake Island.

22  
23 **Utilities** – The park has 2 dumpsters, 1 recycle  
24 dumpster, no septic systems, 1 hydrant, 1 test well  
25 (drilled by state agency St. John River Water  
26 Management District), 1 county supplied water  
27 and sewer system. The maintenance complex is  
28 1860 sq. ft. and consists of a workshop and 5

29 equipment storage bays. There are no utilities or  
30 roads currently located on Rattlesnake Island.

31  
32 **Personnel** – Fort Matanzas has 1 STEP position,  
33 2 part-time, 3 permanent subject to furlough and 3  
34 full-time. The capacity of the ferry is 35 (new  
35 USCG weight rules reduced the total capacity of  
36 the ferry). The fort is limited to 70 people  
37 maximum per tour. There are 8 total maintenance  
38 personnel, 1 is assigned to Fort Matanzas the  
39 others assigned on a project by project basis or  
40 when the regular maintenance person is on lieu  
41 days. The park operation is supplemented by 4  
42 four-hour volunteer shifts each day. There are  
43 approximately 50 volunteers on the Fort Matanzas  
44 roster.

45  
46 **Parking** – There are currently four parking lots  
47 available at Fort Matanzas. Near the north end of  
48 the park boundary on Anastasia Island, there is a  
49 lot on the west side of Highway AIA that provides  
50 parking primarily for visitors to the fort. On the  
51 east side, there is a lot for visitors to the beach.  
52 There are also two parking lots in the mid portion  
53 of the park boundary on Anastasia Island, just off  
54 Highway AIA. The east side lot is used mostly by  
55 visitors to the beach and the west side lot is used  
56 mostly by visitors to the beach and the river.

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**Fort Matanzas Interpretive Program**

## CHAPTER 4 – ENVIRONMENTAL CONSEQUENCES

### INTRODUCTION

The National Environmental Policy Act requires that environmental documents discuss the environmental impacts of a proposed federal action, feasible alternatives to that action, and any adverse environmental effects that cannot be avoided if the proposed action is implemented. In this case the proposed federal action would be the adoption of a general management plan for Fort Matanzas National Monument. The following portion of this document analyzes the environmental impacts of implementing each of the three alternatives on natural resources, cultural resources, transportation, visitor experience, socioeconomic environment, soundscape, and park operations. The analysis is the basis for comparing the beneficial and adverse effects of implementing the three alternatives. By examining the environmental consequences of all alternatives on an equivalent basis, decision-makers can evaluate which approach would provide the greatest beneficial results with the fewest adverse effects on the park.

Because of the general, conceptual nature of the actions described in the alternatives, the impacts of these actions are analyzed in general qualitative terms. Thus, this environmental impact statement should be considered a programmatic analysis. If and when site-specific developments or other actions are proposed for implementation subsequent to this *General Management Plan*, appropriate detailed environmental and cultural compliance documentation will be prepared in accordance with requirements of NEPA and the NHPA as well as the Coastal Barrier Resources Act and the Florida Coastal Management Program.

This chapter begins with a description of the methods and assumptions used for analyzing impacts. The impact analyses follow next, organized by alternative and then by impact topic under each alternative. All of the impact topics are assessed for each alternative. The existing conditions for each impact topic are described in Chapter 3 (“Affected Environment”). For each impact topic, there is an analysis of the beneficial

and adverse effects of implementing the alternative, a description of cumulative impacts (in which this plan is considered in conjunction with other actions occurring in the region), and a conclusion. At the end of each alternative there is also a brief discussion of unavoidable adverse impacts, irreversible and irretrievable commitments of resources, and the relationship of short-term uses of the environment and the maintenance and enhancement of long-term productivity. The impacts of each alternative are briefly summarized in Table 6, in Chapter 2 (“Alternatives, Including the Preferred Alternative”).

### METHODS AND ASSUMPTIONS FOR ANALYZING IMPACTS

The planning team based the impact analysis and the conclusions in this chapter largely on a review of existing literature and studies, information provided by experts in the NPS and other agencies, and park staff insights and professional judgment. The team’s method of analyzing impacts is further explained below. It is important to remember that all the impacts have been assessed assuming mitigation measures have been implemented to minimize or avoid impacts. If mitigation measures described in Chapter 2 (“Alternatives Including the Preferred Alternative”) were not applied, the potential for resource impacts and the magnitude of those impacts would increase.

#### Identification of Impacts

*NPS Director’s Order 12 and Handbook: Conservation Planning, Environmental Impact Analysis, and Decision Making* presents an approach to identifying the impacts of a particular alternative. The analysis considers the duration (short or long-term), type (adverse, beneficial, or neutral), context (the setting within which an effect would occur), and intensity or magnitude (e.g., negligible, minor, moderate, or major) of impacts. This is the approach that has been used in this document. Where quantitative data were not available, best professional judgment was used to identify impacts.

Unless otherwise described under a specific impact topic, the **duration** of an impact is defined as follows:

*Short-Term* – Impacts that would last less than one year and could be *temporary* in nature.

*Long-Term* – Impacts that would last one year or longer and could be *permanent*.

Impacts are evaluated by **type**, i.e., whether the impacts would be *beneficial*, *adverse*, or *neutral*. Beneficial impacts would improve park resources, the visitor experience, or park operations. Adverse impacts would negatively affect park resources, the visitor experience, or park operations. Neutral impacts would be virtually undetectable or would be equally adverse and beneficial.

*Direct* and *indirect* impacts caused by an action are considered in the analysis. Direct impacts are caused by an action and occur at the same time and place as the action. Indirect impacts are caused by the action and occur later in time or farther removed from the place, but are still reasonably foreseeable.

The analysis also considers the **setting** of impacts for each impact topic. Unless otherwise indicated, the setting for each impact topic is Rattlesnake and Anastasia islands, together with surrounding waters.

In this document, the definition of impact **intensity** varies by impact topic. Individual intensity definitions can be found in Table 16 below.

## CLIMATE CHANGE

The impacts of climate change on the National Monument are not expected to differ among the alternatives, and the lack of quantitative information about climate change effects adds to the difficulty of predicting how these impacts will be realized within the boundaries of Fort Matanzas National Monument. For example, dunes, dune vegetation, and nesting shorebirds and sea turtles may be impacted by sea level rise, and storm frequency and intensity may impact the Fort Matanzas structure itself as well as other cultural resources and visitor facilities.

The range of variability in the potential effects of climate change is large in comparison to what is known about the future under an altered climate regime in the National Monument in particular, even if larger-scale climatic patterns such as increases in air and water temperature, increased seasonal precipitation, and more frequent severe thunderstorms have been accurately predicted for the Atlantic Coast (Loehman and Anderson 2009). Therefore, the potential effects of this dynamic climate on National Monument resources were included in “Chapter 3, Affected Environment.” However, they will not be analyzed in detail in “Chapter 4, Environmental Consequences” with respect to each alternative because of the uncertainty and variability of outcomes, and because these impacts are not expected to differ among the alternatives.

Although many specific effects of climate change, and the rates of changes, are not known at the present time, additional data and climate change modeling will become available during the life of this *General Management Plan*. The best available scientific climate change data and modeling will be incorporated into specific management planning, decisions, or actions that may be taken under any of the alternatives described in this plan.

## IMPACT TOPICS

The following impact topics are addressed in this environmental impact statement:

### Cultural Resources

**Method for Assessing Effects on Cultural Resources.** This environmental impact assessment addresses the effects of the three plan alternatives on cultural resources – archeological sites, cultural landscapes, ethnographic resources, historic and prehistoric structures, and museum collections – that are proposed by actions in this General Management Plan. The method for assessing effects on cultural resources is designed to comply with the requirements of both NEPA and Section 106 of the NHPA, and with implementing regulations 40 CFR 1500 and 36 CFR 800, respectively, while considering the differences between NEPA and NHPA language and recognizing that compliance with one does not automatically mean compliance with the

other. Accordingly, the assessment of effects discusses the following characteristics of effects:

- Direct and indirect effects
- Duration of the effect (short-term, long-term)
- Context of the effect (site-specific, local, regional)
- Intensity of the effect (negligible, minor, moderate, major, both adverse and beneficial)
- Cumulative nature of the effect

In accordance with 36 CFR 800, the regulations implementing Section 106 of NHPA, effects on cultural resources are identified and evaluated by:

- Determining the area of potential effect (APE) [800.4(a)]
- Identifying historic properties in the APE that are listed in or eligible for listing in the National Register of Historic Places [800.4(b)-(c)]. The results are either:
  - *No historic properties affected* – either there are no historic properties present or there are historic properties present but the undertaking will have no effect upon them [800.4(d)(1)]; or
  - *Historic properties affected* – there are historic properties that may be affected by the undertaking [800.4(d)(2)].
- Applying the criteria of adverse effect to affected historic properties in the area of APE [800.5.(a)(1)], as follows:
  - An *adverse effect* is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner than would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or

association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative. [examples of adverse effect are provided in 800.5(a)(2)]

- A finding of *no adverse effect* is found when the undertaking's effects do not meet the criteria of 800.5(a)(1) [800.5.(b)].
- Considering ways to avoid, minimize, or mitigate or otherwise resolve adverse effects. The following are considered:
  - Consultation with the SHPO/THPO and others to develop and evaluate strategies to mitigate adverse effects [800.6].
  - CEQ regulations and Director's Order 12 call for the discussion of mitigating impacts and an analysis of how effective the mitigation would be in reducing the intensity of an impact, such as reducing it from moderate to minor intensity. Any resultant reduction in impact intensity is, however, an estimate of the effectiveness of mitigation under NEPA only.
  - Such reduction in impact intensity does not suggest that the level of effect as defined by Section 106 and 36 CFR 800 is similarly reduced. Cultural resources are non-renewable resources and adverse effects generally consume, diminish, or destroy the original historic materials or form, resulting in a loss of integrity that can never be recovered. Therefore, although actions determined to have an adverse effect under Section 106 and 36 CFR 800 may be mitigated, the effect remains adverse.

A Section 106 Summary is included in the impact analysis sections. The Section 106 summary

provides an assessment of effect of the undertaking (implementation of the alternative), on historic properties, based on the Section 106 regulations cited above.

Definitions for impact intensity for archeological resources, cultural landscapes, ethnographic resources, historic and prehistoric structures, and museum collections are provided in Table 16 below.

## **Natural Resources**

The natural resource impact topics analyzed in this document are *climate, soils and geologic resources, plant communities and vegetation, fish and wildlife, water quality, floodplains, wetlands, and soundscape*. Information about known resources was compiled and compared with the locations of proposed developments and other actions. The impact analysis was based on the knowledge and best professional judgment of planners and biologists; data from park records; and studies of similar actions and effects, when applicable. The planning team qualitatively evaluated the intensities of effects on all the natural resource impact topics.

Definitions of impact intensity as regards climate, soils/geologic resources, plant communities/vegetation, fish and wildlife, water quality, floodplains, wetlands, and soundscape are set forth in Table 16.

## **Visitor Use and Experience**

This impact analysis considers various aspects of visitor use and experience at Fort Matanzas National Monument, including the effects on: the range of recreational opportunities; opportunities for solitude and getting in touch with nature; visitor access including access for visitors with disabilities; opportunities for orientation, education, and interpretation; and visitor safety. The analysis is primarily qualitative rather than quantitative due to the conceptual nature of the alternatives.

Impacts on visitor use and experience were determined considering the best available information regarding visitor use and experience. Information on visitor use and visitor opinions was taken from data in park files. This

information was supplemented by data gathered during the planning process for this management plan, including opinions from National Monument visitors and neighbors and information provided by National Monument staff.

Definitions of impact intensity as regards visitor use and experience are set forth in Table 16

## **Socioeconomic Environment**

Fort Matanzas National Monument primarily operates within the local social and economic environment of St. Augustine and the surrounding communities and regionally within St. Johns County and the surrounding counties (Clay, Flagler, and Putnam). As a result, actions proposed in the alternatives could have a direct effect on some parts of the social and economic environment of the region. In the socioeconomic analysis, the duration of effects is considered to be either short-term (lasting less than one year), or long-term (lasting more than one year). Long-term effects could be considered as a permanent change in conditions.

## **Methods and Assumptions for Analyzing Impacts**

The NPS applied logic, experience, professional expertise, and professional judgment to analyze the impacts that each alternative would have on the socioeconomic environment. Economic data, historic visitor use data, expected future visitor use, and projected future expenditures at Fort Matanzas National Monument were all considered in identifying, discussing, and evaluating expected impacts.

Definition of impact intensity as regards the socioeconomic environment is set forth in Table 16.

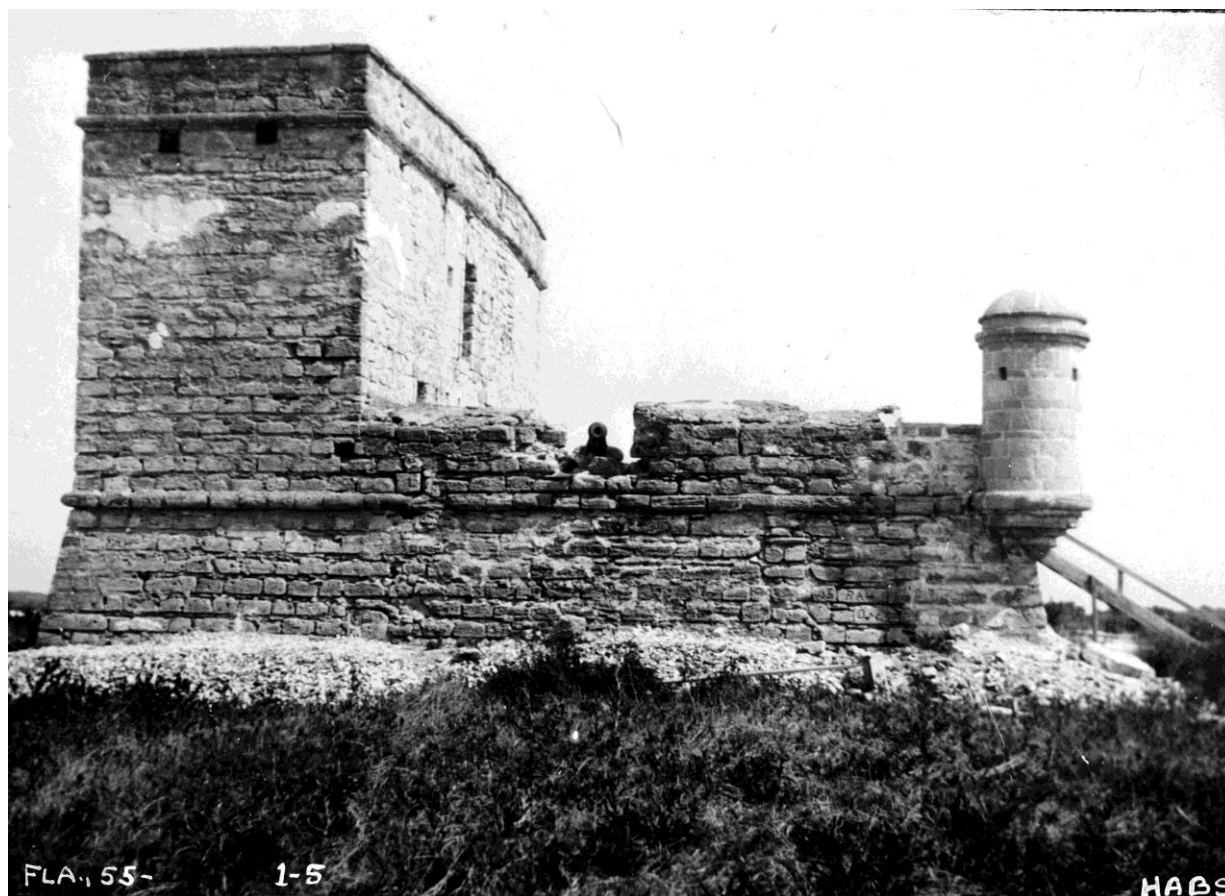
## **Transportation**

None of the alternatives addressed in this GMP would change transportation patterns on park roads to any significant degree. However, the continuation of a ban on beach driving as with Alternatives A and B could contribute to congestion in off-beach parking lots, illegal



1 parking, and generally a strain on circulation  
2 within the park.  
3  
4 Definition of impact intensity as regards  
5 transportation projects are set forth in Table 16.  
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8 **NPS Operations and Management**  
9  
10 The impacts of the alternatives on park operations  
11 and facilities were determined by examining the  
12 effects and changes on staffing, infrastructure,  
13 visitor facilities, and services.  
14  
15 Definition of impact intensity as regards NPS  
16 operations and management are set forth in Table  
17 16.  
18



**Fort Matanzas – West Face – 1934 Historic American Buildings Survey Photo**

**TABLE 16: IMPACT THRESHOLD DEFINITIONS**

Impact Topic	Negligible	Minor	Moderate	Major
<b>CULTURAL RESOURCES</b>				
<b>Archeological Resources</b>	The effect would be at the lowest levels of detection, barely measurable, with no perceptible consequences, either adverse or beneficial, to the resources. The Section 106 determination would be <i>no adverse effect</i> .	The effect is measurable or perceptible, but it is slight and affects a limited area of a site or group of sites. Slight alteration(s) to any of the characteristics that qualify the site(s) for inclusion in the National Register may diminish the integrity of the site(s). For purposes of Section 106, the determination of effect would be <i>adverse effect</i> .	The effect is measurable and perceptible. The effect changes one or more of the characteristics that qualify the site(s) for inclusion in the National Register and diminishes the integrity of the site(s), but does not jeopardize the National Register eligibility of the site(s). For purposes of Section 106, the determination of effect would be <i>adverse effect</i> .	The effect on the archeological site or group of sites is substantial, noticeable, and permanent. The action severely changes one or more characteristics that qualify the site(s) for inclusion in the National Register, diminishing the integrity of the site(s) to such an extent that it is no longer eligible for listing in the National Register. For purposes of Section 106, the determination of effect would be <i>adverse effect</i> .
<b>Museum Collections</b>	The effect would be at the lowest levels of detection, barely perceptible, with no measurable consequences, either adverse or beneficial, to the collections. The Section 106 determination would be <i>no adverse effect</i> .	The effect is measurable or perceptible, but it is slight and affects the integrity of a few items in the museum collection, but would not degrade the usefulness of the collection for future research and interpretation. Slight alteration to any of the characteristics of the collection that qualify its related resource for inclusion in the National Register may diminish the integrity of the resource and its related collection. For purposes of Section 106, the determination of effect would be <i>adverse effect</i> .	The effect is measurable and perceptible, and would affect the integrity of many items in the collection and diminish the usefulness of the collection for future research and interpretation. The effect changes one or more of the characteristics of the collection that qualify its related resource for inclusion in the National Register and diminishes the integrity of the resource and its related collection, but does not jeopardize the National Register eligibility of the resource related to the collection. For purposes of Section 106, the determination of effect would be <i>adverse effect</i> .	The effect on the collection is substantial, noticeable, and permanent, and would affect the integrity of most items in the collection and destroy the usefulness of the collection for future research and interpretation. The action severely changes one or more characteristics of the collection that qualify its related resource for inclusion in the National Register, diminishing the integrity of the resource and its related collection to such an extent that the resource is no longer eligible for listing in the National Register. For purposes of Section 106, the determination of effect would be <i>adverse effect</i> .
<b>Historic Structures</b>	The effect would be at the lowest levels of	The effect is measurable or	The effect is measurable and	The effect on the structure or group of

Impact Topic	Negligible	Minor	Moderate	Major
	detection, barely measurable, with no perceptible consequences, either adverse or beneficial, to the resources. The Section 106 determination would be <i>no adverse effect</i> .	perceptible, but it is slight and affects a limited area of a structure or group of structures. Slight alteration(s) to any of the characteristics that qualify the structure(s) for inclusion in the National Register may diminish the integrity of the structure(s). For purposes of Section 106, the determination of effect would be <i>adverse effect</i> .	perceptible. The effect changes one or more of the characteristics that qualify the structure(s) for inclusion in the National Register and diminishes the integrity of the structure(s), but does not jeopardize the National Register eligibility of the structure(s). For purposes of Section 106, the determination of effect would be <i>adverse effect</i> .	structures is substantial, noticeable, and permanent. The action severely changes one or more characteristics that qualify the structure(s) for inclusion in the National Register, diminishing the integrity of the structure(s) to such an extent that it is no longer eligible for listing in the national Register. For purposes of Section 106, the determination of effect would be <i>adverse effect</i> .
<b>Cultural Landscapes</b>	The effect would be at the lowest levels of detection, barely measurable, with no perceptible consequences, either adverse or beneficial, to the resources. The Section 106 determination would be <i>no adverse effect</i> .	The effect is measurable or perceptible, but it is slight and affects a limited area of the landscape or few of its patterns or features. Slight alteration(s) to any of the characteristics that qualify the landscape for inclusion in the National Register may diminish the integrity of the landscape. For purposes of Section 106, the determination of effect would be <i>adverse effect</i> .	The effect on the patterns and features of the landscape is measurable and perceptible. The effect changes one or more of the characteristics that qualify the landscape for inclusion in the National Register and diminishes the integrity of the landscape, but does not jeopardize the landscape's National Register eligibility. For purposes of Section 106, the determination of effect would be <i>adverse effect</i> .	The effect on the cultural landscape, its patterns and features, is substantial, noticeable, and permanent. The action severely changes one or more characteristics that qualify the landscape for inclusion in the National Register, diminishing the landscape's integrity to such an extent that it is no longer eligible for listing in the national Register. For purposes of Section 106, the determination of effect would be <i>adverse effect</i> .
<b>NATURAL RESOURCES</b>				
<b>Geology and Soils</b>	The action would result in a change in soils or a geologic feature but the change would be at the lowest level of detection, or not measurable.	The action would result in a detectable change, but the change would be slight and local. Soils or geologic resources might be slightly altered in a way that would be noticeable. There could be changes in a soil's profile in a relatively small area, but the change would not	The action would result in a clearly detectable change in soils or geologic processes – soils would be obviously altered, or a few features would show changes. There could be a loss or alteration of the topsoil in a small area, or the potential for erosion to remove small quantities of	The action would result in the permanent loss of an important soil or geologic resource or there would be highly noticeable, widespread changes in many soils or features. There would be a permanent loss or alteration of soils or geologic resources in a relatively large area, or there

Impact Topic	Negligible	Minor	Moderate	Major
		appreciably increase the potential for erosion.	additional soil would increase.	would be a strong likelihood for erosion to remove large quantities of additional soil as a result of the action.
<b>Plant Communities and Vegetation (including Exotic/Non-native Plants)</b>	The action might result in a change in vegetation, but the change would not be measurable or would be at the lowest level of detection.	The action might result in a detectable change, but the change would be slight. This could include changes in the abundance, distribution, or composition of individual species in a local area, but would not include changes that would affect the viability of vegetation communities. Changes to local ecological processes would be minimal.	The action would result in a clearly detectable change in a vegetation community and could have an appreciable effect. This could include changes in the abundance, distribution, or composition of nearby vegetation communities, but would not include changes that would affect the viability of plant populations in the park. Changes to local ecological processes would be of limited extent.	The action would be severely adverse to a vegetation community. The impacts would be substantial and highly noticeable, and they could result in widespread change. This could include changes in the abundance, distribution, or composition of a nearby vegetation community or plant populations in the park to the extent that the population would not be likely to recover. Key ecological processes would be altered, and "landscape-level" (regional) changes would be expected.
<b>Fish and Wildlife</b>	The action might result in a change, but the change would not be measurable or would be at the lowest level of detection.	The action might result in a detectable change, but the change would be slight and have a local effect on population. This could include changes in the abundance or distribution of individual in a local area, but not changes that would affect the viability of local populations. Changes to local ecological processes would be minimal.	The action would result in a clearly detectable change in a population and could have an appreciable effect. This could include changes in the abundance or distribution of local populations, but not changes that would affect the viability of regional populations. Changes to local ecological processes would be of limited extent.	The action would be severely adverse to a population. The effects would be substantial and highly noticeable, and they could result in widespread change and be permanent. This could include changes in the abundance of or distribution of a local or regional population to the extent that the population would not be likely to recover. Important ecological processes would be altered, and "landscape-level" (regional) changes would be expected.

Impact Topic	Negligible	Minor	Moderate	Major
<b>Water Quality</b>	The action would have no measurable or detectable effect on water quality or the timing and intensity of flows.	The action would have measurable effects on water quality or the timing or intensity of flows. Water quality effects could include increased or decreased loads of sediment, debris, chemical or toxic substances, or pathogenic organisms.	The action would have clearly detectable effects on water quality or the timing or intensity of surface water flows and potentially would affect organisms or natural ecological processes. The impact would be visible to visitors.	The action would have substantial effects on water quality or the timing or intensity of surface water flows and potentially would affect organisms or natural ecological processes. The impact would be easily visible to visitors.
<b>Floodplains</b>	Impacts would occur outside the regulatory floodplain as defined by the <i>Floodplain Management Guideline</i> (100-year or 500-year floodplain, depending on the type of action), or no measurable or perceptible change in natural hydrologic processes or aquatic habitat would occur.	Actions in the regulatory floodplain would potentially interfere with or improve natural hydrologic processes or aquatic habitat in a limited way or in a localized area. Levee maintenance that would protect development areas from flooding and road and trail construction that would alter natural sheet flow are example actions that would have minor adverse impacts.	Actions within the regulatory floodplain would interfere with or enhance river processes or aquatic habitat in a substantial way or in a large area. Examples of moderate adverse impacts would include modification of natural watercourses or canals in multiple locations or development of small-scale recreational facilities in the floodplain.	An action would greatly alter or improve a floodplain, natural hydrologic process, or aquatic habitat. Examples of major adverse impacts would include substantial modification of natural watercourses or canals in multiple locations or development of facilities in the floodplain.
<b>Wetlands</b>	No measurable or perceptible changes in wetland size, integrity, or continuity would occur.	The impact would be measurable or perceptible, but slight. A small change in size, integrity or continuity could occur due to indirect effects such as storm water related runoff. However, the overall viability of the resource would not be affected.	The impact would be sufficient to cause a measurable change in the size, integrity or continuity of the wetland or would result in a small, but permanent, loss or gain in wetland acreage.	The action would result in a measurable change in all three parameters (size, integrity, and continuity) or a permanent loss of large wetland areas. The impact would be substantial and highly noticeable.
<b>VISITOR USE AND EXPERIENCE</b>				
<b>Visitation of Historic Sites / Recreational Activities</b>	Visitors would likely be unaware of any effects associated with implementation of the alternative. There would be no noticeable changes in visitor use and/or experience or in any defined indicators of visitor satisfaction or behavior.	Changes in visitor use and/or experience would be slight but detectable, but would not appreciably diminish or enhance critical characteristics of the visitor experience. Visitor satisfaction would remain stable.	Few critical characteristics of the desired visitor experience would change and/or the number of participants engaging in an activity would be altered. The visitor would be aware of the effects associated with implementation of the	Multiple critical characteristics of the desired visitor experience would change and/or the number of participants engaging in an activity would be greatly reduced or increased. The visitor would be aware of the effects associated with

Impact Topic	Negligible	Minor	Moderate	Major
			alternative and would likely be able to express an opinion on the changes. Visitor satisfaction would begin to either decline or increase as a direct result of the effect.	implementation of the alternative and would likely express a strong opinion about the change. Visitor satisfaction would markedly decline or increase.
<b>SOCIOECONOMIC ENVIRONMENT</b>				
<b>Local Economy</b>	The effect would be below detectable levels or detectable only through direct means, with no discernable effect on the character of the social and economic environment.  Effects identified as neutral would be actions that do not produce any changes at all to the social and economic environment.	The effect would be detectable but limited in geographic extent or size of population affected and not expected to alter the character of the established social and economic environment.	The effect would be readily detectable across a broad geographic area or segment of the community and could have an appreciable effect on the social and economic environment.	The effect would be readily apparent, affect a large segment of the population across the entire community and region, and would have substantial effect on the social and economic environment.
<b>NPS OPERATIONS AND MANAGEMENT</b>				
<b>NPS Operations and Management</b>	The effect would be at or below the level of detection, and would not have an appreciable effect on park operations and management.	The effects would be detectable, but would be of a magnitude that would not have an appreciable effect on park operations and management.	The effects would result in a change in park operations and management in a manner readily apparent to staff and possibly to the public.	The effects would result in a substantial and widespread change in park operations and management in a manner readily apparent to staff and the public.
<b>Transportation</b>	The impact on transportation patterns would be barely perceptible, not measurable.	The impact on transportation patterns would be perceptible and measurable.	The impact on transportation patterns would be clearly detectable and could have an appreciable effect.	The impact on transportation patterns would have a substantial, highly noticeable influence on a regional scale.

### CUMULATIVE IMPACT ANALYSIS

A cumulative impact is described in the Council on Environmental Quality's regulation 1508.7 as follows:

*Cumulative impacts* are incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other action. Cumulative impacts can result from individually minor, but collectively

significant, actions taking place over a period of time.

To determine potential cumulative impacts, other projects within and surrounding Fort Matanzas National Monument were identified. Fort Matanzas is located in St. John's County, 14 miles south of the city of St. Augustine on the northeast Atlantic coast of Florida. It encompasses a total of 313 acres divided between the tip of Anastasia Island (138 acres) and the northern third of Rattlesnake Island (175 acres). Both Anastasia and Rattlesnake Islands are barrier islands that are separated from the Florida mainland. The

Matanzas River passes between the two islands and the Intracoastal Waterway (ICW) is located west of Rattlesnake Island. Fort Matanzas is located on Rattlesnake Island. This entire area is included in the project area of consideration for cumulative impacts. Projects were identified via discussions with park staff and representatives of county and city governments. Potential projects identified as cumulative actions included any past activities and any planning or development activity that was currently being implemented, or that would be implemented in the reasonably foreseeable future.

These past, current, and reasonably foreseeable actions are evaluated in conjunction with the impacts of each alternative to determine if they have any cumulative effects on a particular natural, cultural, or socioeconomic resource or visitor use. The qualitative evaluation of cumulative impacts was based on a general description of the project.

### **Past, Current, and Foreseeable Actions That Could Contribute to Cumulative Effects**

*Actions and Projects inside Fort Matanzas National Monument.* Exotic plant management program – The park does not currently have an exotic plant management plan, but does treat exotic plants as needed within the park.

River and Ocean Parking Lot Expansion – To help with traffic flow and to add additional spaces for handicap parking, the park redesigned and expanded existing parking lots within the existing footprints. There was some vegetation disturbance and loss; however, the cabbage palm trees were transplanted within the park.

Shoreline Stabilization and Boat Dock Replacement - The NPS replaced the Rattlesnake Island dock, stabilized and extended the current coquina seawall and bulkhead, and restored the transverse dikes on Anastasia Island to their original condition at Fort Matanzas.

Previous ORV use – Until January of 2010, the park allowed the use of ORV's on the beach. This recreational use was discontinued due to the acknowledgement that the park did not have the authority to allow this use and that driving off of

established park roads and parking lots is in violation of existing legal authorities, Presidential Executive Orders, Regulations, and NPS policy.

The NPS Inventory & Monitoring (I&M) program for the Southeast Coastal Network - The I&M program has a list of projects that they are working on for data collection at Fort Matanzas, including collecting data on coastal shoreline change, collecting data on salt marsh accretion or subsidence, collecting data on trends in plant communities, and analyze data to determine the status and trends of groundwater levels in existing groundwater wells and identify potential relationships between changes in groundwater dynamics and changes in landscape dynamics for the park.

The State of Florida is conducting vegetation classification and mapping of the park.

The University of North Florida is conducting research into the dispersion of invasive green mussels, *Perna viridis* and is using the river system around the park as a model for comparing the effects of nutrient loads for estuaries.

*Actions and Projects outside Fort Matanzas National Monument.* It can be anticipated that Fort Matanzas National Monument will continue to be affected by regional population growth, with attendant impacts from increased visitation, continued development of adjacent lands, increased storm water runoff, increased upstream discharges of air and water pollutants, and the like. Public access to the beach is a growing problem in the area with the increase in condominiums; the public access areas have been diminished. In addition, the following sites and projects outside of the monument could contribute to cumulative impacts:

Guana Tolomato Matanzas National Estuarine Research Reserve (GTMNERR) The GTMNERR is a federal/state partnership between the National Oceanic and Atmospheric Administration (NOAA) and the Florida Department of Environmental Protection designated in 1999. The reserve encompasses approximately 60,000 acres of salt marsh and mangrove tidal wetlands, oyster bars, estuarine lagoons, upland habitat and offshore seas in St. Johns and Flagler Counties. The NERR is a federal program to

facilitate natural and cultural resource protection through long-term ecological research, environmental monitoring, environmental education, and resource stewardship.

Fort Mose Historic State Park - Fort Mose is the earliest known free African American settlement in the United States, and one of Florida's most notable African American heritage sites. A part of Anastasia State Park, the 34-acre Fort Mose was designated a National Historic Landmark in 1994. Fort Mose was originally established as a part of the northern defense line for the Spanish colonial town of St. Augustine.

Anastasia State Park - Anastasia State Park, located just south of historic St. Augustine on Anastasia Island, has 4 miles of pristine beach, a tidal salt marsh, and maritime and upland hammock. The park provides camping, nature trails, beach, water sports, and an archaeological site where coquina rock was mined to create the nearby fortress, Castillo de San Marcos National Monument.

Visitor Center for Castillo de San Marcos - The proposed project site is located adjacent to state-owned historic properties that interpret the civilian life of St. Augustine during the Spanish Colonial period. The proposed visitor center is envisioned to orient visitors to the Castillo and forge a closer link between the military and civilian interpretive stories. The funding source for construction has yet to be determined.

Southeast Intracoastal Waterway Park – This park contains 114 acres and is located between Crescent Beach and Marineland on Anastasia Island. State Route A1A defines the eastern boundary of the site, and the Matanzas River defines the western boundary of the site. This is a new park, therefore some activities are ongoing and some are proposed for future use and development. The site amenities existing and planned include nature trails, boardwalks, scenic views of the Matanzas River and tributaries, scenic outlooks and interpretive displays. Specific projects implemented and planned include the addition of facilities such as hiking trails, nature interpretation, picnicking, fishing, restrooms/visitor center, entrance road/parking, security, historic restoration and a playground.

Matanzas State Forest – Matanzas State Forest is located in St. Johns County and was created from the Matanzas Marsh Northeast Florida Blueway Florida Forever Project. The forest protects the last remaining undisturbed salt marsh within the GuanaTolomato-Matanzas National Estuarine Research Reserve. Using sound ecosystem science, the Division of Forestry manages for multiple uses of forest resources which include timber management, wildlife management, natural resource-based recreation, and ecological restoration.

City of St. Augustine – Beginning in 1959 Florida has had an ongoing preservation effort to restore many colonial structures to their original appearance. Much of the city center of St. Augustine has been preserved or restored and retains the distinctive plan of a 16th century Spanish Colonial walled town. There are numerous remaining colonial buildings in the historic district which represent architecture from 1703 to 1898 (The Plaza de la Constitución, including the Government House, Trinity Episcopal Church (1825), and the Basilica Cathedral of St. Augustine). The City continues efforts to protect and restore its many cultural resources, including the rehabilitation of the National Register listed Bridge of Lions which connects the historic heart of St. Augustine to Anastasia Island over the Matanzas River.

Dredging near the Matanzas Inlet – Matanzas Inlet is a natural inlet that is strongly affected by a bridge abutment and revetment on the south shoreline, the dredging of the Intracoastal Waterway and stabilization of Rattlesnake Island. The Intracoastal Waterway, separated from the inlet by Rattlesnake Island, is dredged about every three years and the sand placed at Summer Haven, south of the inlet. (Source: Flagler-Volusia Beaches Florida Department of Environmental Protection, Bureau of Beaches and Coastal Systems, *Strategic Beach Management Plan for the Northeast Atlantic Coast Region*, May 2008 Subregions: Sea Islands, St. Johns Beaches, Flagler-Volusia Beaches).

St. Johns County Habitat Conservation Plan - In August 2006, St. Johns County received approval from the United States Fish and Wildlife Service (USFWS) for a 20 year Incidental Take Permit (ITP) and Habitat Conservation Plan (HCP) to



1 minimize the negative impacts, resulting from  
2 beach driving, to the natural beach/dune  
3 environment and the protected species that depend  
4 on its health. The take of any federally listed  
5 species of plants or animals is prohibited under  
6 the Endangered Species Act (ESA) of 1973, as  
7 amended, unless specifically authorized through a  
8 section 10 Incidental Take Permit (ITP). The ESA  
9 defines the term take as an action “to harass,  
10 harm, pursue, hunt, shoot, wound, kill, trap,  
11 capture, or collect, or to attempt to engage in any  
12 such conduct” (ESA section 3(18)). Harassment  
13 includes the disruption of normal behavioral  
14 patterns, like breeding, feeding, and sheltering (50  
15 CFR 222.102). Harming includes habitat  
16 modification or degradation (50 CFR 17.3). Thus,  
17 both direct and indirect impacts can constitute a  
18 take under the ESA.

19  
20 St. Johns County applied to the U.S. Fish and  
21 Wildlife Service (USFWS) for a 20-year section  
22 10 ITP that has authorized the incidental take of  
23 Anastasia Island beach mice and five species of  
24 sea turtles causally related to public vehicular  
25 beach access initiated under the County’s  
26 authorization. The Habitat Conservation Plan  
27 (HCP) is a mandatory element of the County’s  
28 ITP application. The HCP outlines programs and  
29 policies to allow for limited public beach driving  
30 to continue in a manner and extent that is  
31 compatible with protected species conservation  
32 within the HCP Plan Area. The HCP Plan Area  
33 includes all beaches along St. Johns County  
34 between the Duval County Line on the north and  
35 the Flagler County Line on the south, except for  
36 those beaches fronting Fort Matanzas National  
37 Monument. (Source: *Habitat Conservation Plan,*  
38 *a Plan for the Protection of Sea Turtles and*  
39 *Anastasia Island Beach Mice on the Beaches of*  
40 *St. Johns County, Florida*, Prepared for the U.S.  
41 Fish and Wildlife Service by St. Johns County  
42 Planning Division, St. Augustine Florida, August  
43 18, 2003).

44  
45 Beach Driving in St. Johns County – The history  
46 of driving on the public beaches of Florida and St.  
47 Johns County is summarized in Appendix F.  
48 Currently there are about 14 miles of beach in St.  
49 Johns County on which motorized vehicular  
50 driving is allowed. Beach gates are closed from  
51 7:30 pm to 8:00 am during sea turtle nesting  
52 season May 1 through October 31. Vehicles must  
53 be cleared from beaches to avoid receiving a

54 citation. There is a fee to park on beaches from  
55 March 1 through Labor Day. A special permit is  
56 required from St. Johns County Beach Services  
57 for 4X4 vehicle access. The beaches where  
58 driving is allowed include 9 miles of continuous  
59 beach from the A Street vehicle access point in St.  
60 Augustine Beach south to the Matanzas Ramp and  
61 parking area at the northern boundary of Fort  
62 Matanzas National Monument. It also includes  
63 the Porpoise Point area of Vilano Beach. Beach  
64 driving for 4X4 vehicles with permits is allowed  
65 from the Vilano Road Walkover at the north end  
66 of the Porpoise Point area for about 4.3 miles to a  
67 point about 1 mile north of the Usina Ramp  
68 Vehicle Access point. Driving on the beach south  
69 of the Matanzas Ramp within the boundary of the  
70 National Monument was banned effective January  
71 1, 2010 to bring the park into compliance with  
72 Presidential Executive Orders and Federal Law  
73 that had been in effect for many years. The ban  
74 affects approximately one mile of beach on the  
75 southern-most tip of Anastasia Island. (Source of  
76 beach driving access information: St. Johns  
77 County Department of Recreation & Parks Beach  
78 Access Map  
79 ([http://www.sjcfcl.us/BCC/Land\\_Management/GIS/](http://www.sjcfcl.us/BCC/Land_Management/GIS/Map_Mart/index.aspx#anchBeachAccessAll)  
80 [Map\\_Mart/index.aspx#anchBeachAccessAll](http://www.sjcfcl.us/BCC/Land_Management/GIS/Map_Mart/index.aspx#anchBeachAccessAll))  
81 Accessed 1-27-11.

## 82 83 **Comparison of Alternatives**

84  
85 Once impacts are identified, each alternative is  
86 compared to a baseline, represented by future  
87 conditions that would occur under the no-  
88 action/continue current management alternative  
89 (Alternative A). For the no-action alternative, the  
90 impact analysis compares future resource  
91 conditions in 2025 to existing conditions in 2010,  
92 assuming continuation of current management  
93 direction.

94  
95 The impact analysis for the action alternatives  
96 (Alternatives B and C) compares the action  
97 alternatives in the year 2025 to the no-action  
98 alternative in the year 2025. Said differently, the  
99 description of the impacts of the action alternatives  
100 sets forth the *difference between* implementing the  
101 no-action alternative and implementing the action  
102 alternatives. To understand a complete “picture” of  
103 the impacts of implementing any of the action  
104 alternatives, the reader must take into consideration  
105 the impacts that would occur under the no-action  
106 alternative.

## IMPACTS COMMON TO ALL ALTERNATIVES

**Public Health and Safety.** There are inherent safety risks with park use such as crossing park roads, parking on road shoulders, activity-based hazards associated with recreational (trail use, etc.) and beach use (sunburn, sea life, sea conditions, etc.), which would continue under all alternatives as a minor, adverse effect. In addition, under all alternatives there would be improvements to parking and circulation of visitors which would alleviate some of the congestion in the park and result in a minor, beneficial effect to public safety.

## IMPACTS OF IMPLEMENTING ALTERNATIVE A (No Action or Continue Current Management)

### Cultural Resources

**Archeological Resources.** Under Alternative A, impacts on archeological resources could result from ongoing visitor activities such as hiking, picnicking, cycling, and exploring. Some parking lot expansion and redesign has already occurred. There would be limited expansion of off-beach parking at the Matanzas ramp to compensate for the loss of on-beach parking. Trampling or disturbance related to construction could result in a loss of surface archeological materials, alteration of artifact distribution, and a reduction of contextual evidence. Surveys would be conducted prior to any ground disturbance. Previous archeological surveys of the park have been rather comprehensive and suggest that there is a low potential of finding additional sites on land, therefore, should the discovery of artifacts occur during construction, those impacts would be permanent, adverse, and of negligible to minor intensity. Archeological resources adjacent to or easily accessible from roads or trails could be vulnerable to looting and vandalism. Continued ranger patrol and emphasis on visitor education would minimize adverse effects and any adverse effects would be anticipated to range in intensity from negligible to minor and would be permanent.

**Cumulative Impacts.** Ongoing park management and visitor use activities have resulted in relatively little disturbance of archeological resources in the monument. However, there have been a number of archeological investigations for park projects such as for sewer and power lines, fort stabilization, nearby middens, boardwalk construction, and inventory and monitoring, where archeological material was discovered and preserved. In 2004, the climate-controlled storage building at TIMU was constructed which provides significant protection to artifacts, including a sophisticated security and fire protection system, and a back-up generator. Although these items were disturbed due to park activities, the uncovering of artifacts provides invaluable information on the history of the area and the use of the collection facility preserves these items. Archeological finds have also occurred nearby at Anastasia State Park and the GTMNERR, where rich history is preserved through research, education, and protection of those resources. When the permanent, negligible to minor adverse effects of implementing the actions contained in Alternative A are added to the minor effects of other past, present, and reasonably foreseeable actions as described above, there would be a permanent, negligible to minor, adverse cumulative impact on archeological resources. The actions contained in Alternative A would contribute a negligible increment to this cumulative impact.

**Conclusion.** Under Alternative A, impacts on archeological resources would be permanent, negligible to minor, and adverse. Cumulative impacts would be permanent, minor, and adverse. The actions contained in Alternative A would contribute a negligible increment to this cumulative impact.

**Section 106 Summary.** After applying the Advisory Council on Historic Preservation's criteria of adverse effects (36 CFR part 800.5, *Assessment of Adverse Effects*), the NPS has determined that the adverse impacts identified under the NEPA analysis above would not alter or diminish, directly or indirectly, any of the characteristics of the National Monument that qualify the property for inclusion in the National Register and therefore concludes that implementation of Alternative A would have no adverse effect on archeological resources.

**Museum Collections.** Under Alternative A, museum collections would be co-located with the collections of other parks in a multi-park facility located at Timucuan Ecological and Historic Preserve (TIMU) in Jacksonville, Florida, thereby eliminating their vulnerability to storm surge and wind damage. Impacts to museum collections would be permanent and beneficial.

**Cumulative Impacts.** In 2004, the climate-controlled storage building at TIMU was constructed which provides significant protection to artifacts, including a sophisticated security and fire protection system, and a back-up generator.

**Conclusion.** Under Alternative A, impacts to museum collections would be permanent and beneficial. Cumulative impacts would be permanent, minor, and adverse. The actions contained in Alternative A would contribute a negligible increment to this cumulative impact.

**Section 106 Summary.** After applying the Advisory Council on Historic Preservation's criteria of adverse effects (36 CFR part 800.5, *Assessment of Adverse Effects*), the NPS has determined that the adverse impacts identified under the NEPA analysis above would not alter or diminish, directly or indirectly, any of the characteristics of the National Monument that qualify the property for inclusion in the National Register and therefore concludes that implementation of Alternative A would have no adverse effect on museum collections.

**Historic Structures.** Under Alternative A, impacts to historic structures would continue to occur due to aging of the historic fabric, normal wear and tear, and vandalism. Use of the New Deal era structure as a visitor center would continue. Impacts for the most part would be permanent, adverse, and of negligible to minor intensity. Continued fort stabilization / cyclic maintenance activities would minimize damage to historic structures. Adverse effects would be anticipated to be short-term, and negligible to minor in intensity. No historic structures would be modified or removed under this alternative.

**Cumulative Impacts.** The continued preservation and restoration of structures within the neighboring parks and protected areas would

provide a long-term beneficial effect to the historic resources. The development of some sites could result in damage to historic structures and resources; particularly if the development of the site was not performed in compliance with the Secretary of Interior's Standards; however the neighboring parks and protected areas would likely implement similar protection measures to avoid adverse effects to resources when possible. Previous impacts to historic resources from deterioration and existing and future effects from use would equate to minor to moderate effects for those areas that are now protected. Accordingly, when the short-term, negligible to minor, and adverse effects of implementing Alternative A are added to the minor to moderate adverse effects of other past, present, and reasonably foreseeable actions as described above, there would remain a long-term, minor to moderate adverse cumulative impact to historic structures. Alternative A would contribute a negligible increment to this cumulative impact.

**Conclusion.** Under Alternative A, impacts to historic structures would be long-term, negligible to minor, and adverse, mostly due to normal wear and tear. Cumulative impacts would remain minor to moderate and adverse due to continued development in the local and regional area. The actions contained in Alternative A would constitute a negligible increment to this cumulative impact.

**Section 106 Summary.** After applying the Advisory Council on Historic Preservation's criteria of adverse effects (36 CFR part 800.5, *Assessment of Adverse Effects*), the NPS has determined that the adverse impacts identified under the NEPA analysis above would not alter or diminish, directly or indirectly, any of the characteristics of the National Monument that qualify the property for inclusion in the National Register and therefore concludes that implementation of Alternative A would have no adverse effect on historic structures.

**Cultural Landscapes.** To date no cultural landscape research has been completed at Fort Matanzas and no specific cultural landscapes have been identified or documented either on Rattlesnake Island or on Anastasia Island. The surrounding landscape of the visitor center (Anastasia Island) remains largely unchanged

1 since its initial development in 1937. Both the  
2 HQ/VC and its designed setting continue to  
3 reflect the intentions of the original development  
4 plans and retain their original character and  
5 integrity to a high degree. Following the approval  
6 of the GMP, the park would actively pursue  
7 funding for a cultural landscape report to help  
8 define potential cultural landscapes and identify  
9 measures to preserve them.

10  
11 **Cumulative Impacts.** Exotic plant removal  
12 through the park's exotic plant management  
13 program reduces the intrusion of non-native plants  
14 into the landscape. Projects where ground  
15 disturbance will occur may remove native and  
16 desirable species. The preparation of a cultural  
17 landscape report will provide the needed  
18 information and direction to the park to more  
19 actively manage the identified potential cultural  
20 landscape, particularly surrounding the visitor  
21 center and the Fort.

22  
23 **Conclusion.** Under Alternative A, there would be  
24 long-term, beneficial, and minor impacts on the  
25 potential cultural landscape due to a gradual  
26 reduction in non-native vegetation. Cumulative  
27 impacts would be long-term, minor to moderate,  
28 beneficial and adverse. Alternative A would  
29 contribute a minor increment to this cumulative  
30 impact.

31  
32 **Section 106 Summary.** After applying the  
33 Advisory Council on Historic Preservation's  
34 criteria of adverse effects (36 CFR part 800.5,  
35 *Assessment of Adverse Effects*), the NPS has  
36 determined that the adverse impacts identified  
37 under the NEPA analysis above would not alter or  
38 diminish, directly or indirectly, any of the  
39 characteristics of the National Monument that  
40 qualify the property for inclusion in the National  
41 Register and therefore concludes that  
42 implementation of Alternative A would have no  
43 adverse effect on potential cultural landscapes.

## 44 45 46 **Natural Resources**

47  
48 **Geology and Soils.** Under Alternative A,  
49 geological, physiographical, and soil resources  
50 would continue be subject to current management  
51 practices and policies. Impacts to these resources  
52 would be due to soil erosion from existing roads  
53 and trails, shoreline erosion from ongoing boating

54 activities in the river, soil compaction at trailheads  
55 and parking areas, and soil disturbance resulting  
56 from miscellaneous facility maintenance  
57 activities. Very few additional impacts to soils  
58 would result from clearing and construction for  
59 off-beach parking at the Matanzas ramp. Impacts  
60 to soils and geologic resources would be  
61 negligible to minor, local, short- and long-term,  
62 direct, and adverse.

63  
64 **Cumulative Impacts.** Permanent soil loss  
65 resulting from regional growth and development  
66 would adversely impact soils. The impact of these  
67 efforts on soils is expected to be long-term,  
68 moderate to major, and adverse. When the likely  
69 effects of implementing the actions contained in  
70 Alternative A are added to the effects of other  
71 past, present, and reasonably foreseeable actions  
72 as described above, there would be a long-term,  
73 moderate to major, adverse cumulative impact on  
74 soils. The actions contained in Alternative A  
75 would contribute a negligible increment to this  
76 cumulative impact.

77  
78 **Conclusion.** Under Alternative A, impacts to  
79 soils and geologic resources would be long-term,  
80 negligible to minor, adverse, and localized. There  
81 would be a long-term, moderate to major, adverse  
82 cumulative impact on soils and geologic  
83 resources. The actions contained in Alternative A  
84 would contribute a negligible increment to this  
85 cumulative impact.

86  
87 **Plant Communities and Vegetation.** There are  
88 six major community types represented at the  
89 park: open beach, foredune, backdune, maritime  
90 forest, salt marsh, and disturbed areas. Vegetation  
91 resources would continue to be subject to current  
92 management practices and policies. Impacts  
93 would be due primarily to removal of dead,  
94 diseased, or hazardous trees, as well as fuel  
95 removal in accordance with an approved fire  
96 management plan. Additional impacts would  
97 occur from the construction of off-beach parking,  
98 unauthorized parking at various locations, and  
99 possible continued spread of non-native  
100 vegetation, as well as from trampling and other  
101 visitor use of existing facilities. Collectively,  
102 impacts to plant communities and vegetation from  
103 implementing Alternative A would continue to be  
104 negligible to minor, adverse, long-term, and  
105 localized.

**Cumulative Impacts.** Regional growth and development is expected to result in an increase in the disturbance or destruction of plant communities and vegetation. The impact of these activities on vegetation and vegetative communities is expected to be long-term, moderate to major, and adverse. When the likely effects of implementing the actions contained in Alternative A are added to the effects of other past, present, and reasonably foreseeable actions as described above, there would be a long-term, moderate to major, and adverse cumulative impact on plant communities and vegetation. The actions contained in Alternative A would contribute a negligible increment to this cumulative impact.

**Conclusion.** Under Alternative A, impacts on plant communities and vegetation would be long-term, adverse, negligible to minor, and localized. There could be long-term, moderate to major, and adverse cumulative impacts to vegetation and plant communities in the surrounding region. The actions contained in Alternative A would contribute a negligible increment to this cumulative impact.

**Exotic/Non-native/Nuisance Plants.** Based on the 2004 study, *A Floristic Study of Fort Matanzas National Monument*, at the time there were 12 cultivated exotics and 46 introduced species of plants at the park. Five of those were listed as invasive exotics and four of those five (*Asparagus aethiopicus*, *Cinnamomum camphora*, *Nephrolepis cordifolia*, *Lantana camara*) are ranked as Category I (invasive exotics altering native plant communities by displacing native species, changing community structures/ecological functions, or hybridizing with natives), and one, *Pteris vittata*, as Category II (invasive exotics increasing in abundance/frequency but not yet altered Florida plant communities to the extent shown by Category I). Exotic plants can have severe effects on the integrity of native systems and habitats. Visitors can be agents for seed dispersal, increasing the threat to native plant communities. Under Alternative A, impacts to park resources from the growth and spread of exotic/nonnative/nuisance plants would continue to occur. Some limited removal of Category I and II exotics would take place as funding became available, but large scale restoration would not be

likely to take place in the near term. Non-native and nuisance vegetation would therefore continue to displace desirable native vegetation throughout the park, with corresponding impacts to natural processes and native wildlife. Impacts from exotic/nonnative/nuisance species would be long-term, adverse, and moderate.

**Cumulative Impacts.** Regional growth and development are expected to result in an increase in the conversion of natural lands to developed areas and thereby increase the amount of disturbed land available for colonization by exotic species. The impact of these activities on native plants and plant communities is expected to be long-term, moderate to major, and adverse. When the likely effects of implementing the actions contained in Alternative A are added to the effects of other past, present, and reasonably foreseeable actions as described above, there would be a long-term, moderate to major, adverse cumulative impact on native natural processes resulting from the loss of vegetative cover and the spread of exotic and nuisance plants. The actions contained in Alternative A would contribute a very small increment to this cumulative impact.

**Conclusion.** Under Alternative A, impacts from exotic plants and nonnative/nuisance vegetation would be long-term, adverse, and moderate. There could be a long-term, moderate to major, adverse cumulative impacts on native natural processes. The actions contained in Alternative A would contribute a very small increment to this cumulative impact.

**Fish and Wildlife.** Under Alternative A, minor adverse impacts to fish and wildlife would continue to occur, primarily from disturbance to soils and vegetation caused by ongoing visitor use and NPS management and monitoring activities. Some vegetation management efforts, including hazardous vegetation removal and limited management of exotic and nuisance vegetation, would improve habitat by decreasing competition from exotic and nuisance plants and increasing the availability of desirable native plants as food sources. Impacts from these management activities would be beneficial. Construction of additional parking could disturb habitat for various species of reptiles and amphibians, however they would likely move to other locations at the start of disturbance. If habitat of

protected species (Table 17) would be impacted by construction of parking areas, appropriate surveys would occur prior to construction. Overall, impacts on fish and wildlife from the continuation of current management (Alternative A) would be long-term, minor, and both beneficial and adverse.

**Threatened and Endangered Species.** The Anastasia Island beach mouse is found primarily in the undeveloped dune systems of Anastasia Island. They show the greatest preference for

open dunes sparsely vegetated with sea oats and other vegetation, of which Fort Matanzas contains 1.8 miles of continuous dune habitat. Least terns have formed one of the largest nesting colonies in Florida at Fort Matanzas. The colony is approximately seven acres in size, and extends from the toe of the dunes seaward in a relatively narrow hook shape to the inlet. There were approximately 500 least terns inhabiting the breeding grounds at Fort Matanzas in 2010. Piping plovers breed in northern latitudes; they are migratory and winter in southern climates, including Florida.



**Anastasia Island Beach Mouse**



**Piping Plover**

**TABLE 17. FEDERALLY PROTECTED THREATENED AND ENDANGERED SPECIES**

Scientific Name	Common Name	Federal Status	Federal Agency with Jurisdiction
<b>Birds</b>			
<i>Charadrius melodus</i>	Piping plover	Threatened	USFWS
<i>Aphelocoma coerulescens</i>	Florida Scrub-jay	Threatened	USFWS
<i>Mycteria americana</i>	Wood stork	Endangered	USFWS
<b>Mammals</b>			
<i>Peromyscus polionotus phasma</i>	Anastasia Island Beach Mouse	Endangered	USFWS
<i>Trichechus manatus latirostris</i>	West Indian (Florida) Manatee	Endangered/Critical Habitat Designated	USFWS
<b>Reptiles</b>			
<i>Caretta caretta</i>	Loggerhead Sea Turtle	Threatened	USFWS/NMFS
<i>Drymarchon corais couperi</i>	Eastern Indigo Snake	Threatened	USFWS
<i>Chelonia mydas</i>	Green sea turtle	Endangered	USFWS/NMFS
<i>Dermochelys coriacea</i>	Leatherback sea turtle	Endangered	USFWS/NMFS
<i>Eretmochelys imbricata</i>	Hawksbill sea turtle	Endangered	USFWS/NMFS
<i>Lepidochelys kempii</i>	Kemp's Ridley sea	Endangered	USFWS/NMFS

At Fort Matanzas itself, two piping plovers were observed in 1991. In 2001, one bird was seen in the park. In 2010, six piping plovers were documented during wintertime shoreline surveys conducted with the Audubon Society. A contributing factor to the increase in piping plovers *could* be the cessation of beach driving on January 1, 2010; however, five to ten years of data will be required to establish more reliable conclusions in this regard. Shorebird surveys at Fort Matanzas documented at least 17 red knots (*Tringa canutus*) in 2008 and 13 red knots in 2009. There have also been red knots observed in the park in 2010. The red knot is a Federal candidate for listing. The reddish egret forages on broad, barren sand or mud flats, usually in water less than six inches deep (Paul 1996).

Fort Matanzas National Monument consists of portions of two coastal islands, and both islands contain estuarine habitat (approximately 100 acres total) along the Matanzas River. Reddish egrets have been documented in the park in the past, but there is no current data on their presence or absence, and thus no information on their distribution and/or abundance at Fort Matanzas. The estuarine habitat at Fort Matanzas could potentially be utilized by wood storks for feeding and breeding, which amounts to approximately 100 acres. Wood storks have been documented in the park in the past, but there is no current data on their presence or absence, and thus no information on their distribution and/or abundance. There are no active nests in the park, but bald eagles are a

relatively common sight at Fort Matanzas, especially along the Matanzas River. Wilson's plovers have been documented feeding on the beach and nesting in the tern colony in small numbers.

Fort Matanzas contains upwards of 150 acres of potential gopher tortoise habitat. At Fort Matanzas, gopher tortoises are a relatively common site throughout the sand dune system. Eastern indigo snakes are found in dune meadows, and will sometimes co-opt a gopher tortoise burrow for their own use. Habitat destruction is primarily responsible for the decline of eastern indigo snake species throughout its range, although intentional killings and collection by people is not uncommon. It has been documented as being present at Fort Matanzas, but rarely seen.

In 2007, Fort Matanzas had one documented green turtle nest within the park. Fort Matanzas documented the following numbers of loggerhead turtle nests in the park during the previous five years: 2006-2 nests, 2007-2 nests, 2008-2 nests, 2009-0 nests, and 2010-4 nests. No Kemp's Ridley nests have ever been recorded in St. Johns County or Fort Matanzas. Fort Matanzas contains at least 50 acres of foredunes dominated by sea oat grasses.

The Endangered Species Act of 1973 prohibits harming any species listed by the U.S. Fish and Wildlife Service as being either threatened or

1 endangered. Harming such species includes not  
2 only directly injuring or killing them, but also  
3 disrupting the habitat on which they depend.  
4 Section 7 of the act also requires federal agencies  
5 to consult with the U.S. Fish and Wildlife Service  
6 when any activity permitted, funded, or conducted  
7 by that agency may affect a listed species or  
8 designated critical habitat or is likely to  
9 jeopardize proposed species or adversely modify  
10 proposed critical habitat.

11  
12 Some of the impacts to threatened and endangered  
13 species from Alternative A (the no-action or no-  
14 change from current management alternative)  
15 would be related to ongoing monitoring,  
16 treatment, and removal of exotic and invasive  
17 species. Exotic and invasive species can displace  
18 native species and alter the local ecology. When  
19 invasive exotic plant species dominate an area, the  
20 populations of native animals, particularly  
21 sensitive threatened and endangered species can  
22 decline. Therefore, the impacts of treatment and  
23 removal of exotic and invasive species would be  
24 primarily beneficial.

25  
26 The other impacts to threatened and endangered  
27 species would be due to the potential expansion of  
28 parking spaces at the Matanzas Ramp to partially  
29 compensate for the loss of on-beach parking.  
30 These impacts would consist of minor habitat loss  
31 and fragmentation.

32  
33 This section, along with the impacts analysis for  
34 the preferred alternative in Chapter 4 of this plan,  
35 fulfills the NPS's obligation under Section 7 to  
36 document federally listed species and impacts of  
37 the preferred alternative on these species via an  
38 embedded Biological Assessment. In consultation  
39 with the U. S. Fish and Wildlife Service Office in  
40 Jacksonville, Florida, the NPS has agreed, that  
41 once the NEPA public review process has been  
42 completed, we will send that office the Draft Final  
43 GMP/EIS with a cover letter that contains our  
44 effects determination on threatened and  
45 endangered species from the preparation and  
46 approval of the final GMP/EIS. The letter will  
47 also state how the NPS intends to address its  
48 Section 7 consultation obligations for on-going  
49 and future actions resulting from implementation  
50 of the selected management alternative.

51  
52 The park has implemented Endangered Species  
53 Protection Protocols, such as night closure of the

54 beach during sea turtle nesting season, daily  
55 surveys for sea turtle nests, a conservation zone  
56 for the protection of dune species (Anastasia  
57 Island beach mouse, eastern indigo snake), and  
58 regular patrols of the beach and dune system.  
59 These protocols provide necessary and adequate  
60 protection to the threatened and endangered  
61 species known to live and nest within the park.

62  
63 **Cumulative Impacts.** The loss of natural areas  
64 and the increasing urbanization of the region have  
65 led to a loss of wildlife habitat. Continued  
66 urbanization will fragment remaining natural  
67 areas and increase the risks and threats to wildlife,  
68 including automobile collisions, exotic species,  
69 and pathogens. Rainwater runoff and industrial  
70 discharges from urban areas may lead to a  
71 deterioration of water quality, with corresponding  
72 impacts on fish species. On the other hand, there  
73 are significant stands of protected lands in the  
74 area – Anastasia State Park, Guana Tolomato  
75 Matanzas National Estuarine Research Reserve  
76 (GTMNERR), Fort Mose State Park, and  
77 Matanzas State Forest. These areas provide  
78 contiguous habitat and protection for wildlife.  
79 Overall, the effects of the activities described  
80 above would likely be long-term, moderate, and  
81 adverse on fish and wildlife in the region. When  
82 the likely effects of implementing the actions  
83 contained in Alternative A are added to the effects  
84 of other past, present, and reasonably foreseeable  
85 actions as described above, there would be a long-  
86 term, moderate, adverse cumulative impact on  
87 fish and wildlife. The actions contained in  
88 Alternative A would contribute a very small  
89 increment to this cumulative impact.

90  
91 **Conclusion.** Under Alternative A, impacts on fish  
92 and wildlife from the continuation of current  
93 management would be long-term, minor, and both  
94 beneficial and adverse. Minor adverse impacts to  
95 soil, water quality, and vegetation would result in  
96 minor adverse effects on some fish and wildlife  
97 species. In contrast, the removal of exotics would  
98 result in minor beneficial effects on some wildlife  
99 species. This alternative would result in long-  
100 term, moderate, adverse cumulative impacts on  
101 fish and wildlife. The actions contained in  
102 Alternative A would contribute a very small  
103 increment to this cumulative impact.

104  
105 **Water Quality.** The Matanzas River in the  
106 vicinity of Fort Matanzas is classified by the state



as a Class II conditionally approved harvesting area. A conditionally approved area is defined as an area periodically closed to shellfish harvesting based on events that may increase pollution in the harvesting area, such as rainfall or increased river flow. Impacts would be due to sedimentation from existing roads and trails, as well as from oil and grease discharges at parking areas and road crossings over waterways. Additional impacts could occur from the use of herbicides to control nonnative vegetation and the addition of parking areas/impervious surfaces and associated runoff. To mitigate impacts from herbicide, NPS would use the appropriate class of herbicide for the vegetation setting in question, would strictly adhere to application directions, and would use appropriate best management practices. Alternative A would result in impacts to hydrology and water quality that are negligible to minor, long-term, indirect, and adverse.

**Cumulative Impacts.** Regional growth and development is expected to result in an increase in the conversion of natural lands to development and alter the hydrology of the general area. Water quality would be affected by inputs from urban and suburban development, including increases in organic compounds and chemical concentrations. Inputs would derive both from point sources (e.g., sewer outfalls) and non-point sources (e.g., storm water runoff). The impact on water quality within the watershed is expected to be adverse, but the intensity is unknown. When the likely effects of implementing the actions contained in Alternative A are added to the effects of other past, present, and reasonably foreseeable actions as described above, there would be a long-term, adverse cumulative impact on water quality in the watershed. The intensity of the impact is unknown. The actions contained in Alternative A would contribute a very small increment to this cumulative impact.

**Conclusion.** Under Alternative A, impacts on water quality would be long-term, negligible to minor, adverse, and localized. There would be a long-term, adverse cumulative impact on water quality in the watershed. The intensity of the impact is unknown. The actions contained in Alternative A would contribute a very small adverse increment to this cumulative impact.

## Floodplains

**Analysis.** Under Alternative A, existing structures in the 100-year floodplain would remain in place. Such structures include the historic fort, the visitor center, administrative structures, access roads and trails, visitor parking area, sidewalks and trails, etc. These structures would remain in place because they either constitute the resource that the monument was designated to protect, or they provide administrative or visitor services in the only practical locations available. Ground disturbance would result in floodplain impacts because all of Fort Matanzas is in a 100-year floodplain with a wave velocity hazard zone extending from the beach on Anastasia Island to AIA and following around Matanzas Inlet. AIA was built as a levee, but is not able to protect park areas because the park is surrounded by water on two sides. The south end of Anastasia is more vulnerable to flooding than the north end. There would be little, if any, impact to floodplains from additional parking construction. Overall impacts to floodplain functions would be negligible to minor.

**Cumulative Impacts.** Regional growth and development is expected to affect floodplains in the region. Floodplains could be physically altered, changing their capacity and altering the natural course of floodwater flow. Natural flood patterns would be adversely affected, but any adverse impacts on property and life should be mitigated through proper permitting. The impact of the floodplain modification and structures in floodplains could be long-term, minor to major (depending on the location and the nature of the impact, and adverse). When the likely effects of implementing the actions contained in Alternative A are added to the effects of other past, present, and reasonably foreseeable actions as described above, there would be a long-term, minor to major, adverse cumulative impact on floodplains. The actions contained in Alternative A would contribute a very small increment to this cumulative impact.

**Conclusion.** Impacts to floodplain functions under Alternative A would be local, direct and indirect, negligible to minor, and adverse. Impacts to infrastructure in the event of flooding would be short- and long-term, moderate to major, and adverse.

## Wetlands

**Analysis.** No filling of wetlands or other reduction in wetland function or values would occur as a result of Alternative A. Accordingly, there would be no new impacts to wetlands under this Alternative. Impacts on wetlands would be attributed primarily to the retention and maintenance of existing facilities, such as roads, grades, and trails. Impacts would include those from past vegetation loss and alteration of soils, which have resulted in permanent effects on wetland size and integrity that are long-term, minor, adverse, and localized. Indirect impacts, such as increased runoff and sedimentation, are and will continue to be long-term, minor, adverse, and localized. The NPS would continue to collect data on salt marsh accretion or subsiding and collecting trends in plant communities under the Inventory and Monitoring Program. In addition, the University of North Florida is studying nutrient loads in estuaries and has included the park boundary in the study. The information gained from studies such as these can be used in future park planning and protection of its resources. Collectively, impacts on wetlands under Alternative A would continue to be long-term, minor, adverse, beneficial, and localized.

**Cumulative Impacts.** Some reduction in wetland function or values inside the park could take place as a result of development occurring outside of the park boundary. Short-term impacts on wetlands would be adverse, moderate, and localized; long-term residual impacts would be adverse, minor, and localized. Regional growth and development is expected to result in an increase in the conversion of natural lands to development and alter the hydrology of the general area. Changes in sheet flow and water quality would affect the size, integrity, and function of wetlands in the watershed. The impact of these activities on wetlands would be long-term, moderate to major, and adverse. The adverse impacts would be at least partially offset by wetlands mitigation required by permitting agencies. Overall, the effects of the projects discussed above would be adverse on wetlands. When the likely effects of implementing the actions contained in Alternative A are added to the effects of other past, present, and reasonably foreseeable actions as described above, there

would be a long-term, minor to major, adverse cumulative impact on wetlands. The actions contained in Alternative A would not contribute any new impacts to this cumulative impact.

**Conclusion.** Under Alternative A, past impacts on wetlands would continue and would be long-term, minor, adverse, and localized. There would be a long-term, minor to major, adverse cumulative impact on wetlands. The actions contained in Alternative A would not contribute any new impacts to this cumulative impact.

## Soundscape / Natural Sounds

**Analysis.** Under Alternative A the park would continue to be managed as it is today, with no major change in management direction. The main focus would be to preserve and maintain the natural and cultural environment to the fullest extent possible according to applicable laws and policies, standards and guidelines. The park would strive to maintain an area for quiet, reflective experience on the west side of Anastasia Island and Rattlesnake Island and to allow enjoyment of the natural coastal beach environment on the east side of Highway A1A.

Visitor and park management produced sounds would remain at current levels from programs presented just outside of the visitor center, the ferry, exploration of the park and particularly the fort on their own or via interpretive programs, nature programs and bird walks presented on the park trails and/or beach, and re-enactors portraying Spanish soldiers with occasional musket demonstrations. Other than limited construction for parking lot expansion, the overall level of human-related noise in all areas of Fort Matanzas would not change from existing levels as a result of implementing the no-action alternative. Consequently, no new impacts would be anticipated and current levels would remain at a long-term, minor, adverse impact to natural quiet throughout those areas of the park where a natural quiet experience is desired. Limited construction would add a temporary, minor adverse impact to the soundscape during the time and in the immediate area of construction.

**Cumulative Impacts.** In general, the natural soundscape has been affected from activities on lands and waters adjacent to Fort Matanzas

boundaries such as recreational boaters, tourists, vehicles, and other human-caused sounds in small cities. These continuous sources of sound are not likely to change significantly or decrease from the current levels and result in a moderate adverse effect to natural sounds in the area. This alternative would contribute limited additional sounds to other past, present and reasonably foreseeable project sounds, so there would be negligible additional cumulative impacts on the natural soundscape resulting from implementing this alternative.

**Conclusion.** Alternative A would have a continued long-term, minor effect on the natural soundscape and a temporary, minor adverse effect to the soundscape during the time of construction of the expansion of the parking lot on the Matanzas Ramp.

## Visitor Use and Experience

**Analysis.** The no-action alternative would not change the current management of the park. Visitors would continue to have access to the historic fort and park staff would continue to offer a variety of interpretive programs. Opportunities for hiking, biking, and picnicking would continue to be available. Overall, access to historic resources and the availability of varied recreational opportunities would result in long-term, beneficial impacts to visitor use and experience. Beneficial impacts would result from increased interpretation of Fort Matanzas resources and utilization of the monument as a focal point for Anastasia Island. Current trails would remain with no further expansion. The space for orientation, interpretive programs, and displays would continue to be small and inadequate. Although park programs would continue, the conditions of the space would contribute a minor adverse effect to the visitor experience. The continued ban on the use of vehicles on the beach would be beneficial to those visitor's who desire a beach experience without the presence of vehicles. Park users who prefer to access the beach via their vehicle, including those who use their vehicle to transport fishing equipment, would consider the continued ban a moderate to major, adverse effect to their park experience.

**Cumulative Impacts.** Regional growth is expected to result in increased development in the vicinity of the monument. The use of vehicles on the beach is allowed just north of the park boundary, giving those that prefer the experience of having a vehicle on the beach an opportunity to do so. Combining the likely effects of implementing the no-action alternative with the effects of other past, present, and reasonably foreseeable actions described above, the cumulative impact on visitor use and experience in the park would be long-term, negligible to minor, and beneficial. The actions contained in the no-action alternative would not contribute an appreciable increment to this cumulative impact.

**Conclusion.** Under the no-action alternative, impacts on visitor use and experience would be long-term, major, adverse and long-term, major beneficial. The cumulative impact on visitor use and experience in the monument would be long-term, negligible to minor, and beneficial. The actions contained in the no-action alternative would not contribute an appreciable increment to this cumulative impact.

## Socioeconomic Environment

**Analysis.** Analysis of economic impacts under Alternative A was based on projected visitation to the monument as well as estimated one-time capital expenditures due to construction activities, if appropriate. Because Alternative A would maintain the status quo, visitor spending is assumed to remain more or less as it is today, with some slight increase due to anticipated population growth in the local area. The no-action alternative assumes the current management of the prohibition of driving off of established park roads and parking lots in accord with existing legal authorities, Presidential Executive Orders, Regulations and NPS policy. The continued prohibition may attract those visitors desiring the experience of a natural coastal beach environment without the presence of vehicles; however those visitors that previously came to the park to enjoy recreation with the use of their vehicle on the beach may choose to seek other areas for recreation or use the beaches north of the park boundary where vehicles are allowed on the beach.

**Local Economy Employment.** Because no large projects or hiring opportunities would be created under Alternative A, St. Johns County would not realize any changes or the changes would be negligible to its employment levels. As a result, long-term impacts resulting from Alternative A would be localized, negligible, and neutral. Furthermore, because there would only be small new capital expenditures in the monument, short-term employment impacts would also remain negligible. Consequently, short-term impacts of Alternative A would be localized, negligible, and neutral.

**Housing.** Alternative A would entail hiring one additional staff member; therefore, demand for residential housing would be noticed at the lowest levels. Short-term impacts resulting from Alternative A would be localized, negligible, and neutral.

**Sales.** Total sales of goods and services in St. Johns County, as a result of visitor spending, would remain more or less unchanged under the no-action alternative. Although prior to January 2010 allowance of ORV's on the beach may have contributed to visitation from fishermen who would expend funds in the area, the ban of ORV's appears to have developed an opportunity for those visitors who would like a beach experience without the presence of ORV's. The ban of ORV's from the beach has not removed the opportunity for beach driving, since beach driving is allowed immediately north of the park and can be accessed from the park's ramp. Because Alternative A does not increase or decrease sales revenue, long-term impacts would be localized, negligible, and neutral.

**Cumulative Impacts.** The action area for evaluating cumulative impacts on the socioeconomic environment is St. Johns County. The implementation of Alternative A does not have a strong likelihood of attracting new visitors and locals to the monument. Relatively steady visitation would translate into more or less unchanged spending in the area, resulting in neutral impacts for St. Johns County in terms of employment, housing, and taxable annual sales. A surge in retirees in coming years is expected to increase populations near the coast with concomitant impacts on construction, health care, and related industries. Combining the likely

effects of implementing the no-action alternative with the effects of other past, present, and reasonably foreseeable actions described above, the cumulative socioeconomic impacts would be localized, moderate, and beneficial. Alternative A would contribute a negligible increment to this cumulative impact.

**Conclusion.** Because there would be negligible changes to visitor spending or construction activity within St. Johns County under Alternative A, long-term and short-term impacts on the socioeconomic environment would be localized, negligible, and neutral. As a result, county employment, housing, and sales would remain constant. In terms of cumulative impacts, long-term and short-term impacts would be localized, moderate, and beneficial. Alternative A would contribute a negligible increment to this total cumulative effect.

**Park Operations.** Alternative A would maintain the status quo with respect to park staff and facilities. Current staff levels are generally adequate to protect existing park resources and serve visitors. Thus, the no action alternative would result in minor, long-term, neutral impacts on NPS operations.

**Cumulative Impacts.** Cooperation and coordination with neighboring agencies and entities regarding planning, land use, resources, and development proposals near the monument would continue to require varying amounts of staff time and result in minor to moderate, long-term, adverse impacts. Combined with other past, present, and reasonably foreseeable future impacts, the no action alternative would result in minor to moderate, long-term, neutral cumulative impacts on NPS operations.

**Conclusion.** Operation of existing visitor and administrative facilities in the monument would result in continuing minor, long-term, neutral impacts on NPS operations. The cumulative impacts of the no-action alternative and other reasonably foreseeable future actions required of park staff would be minor to moderate, long-term, and neutral.

## **Transportation**

**Analysis.** Impacts to transportation would result from any minor construction of parking and rerouting of traffic, if necessary. The resulting extra parking spaces would be beneficial to traffic circulation; however, parking would likely continue to be an issue for the park without a significant increase in parking opportunities. Overall, effects would be negligible to minor, long-term, and adverse.

**Cumulative Impacts.** Previous parking lot expansion has provided the opportunity for more parking since the absence of on-beach parking. Although vegetation was removed for the construction, the park was able to transplant some species. When added to the congestion of tourist traffic to and from St. Augustine, the additional congestion at the park would add a long-term, negligible to minor adverse effect.

**Conclusion.** Although the direct effects of construction and rerouting of traffic for any additional parking spaces would be noticeable, the result of additional parking could alleviate some congestion at the park in the immediate area. The effects of Alternative A would be long-term, negligible to minor adverse and long-term beneficial. The cumulative impacts of Alternative A and other reasonably foreseeable future and past actions regarding transportation would be long-term, minor, and adverse.

### **Effects on Energy Requirements and Conservation Potential**

Under Alternative A, other than parking lot expansion, no new facilities would be developed, thereby eliminating any new energy requirements for facility construction. Public use of the monument would remain at about its current level. The fuel and energy consumed by visitors traveling to the monument would not be likely to increase because visitation is not likely to increase substantially. Energy would still be consumed to maintain existing facilities and for resource management of the monument.

### **Unavoidable Adverse Impacts**

Unavoidable adverse impacts are defined as impacts that cannot be fully mitigated or avoided. Adverse impacts on natural and cultural resources and visitor experience could occur in some areas

throughout the monument, resulting from limited public use or NPS management activities.

### **Irretrievable or Irreversible Commitments of Resources**

Under Alternative A, the energy requirements identified above would not result in an irreversible commitment of resources. There would be no permanent effects on monument resources.

### **Relationship Between Local Short-Term Uses of the Environment and Maintenance or Enhancement of Long-Term Productivity**

In this alternative, most of the monument would be protected in a natural state and would maintain its long-term productivity. Only a small percentage of the monument would be maintained as developed areas.

## **IMPACTS OF IMPLEMENTING ALTERNATIVE B (NPS PREFERRED ALTERNATIVE)**

### **Cultural Resources**

**Archeological Resources.** Impacts to archeological resources would be the same as under Alternative A. Although this alternative does not call for any changes in the management of archeological resources, ground disturbance from expansion of parking may increase the likelihood of encountering artifacts. Archeological surveys of the park have been rather comprehensive and suggest that there is a low potential of finding additional sites on land, but if the discovery of artifacts were to occur during construction, those impacts would be permanent, adverse, and of negligible to minor intensity.

**Cumulative Impacts.** Same as Alternative A. The actions contained in Alternative B would contribute a negligible increment to this cumulative impact.

**Conclusion.** Under Alternative B, impacts on archeological resources would be permanent, negligible to minor, and adverse. Cumulative

impacts would be permanent, minor, and adverse. The actions contained in Alternative B would contribute a negligible increment to this cumulative impact.

**Section 106 Summary.** After applying the Advisory Council on Historic Preservation's criteria of adverse effects (36 CFR part 800.5, *Assessment of Adverse Effects*), the NPS has determined that the adverse impacts identified under the NEPA analysis above would not alter or diminish, directly or indirectly, any of the characteristics of the National Monument that qualify the property for inclusion in the National Register and therefore concludes that implementation of Alternative B would have no adverse effect on archeological resources.

**Museum Collections.** Impacts to museum collections would be the same as under Alternative A. This alternative does not call for any changes in the management of museum collections. Museum collections would be co-located with the collections of other parks in a multi-park facility located at Timucuan Ecological and Historic Preserve, thereby eliminating their vulnerability to storm surge and wind damage. Impacts to museum collections would be permanent and beneficial.

**Cumulative Impacts.** Same as Alternative A. The actions contained in Alternative B would contribute a negligible increment to this cumulative impact.

**Conclusion.** Under Alternative B, impacts to museum collections would be permanent and beneficial. Cumulative impacts would be permanent, minor, and adverse. The actions contained in Alternative B would contribute a negligible increment to this cumulative impact.

**Section 106 Summary.** After applying the Advisory Council on Historic Preservation's criteria of adverse effects (36 CFR part 800.5, *Assessment of Adverse Effects* the NPS has determined that the adverse impacts identified under the NEPA analysis above would not alter or diminish, directly or indirectly, any of the characteristics of the National Monument that qualify the property for inclusion in the National Register and therefore concludes that

implementation of Alternative B would have no adverse effect on museum collections.

**Historic Structures.** Fort stabilization work would continue. In addition, the park would explore additional adaptive reuse of the existing New Deal era visitor center while minimizing changes to the natural environment. Two buildings make up the HQ/VC: a multi-use building that serves as both the primary visitor contact point and a ranger residence, and a secondary utility building that now serves as a ranger office. Since their construction in 1936, the two buildings have been in continual use and have undergone only modest alterations. Adaptive re-use of existing structures on the west side of SR A1A (Johnson House and New Deal era structures) would help the park in meeting the needs of increased visitation and increased local population, especially school-age population.

Impacts on historic structures due to adaptive reuse and fort stabilization would be long-term and beneficial. However, continued use of the structures would result in negligible to minor adverse impacts.

**Cumulative Impacts.** Same as Alternative A. The actions contained in Alternative B would constitute a negligible increment to this cumulative impact.

**Conclusion.** Under Alternative B, impacts to historic structures would be long-term, negligible to minor, and adverse, mostly due to normal wear and tear. Cumulative impacts would be moderate to major and adverse due to continued development in the local and regional area. The actions contained in Alternative B would constitute a negligible increment to this cumulative impact.

**Section 106 Summary.** After applying the Advisory Council on Historic Preservation's criteria of adverse effects (36 CFR part 800.5, *Assessment of Adverse Effects*), the NPS has determined that the adverse impacts identified under the NEPA analysis above would not alter or diminish, directly or indirectly, any of the characteristics of the National Monument that qualify the property for inclusion in the National Register and therefore concludes that

implementation of Alternative B would have no adverse effect on historic structures.

**Potential Cultural Landscapes.** Under Alternative B, some of the existing adverse impacts to the landscape due to removal of native plants that might occur as a result of ground disturbing activities such as parking lot expansions would continue. The northern section of the Anastasia Island section of the National Monument, consisting of the visitor center, headquarters, park roads and driveways, parking areas, surrounding landscape, and the Matanzas Ramp (access road to the Atlantic Ocean beach) has not been designated a cultural landscape, however this potential cultural landscape remains largely unchanged since its initial development in 1937. Both the HQ/VC and its designed setting continue to reflect the intentions of the original development plans and retain their original character and integrity to a high degree. Impacts would be local, long-term, direct and indirect, moderate to major, and beneficial. Periodic removal of non-native vegetation would continue to occur under this alternative through periodic employment of NPS exotic plant management teams. Impacts on the potential cultural landscape would be long-term and beneficial. No facility development is planned; however, the expansion of parking (2 spaces for buses) would result in a long-term minor adverse effect to the potential cultural landscape features because of vegetation removal and the hardening of surfaces.

**Cumulative Impacts.** On balance impacts to the potential cultural landscape of the area surrounding the monument are long-term, minor to moderate, and both beneficial and adverse. When the long-term, moderate to major, and beneficial effects of implementing Alternative B are added to the minor to moderate effects of other past, present, and reasonably foreseeable actions as described above, there would be long-term, moderate, beneficial cumulative impacts to the potential cultural landscape. Alternative B would contribute a minor increment to this cumulative impact.

**Conclusion.** Under Alternative B, there would be long-term, beneficial, and minor to moderate impacts on the potential cultural landscape due to the removal of exotic vegetation and the maintenance of native vegetation surrounding the

historic structures of the park. Cumulative impacts would be long-term, moderate, and beneficial. Alternative B would contribute a minor increment to this cumulative impact.

**Section 106 Summary.** After applying the Advisory Council on Historic Preservation's criteria of adverse effects (36 CFR part 800.5, *Assessment of Adverse Effects*), the NPS has determined that the adverse impacts identified under the NEPA analysis above would not alter or diminish, directly or indirectly, any of the characteristics of the National Monument that qualify the property for inclusion in the National Register and therefore concludes that implementation of Alternative B would have no adverse effect on potential cultural landscapes.

## Natural Resources

**Geology and Soils.** Impacts would include those from Alternative A along with additional impacts from additional parking expansion, an expansion of interpretive programs for natural resources, and low impact recreational opportunities. Impacts would result from the compaction of soils, the disturbance to soils as a result of construction, and erosion due to construction and continued use. Some of these impacts would be partially mitigated by use of best management practices during clearing; therefore impacts to soils and geologic resources as defined in this document would be local, short- and long-term (during construction versus continued use), direct, moderate, and adverse. In addition, the NPS Inventory & Monitoring program has begun the process of collecting data on coastal shoreline change. The information obtained through this program will provide data that the park can use for future decision-making. This would result in a beneficial effect to park resources.

**Cumulative Impacts.** Permanent soil loss resulting from regional growth and development would adversely impact soils. The impact of these efforts on soils is expected to be long-term, moderate to major, and adverse. When the local, short- and long-term, direct, minor, and adverse effects of implementing the actions contained in Alternative B are added to the effects of other past, present, and reasonably foreseeable actions as described above, there would be a long-term,

1 moderate to major, adverse cumulative impact on  
2 soils. The actions contained in Alternative B  
3 would contribute a negligible increment to this  
4 cumulative impact.

5  
6 **Conclusion.** Under Alternative B, impacts to  
7 soils and geologic resources would be localized,  
8 long-term, minor, and adverse. There would be a  
9 long-term, moderate to major, adverse cumulative  
10 impact on soils and geologic resources. The  
11 actions contained in Alternative B would  
12 contribute a negligible increment to this  
13 cumulative impact.

14  
15 **Plant Communities and Vegetation.** There are  
16 six major community types represented at the  
17 park: open beach, foredune, backdune, maritime  
18 forest, salt marsh, and disturbed areas. Impacts  
19 would include those from Alternative A (continue  
20 current management) due primarily to removal of  
21 dead, diseased, or hazardous trees, as well as fuel  
22 removal in accordance with an approved fire  
23 management plan. Additional impacts would  
24 occur from the construction of off-beach parking,  
25 unauthorized parking at various locations, and  
26 possible continued spread of non-native  
27 vegetation, as well as from trampling and other  
28 visitor use of existing facilities. Collectively,  
29 impacts to plant communities and vegetation from  
30 implementing Alternative B would be negligible  
31 to minor, adverse, long-term, and localized.  
32 These impacts would be beneficial to the extent  
33 the removed vegetation consisted of non-native  
34 species. Overall impacts would be mitigated by  
35 new plantings outside the historic core of the  
36 park.

37  
38 **Cumulative Impacts.** The closure of the Fort  
39 Matanzas National Monument Atlantic Ocean  
40 Beach to motorized vehicles on January 1, 2010 is  
41 expected to result in long-term beneficial impacts  
42 to dune vegetation. Regional growth and  
43 development is expected to result in an increase in  
44 the conversion of natural lands to developed areas  
45 and thereby increase the amount of disturbed land  
46 available for colonization by exotic species. The  
47 cumulative impact of these activities on native  
48 plants and plant communities is expected to be  
49 long-term, moderate to major, and adverse. The  
50 NPS Inventory & Monitoring program has begun  
51 the process of collecting data on trends in plant  
52 communities and the State of Florida is  
53 conducting vegetation classification and mapping

54 of the park. The use of this information for future  
55 park planning would result in a beneficial effect to  
56 park resources.

57  
58 When the local, short- and long-term, direct,  
59 minor, and adverse effects of implementing the  
60 actions contained in Alternative B are added to  
61 the effects of other past, present, and reasonably  
62 foreseeable actions as described above, there  
63 would be a long-term, moderate to major, adverse  
64 cumulative impact on native natural processes  
65 resulting from the loss of vegetative cover and the  
66 spread of exotic plants. The actions contained in  
67 Alternative B would contribute a very small  
68 increment to this adverse cumulative impact, and  
69 could even offset it to a negligible degree to the  
70 extent it results in the removal of non-native  
71 vegetation.

72  
73 **Conclusion.** Under Alternative B, impacts on  
74 plant communities and vegetation would be local,  
75 short- and long-term, direct, minor, and adverse.  
76 There could be long-term, moderate to major and  
77 adverse cumulative impacts to vegetation and  
78 plant communities in the surrounding region. The  
79 actions contained in Alternative B would  
80 contribute a very small increment to this  
81 cumulative impact.

82  
83 **Exotic/Nonnative/Nuisance Plants.** Based on the  
84 2004 study, *A Floristic Study of Fort Matanzas*  
85 *National Monument*, at the time there were 12  
86 cultivated exotics and 46 introduced species of  
87 plants at the park. Five of those were listed as  
88 invasive exotics and four of those five (*Asparagus*  
89 *aethiopicus*, *Cinnamomum camphora*,  
90 *Nephrolepis cordifolia*, *Lantana camara*) are  
91 ranked as Category I (invasive exotics altering  
92 native plant communities by displacing native  
93 species, changing community  
94 structures/ecological functions, or hybridizing  
95 with natives), and one, *Pteris vittata*, as Category  
96 II (invasive exotics increasing in  
97 abundance/frequency but not yet altered Florida  
98 plant communities to the extent shown by  
99 Category I). Exotic plants can have severe effects  
100 on the integrity of native systems and habitats.  
101 Visitors can be agents for seed dispersal,  
102 increasing the threat to native plant communities.  
103 Under Alternative B, impacts to park resources  
104 from the growth and spread of  
105 exotic/nonnative/nuisance plants would continue  
106 to occur. Removal of Category I and II exotics



would take place as funding became available, but large scale restoration would not be likely to take place in the near term. Impacts from exotic/nonnative/nuisance species would be the same as those described under Alternative A, long-term, adverse, and moderate.

**Cumulative Impacts.** Regional growth and development is expected to result in an increase in the conversion of natural lands to developed areas and thereby increase the amount of disturbed land available for colonization by exotic and nuisance species. The impact of these activities on desirable native plants and plant communities is expected to be long-term, moderate to major, and adverse. When the long-term, moderate to major, and adverse effects of implementing the actions contained in Alternative B are added to the effects of other past, present, and reasonably foreseeable actions as described above, there would be a long-term, moderate to major, adverse cumulative impact on native natural processes resulting from the loss of vegetative cover and the spread of exotic plants.

**Conclusion.** Under Alternative B, impacts from exotic plants and nonnative/nuisance vegetation would be long-term, adverse, and moderate to major. There could be a long-term, moderate to major, adverse cumulative impacts on native natural processes. The actions contained in Alternative B would offset these cumulative adverse impacts to a negligible degree.

**Fish and Wildlife.** Impacts would include those from Alternative A (continue current management). However, this alternative could include larger areas of clearing for parking lot expansion, therefore resultant impacts and disturbance to wildlife would be larger in context. Adverse impacts to fish and wildlife would result from increased siltation in adjacent waterways and loss of habitat due to removal of plant cover. Impacts to wildlife would be beneficial to the extent that removed vegetation consisted of invasive, non-native species. On balance, impacts to fish and wildlife would be local, short- and long-term, direct and indirect, minor, and both beneficial and adverse.

**Threatened and Endangered Species (See Table 17 for T&E Species List).** The impacts would be the same as those described under

Alternative A, except there is a larger potential for habitat loss and fragmentation due to parking lot expansion and construction. The NPS will implement necessary mitigations and continue with current closures and management for the protection of these species. The park has implemented Endangered Species Protection Protocols (see Chapter 3), such as night closure of the beach during sea turtle nesting season, daily surveys for sea turtle nests, closure for least tern nesting, a conservation zone for the protection of dune species (Anastasia Island Beach Mouse, Eastern Indigo Snake, Gopher Tortoise), and regular patrols of the beach and dune system. These protocols provide necessary and adequate protection to the threatened and endangered species known to live and nest within the park.

**Cumulative Impacts.** Regional growth and development is expected to continue and result in an increase in the conversion of natural lands to development in the general area. The loss of natural areas and the increasing urbanization of the region have led to a loss of wildlife habitat. Continued urbanization will fragment remaining natural areas and increase the risks and threats to wildlife, including automobile collisions, exotic species, and pathogens. Rainwater runoff and industrial discharges from urban areas may lead to a deterioration of water quality, with corresponding impacts on fish species. Overall, the effects of the activities described above would likely be long-term, moderate, and adverse on fish and wildlife in the region. The University of North Florida is conducting research into the dispersion of invasive Green Mussels, *Perna viridis*. The information obtained from this research could ultimately lead to the extirpation of the species from the park.

When the local, short- and long-term, direct, minor, and both beneficial and adverse effects of implementing the actions contained in Alternative B are added to the effects of other past, present, and reasonably foreseeable actions as described above, there would be a long-term, moderate, adverse cumulative impact on fish and wildlife. The actions contained in Alternative B would contribute a very small increment to this cumulative impact.

**Conclusion.** Under Alternative B, impacts on fish and wildlife would be local, short- and long-

term, direct and indirect, minor, and both beneficial and adverse. Minor adverse impacts to soil, water quality, and vegetation would result in minor adverse effects on some fish and wildlife species. In contrast, the removal of exotics would result in minor beneficial effects on some wildlife species. This alternative would result in long-term, moderate, adverse cumulative impacts on fish and wildlife. The actions contained in Alternative B would contribute a very small increment to this cumulative impact.

**Water Quality.** Impacts would include those from Alternative A (continue current management). Additional impacts could occur from the use of herbicides to control nonnative vegetation and the addition of parking areas / impervious surfaces and associated runoff. To mitigate impacts from herbicide, NPS would use the appropriate class of herbicide for the vegetation setting in question, would strictly adhere to application directions, and would use appropriate best management practices. Alternative B would result in impacts to hydrology and water quality that are negligible to minor, long-term, indirect, and adverse. Overall, impacts to water quality would be local, short- and long-term, direct, minor, and adverse. These impacts would be partially mitigated by use of best management practices during clearing and site recovery.

**Cumulative Impacts.** Regional growth and development is expected to result in an increase in the conversion of natural lands to development and alter the hydrology of the general area. Water quality would be affected by inputs from urban and suburban development, including increases in organic compounds and chemical concentrations. Inputs would derive both from point sources (e.g., sewer outfalls) and non-point sources (e.g., storm water runoff). The impact on water quality within the watershed is expected to be adverse, but the intensity is unknown. When the local, short- and long-term, direct, minor, and adverse effects of implementing the actions contained in Alternative B are added to the effects of other past, present, and reasonably foreseeable actions as described above, there would be a long-term, adverse cumulative impact on water quality in the watershed. The intensity of the impact is unknown. The actions contained in Alternative B

would contribute a very small increment to this cumulative impact.

**Conclusion.** Under Alternative B, impacts on water quality would be local, short- and long-term, direct, minor, and adverse. There would be a long-term, adverse cumulative impact on water quality in the watershed. The intensity of the impact is unknown. The actions contained in Alternative B would contribute a very small adverse increment to this cumulative impact.

**Floodplains.** Impacts would be the same as those from Alternative A (continue current management). Paving for parking lot expansion would result in floodplain impacts because all of Fort Matanzas is in a 100-year floodplain with a wave velocity hazard zone extending from the beach on Anastasia Island to AIA and following around Matanzas Inlet. Depending on where additional parking construction would occur, the impacts to floodplains could be more or less. Overall, however impacts to floodplain functions would be negligible to minor.

**Cumulative Impacts.** Cumulative Impacts would be the same as under Alternative A. The actions contained in Alternative B would contribute a very small increment to this cumulative impact.

**Conclusion.** Impacts to floodplain functions under Alternative B would be local, direct and indirect, negligible to minor, and adverse. Impacts to infrastructure in the event of flooding would be short- and long-term, moderate to major, and adverse.

**Wetlands.** Impacts would be the same as those from Alternative A (continue current management). Collectively, impacts on wetlands under Alternative B would continue to be long-term, minor, adverse, beneficial, and localized.

**Cumulative Impacts.** Cumulative Impacts would be the same as under Alternative A.

**Conclusion.** Under Alternative B, past impacts on wetlands would continue and would be long-term, minor, adverse, and localized. There would be a long-term, minor to major, adverse cumulative impact on wetlands. The actions

contained in Alternative B would not contribute any new impacts to this cumulative impact.

## **Soundscape / Natural Sounds**

**Analysis.** Alternative B would have the same effects on the natural sounds of the park as Alternative A with the emphasis on the preservation of the park's natural and cultural environment. Alternative B includes measures to increase interpretation of the natural environment and to encourage low-impact recreational activities. Alternative B would also include actions to adaptively reuse the existing visitor center, but minimizing changes to the natural environment.

The limited construction for parking lot expansion, construction to adapt the visitor center, and potential increase in interpretive programs and recreational programs would contribute a minor and potential increase of human-related sounds to the natural and cultural environment of the park; however, the overall level of human-related noise in all areas of Fort Matanzas would not change appreciably from existing levels as a result of implementing Alternative B. Consequently, negligible impacts would be anticipated and current levels would remain at a long-term, minor, adverse impact to natural quiet throughout those areas of the park where a natural quiet experience is desired. Limited construction would add a temporary, adverse minor impact to the soundscape during the time and in the immediate area of construction.

**Cumulative Impacts.** Cumulative impacts would be the same as those discussed under Alternative A. The continuous sources of sound in the area are not likely to change significantly or decrease from the current levels and result in a moderate adverse effect to natural sounds in the area. This alternative would contribute limited additional sounds to other past, present and reasonably foreseeable project sounds, so there would be negligible additional cumulative impacts on the natural soundscape resulting from implementing this alternative.

**Conclusion.** Alternative B would have a continued long-term, minor effect on the natural soundscape and a temporary, minor adverse effect to the soundscape during the time of construction

of the expansion of the parking lots and construction within the visitor center.

## **Visitor Use and Experience**

**Analysis.** Impacts would generally be the same as Alternative A, except that implementation of Alternative B would remove vegetation to a greater extent for parking lot expansion. In addition, the park would explore adaptive reuse of the existing New Deal era visitor center, minimizing changes to the surrounding natural environment. No new recreational opportunities would be provided under this alternative. Overall, enhanced appreciation of the historic scene and continued availability of varied recreational opportunities would result in long-term, moderate, beneficial impacts to visitor use and experience.

**Cumulative Effects.** Regional growth is expected to result in increased development in the vicinity of the monument. The use of vehicles on the beach is allowed just north of the park boundary, giving those that prefer the experience of having a vehicle on the beach an opportunity to do so. Combining the long-term, moderate, beneficial effects of implementing Alternative B with the effects of other past, present, and reasonably foreseeable actions described above, the cumulative impact on visitor use and experience in the park would be long-term, moderate, and beneficial. The actions contained in Alternative B would contribute substantially to this cumulative impact.

**Conclusion.** Impacts to visitor use and experience would stem primarily from the creation of additional parking and the adaptive reuse of the visitor center and would be local, short- and long-term, moderate, and both beneficial and adverse, depending on a given visitor's individual preferences.

## **Socioeconomic Environment**

**Analysis.** Under Alternative B, visitation is unlikely to increase to any appreciable degree over current levels, but may increase some due to population growth. Impacts to the local economy from increased visitation-related spending would be long-term, direct and indirect, negligible, and beneficial.

**Local Economy Employment.** Three permanent jobs would be created under Alternative B for law enforcement, interpretation, and maintenance needs. As a result, St. Johns County would realize very minor measurable long-term changes to its employment levels and long-term impacts resulting from Alternative B would be localized, negligible to minor, and beneficial. In addition, there may be a realization of short-term hiring due to the construction of the expansion of the parking lots and the reuse of the visitor center; however, any impact would be negligible to minor. Short-term impacts of Alternative B would be localized, negligible to minor, and beneficial.

**Housing.** Because Alternative B would entail hiring additional permanent staff, demand for residential housing would likely increase subject to the new employees relocation. Short-term impacts resulting from Alternative B would be localized and beneficial.

**Sales.** Under Alternative B, total sales of goods and services in St. Johns County, as a result of visitor spending, would likely increase a small amount over the life of this plan. Because Alternative B would result in only a small increase in sales revenue, long-term impacts would be localized, negligible, and beneficial.

**Cumulative Impacts.** The action area for evaluating cumulative impacts on the socioeconomic environment is St. Johns County. The implementation of Alternative B does not have a strong likelihood of attracting significant numbers of new visitors and locals to the monument. Relatively steady to slightly increased visitation would translate into slightly increased spending in the area, resulting in negligible beneficial impacts for St. Johns County in terms of employment, housing, and taxable annual sales. Combining the likely effects of implementing Alternative B with the effects of other past, present, and reasonably foreseeable actions described above, the cumulative socioeconomic impacts would be localized, moderate, and beneficial. Alternative B would contribute a negligible increment to this cumulative impact.

**Conclusion.** Because there would be only slight increases to visitor spending or park expenditures within St. Johns County under Alternative B,

long-term and short-term impacts on the socioeconomic environment would be localized, negligible, and beneficial. As a result, county employment, housing, and sales would not be measurably affected. In terms of cumulative impacts, long-term and short-term impacts would be localized, moderate, and beneficial. Alternative B would contribute a negligible increment to this total cumulative effect.

## Park Operations

**Analysis.** The impacts of Alternative B to park operations would include those of Alternative A. No addition of permanent staff is necessary to implement Alternative B. Thus, Alternative B would result in minor, long-term, neutral impacts on NPS operations.

**Cumulative Impacts.** Same as Alternative A.

**Conclusion.** Operation of existing and projected visitor and administrative facilities in the monument would result in minor, long-term, neutral impacts on NPS operations. The cumulative impacts of Alternative B and other reasonably foreseeable future actions required of park staff would be minor to moderate, long-term, and neutral.

## Transportation

**Analysis.** The impacts would be essentially the same as Alternative A; however, the effect would likely be diminished if more extensive parking is accomplished through this alternative. The increase in parking would be beneficial to overall circulation through the park and to and from the beach. Effects would be minor, long-term, and beneficial.

**Cumulative Impacts.** Recent (2009) parking lot expansion has provided some mitigation for on-beach parking which was discontinued within the boundaries of Fort Matanzas National Monument in January 2010. Although vegetation was removed for the construction, the park was able to transplant some species. When added to the congestion of tourist traffic to and from St. Augustine, the additional congestion at the park would add a long-term, negligible to minor adverse effect.

**Conclusion.** The loss of on-beach parking that existed prior to January 2010 plus the crowded conditions of existing parking lots on the east and west sides of Highway A1A would be partially mitigated through the expansion of off-beach parking. Although the direct effects of construction would be noticeable, the result of additional parking would alleviate some congestion at the park. The effects of Alternative B would be long-term, minor, and beneficial. The cumulative impacts of Alternative B and other reasonably foreseeable future and past actions regarding transportation would be long-term, minor, and adverse.

### **Effects on Energy Requirements and Conservation Potential**

Under Alternative B, no new facilities would be developed other than parking lot expansion, thereby resulting in very slight new energy requirements for facility construction. Some fuel would be consumed in the course of restoring historic sites, but the amounts would be minor. Public use of the monument would remain at about its current level. The fuel and energy consumed by visitors traveling to the monument would not be likely to increase because visitation is not likely to increase substantially. Energy would still be consumed to maintain existing facilities and for resource management of the monument.

### **Unavoidable Adverse Impacts**

Unavoidable adverse impacts are defined as impacts that cannot be fully mitigated or avoided. Adverse impacts on natural and cultural resources and visitor experience could occur in some areas throughout the monument, resulting from limited public use or NPS management activities.

### **Irretrievable or Irreversible Commitments of Resources**

Under Alternative B, the energy requirements identified above would result in an irreversible commitment of resources. There would be no permanent effects on monument resources.

### **Relationship between Local Short-Term Uses of the Environment and Maintenance or Enhancement of Long-Term Productivity**

In this alternative, most of the monument would be protected in a natural state and would maintain its long-term productivity. Only a small percentage of the monument would be maintained as developed areas.

## **IMPACTS OF IMPLEMENTING ALTERNATIVE C**

### **Cultural Resources**

**Archeological Resources.** Alternative C does not call for any changes in the management of archeological resources; however, the unearthing of artifacts could occur during construction of new trails, the expansion of parking lots, the use of off-road vehicles, and visitor circulation patterns. Impacts to these resources would be mitigated by the use of surveys prior to ground disturbance when possible; therefore, impacts would be negligible to minor, adverse.

**Cumulative Impacts.** Same as Alternative A and B. The actions contained in Alternative C would contribute a negligible increment to this cumulative impact.

**Conclusion.** Under Alternative C, impacts on archeological resources would be permanent, negligible to minor, and adverse. Cumulative impacts would be permanent, minor to moderate, and adverse. The actions contained in Alternative C would contribute a negligible increment to this cumulative impact.

**Section 106 Summary.** After applying the Advisory Council on Historic Preservation's criteria of adverse effects (36 CFR part 800.5, *Assessment of Adverse Effects*), the NPS has determined that the adverse impacts identified under the NEPA analysis above would not alter or diminish, directly or indirectly, any of the characteristics of the National Monument that qualify the property for inclusion in the National Register and therefore concludes that

implementation of Alternative C would have no adverse effect on archeological resources.

**Museum Collections.** Impacts to museum collections would be the same as under Alternative A. This alternative does not call for any changes in the management of museum collections. Museum collections would be co-located with the collections of other parks in a multi-park facility located at Timucuan Ecological and Historic Preserve, thereby eliminating their vulnerability to storm surge and wind damage. Impacts to museum collections would be permanent and beneficial.

**Cumulative Impacts.** Same as Alternative A. The actions contained in Alternative C would contribute a negligible increment to this cumulative impact.

**Conclusion.** Under Alternative C, impacts to museum collections would be permanent and beneficial. Cumulative impacts would be permanent, minor, and adverse. The actions contained in Alternative C would contribute a negligible increment to this cumulative impact.

**Section 106 Summary.** After applying the Advisory Council on Historic Preservation's criteria of adverse effects (36 CFR part 800.5, *Assessment of Adverse Effects* the NPS has determined that the adverse impacts identified under the NEPA analysis above would not alter or diminish, directly or indirectly, any of the characteristics of the National Monument that qualify the property for inclusion in the National Register and therefore concludes that implementation of Alternative C would have no adverse effect on museum collections.

## Historic Structures

**Analysis.** Same as Alternative B plus the 1937 visitor center, park headquarters, and associated roads, driveways, and parking areas would be interpreted as a National Register Historic District as a result of the listing of these resources on the National Register on December 31, 2008. Impacts on historic structures due to adaptive reuse and fort stabilization and the emphasis on the site as a National Register Historic District would be long-term and beneficial. However, continued use of the structures would result in

negligible to minor adverse impacts from routine use.

**Cumulative Impacts.** Cumulative impacts would be the same as those with Alternative A and B. The continued preservation and restoration of structures within the neighboring parks and protected areas would provide a long-term beneficial effect to historic resources. The development of some sites could result in the damage of historic structures, particularly if the development of the site was not to the Secretary of Interiors Standards; however, the neighboring parks and protected areas would likely implement similar protection measures to avoid adverse effects to resources when possible. The actions contained in Alternative C would offset these cumulative adverse impacts to a negligible degree.

**Conclusion.** Under Alternative C, impacts to historic structures would be would for the most part be local, long-term, direct and indirect, moderate and beneficial. Some short-term, negligible to minor adverse impacts would occur, mostly due to normal wear and tear. Cumulative impacts would be minor to moderate and adverse due to continued development in the local and regional area. The beneficial actions contained in Alternative C would offset these cumulative adverse impacts to a negligible degree.

**Section 106 Summary.** After applying the Advisory Council on Historic Preservation's criteria of adverse effects (36 CFR part 800.5, *Assessment of Adverse Effects*), the NPS has determined that the adverse impacts identified under the NEPA analysis above would not alter or diminish, directly or indirectly, any of the characteristics of the National Monument that qualify the property for inclusion in the National Register and therefore concludes that implementation of Alternative C would have no adverse effect on historic structures.

## Potential Cultural Landscapes

**Analysis.** Following completion and approval of a Cultural Landscape Report for the park, the northern section of the Anastasia Island section of the National Monument, consisting of the visitor center, headquarters, park roads and driveways, parking areas, surrounding landscape, and the

Matanzas Ramp (access road to the Atlantic Ocean beach) would be restored or preserved as directed by data indicated in the report. Under Alternative C, some of the existing adverse impacts to the landscape due to removal of native plants that might occur as a result of ground disturbing activities such as parking lot expansions would continue. The area has not been designated a cultural landscape. However, the surrounding landscape of the visitor center remains largely unchanged since its initial development in 1937. Both the HQ/VC and its designed setting continue to reflect the intentions of the original development plans and retain their original character and integrity to a high degree. Impacts would be local, long-term, direct and indirect and beneficial. Periodic removal of non-native vegetation would continue to occur under this alternative through periodic employment of NPS exotic plant management teams. Impacts on the potential cultural landscape would be long-term and beneficial. No facility development is planned; however, the expansion of parking would result in a long-term minor to moderate adverse effect to landscape features because of vegetation removal and the hardening of surfaces.

**Cumulative Impacts.** Cumulative impacts would generally be the same as under Alternative B. The actions contained in Alternative C would contribute a moderate increment to this cumulative impact.

**Conclusion.** Under Alternative C, impacts would be local, long-term, direct and indirect and beneficial from the maintenance of the area as a potential cultural landscape and minor, adverse from the removal of vegetation and expansion of a parking lot. Cumulative impacts would be long-term, minor to moderate, and both beneficial and adverse. Alternative C would contribute a moderate, beneficial increment to this cumulative impact.

**Section 106 Summary.** After applying the Advisory Council on Historic Preservation's criteria of adverse effects (36 CFR part 800.5, *Assessment of Adverse Effects*), the NPS has determined that the adverse impacts identified under the NEPA analysis above would not alter or diminish, directly or indirectly, any of the characteristics of the National Monument that qualify the property for inclusion in the National

Register and therefore concludes that implementation of Alternative C would have no adverse effect on potential cultural landscapes.

## Natural Resources

**Geology and Soils.** Impacts would include those from Alternative B along with additional impacts from a notable increase in interpretive programs and an increase in visitor services such as new trails. Impacts to soils and geologic resources would be local, short-term, direct, moderate adverse and long-term, direct, moderate adverse. Impacts would result from the compaction of soils, the disturbance to soils as a result of construction, and erosion due to construction and continued use. Some of these impacts would be partially mitigated by use of best management practices during clearing. In addition, the NPS Inventory & Monitoring program has begun the process of collecting data on coastal shoreline change. The information obtained through this program will provide data that the park can use for future decision-making. This would result in a beneficial effect to park resources. Potential minimal expansion of the following parking areas: beach ramp, both parking areas at south end of Anastasia Island. Impacts resulting from the effort to obtain authority to allow ORV use on the beach, should such an effort be successful, would be determined as part of the ORV plan, environmental impact statement and related rulemaking process,

**Cumulative Impacts.** Cumulative impacts would generally be the same as under Alternative B. The actions contained in Alternative C would contribute a minor increment to this cumulative impact.

**Conclusion.** Impacts would include those discussed under Alternative B, together with additional erosion from construction and use of new trails, other recreational facilities. Impacts to soils would be local, short-term, moderate adverse and long-term, moderate adverse. There would be a long-term, moderate to major, adverse cumulative impact on soils and geologic resources. The actions contained in Alternative C would contribute a minor increment to this cumulative impact.

**Plant Communities and Vegetation.** There are six major community types represented at the park: open beach, foredune, backdune, maritime forest, salt marsh, and disturbed areas. Impacts would occur from the construction of off-beach parking, unauthorized parking at various locations, trail development, and possible continued spread of non-native vegetation, as well as from trampling and other visitor use of existing facilities. Collectively, impacts to plant communities and vegetation from implementing Alternative C would be minor to moderate, adverse, long-term, and localized. These impacts would be beneficial to the extent the removed vegetation consisted of non-native species. The use of ORV's can have a detrimental effect on vegetation if not managed (i.e. driving too close to the dune vegetation, not following authorized routes, not using the on-ramps and cutting through the dunes). Should the use of ORV's on the beach occur in the future, an in depth analysis on effects would occur as part of the required ORV plan, environmental impact statement, and related rulemaking process.

**Cumulative Impacts.** Cumulative impacts would generally be the same as under Alternative B. The actions contained in Alternative C would contribute a minor increment to this adverse cumulative impact.

**Conclusion.** Under Alternative C, impacts on plant communities and vegetation would be local, short-term, direct, minor to moderate adverse and long-term, direct, minor to moderate adverse. There could be long-term, moderate to major and adverse cumulative impacts to vegetation and plant communities in the surrounding region. The actions contained in Alternative C would contribute a minor increment to this cumulative impact.

**Exotic/Nonnative/Nuisance Plants.** Based on the 2004 study, *A Floristic Study of Fort Matanzas National Monument*, at the time there were 12 cultivated exotics and 46 introduced species of plants at the park. Five of those were listed as invasive exotics and four of those five (*Asparagus aethiopicus*, *Cinnamomum camphora*, *Nephrolepis cordifolia*, *Lantana camara*) are ranked as Category I (invasive exotics altering native plant communities by displacing native species, changing community

structures/ecological functions, or hybridizing with natives), and one, *Pteris vittata*, as Category II (invasive exotics increasing in abundance/frequency but not yet altered Florida plant communities to the extent shown by Category I). Exotic plants can have severe effects on the integrity of native systems and habitats. Visitors can be agents for seed dispersal, increasing the threat to native plant communities. Under Alternative C, impacts to park resources from the growth and spread of exotic/nonnative/nuisance plants would continue to occur. Some limited removal of exotics would take place as funding became available, but large scale restoration would not be likely to take place in the near term. Impacts from exotic/nonnative species would be the same as those described under Alternative A and B, long-term, adverse, and moderate.

**Cumulative Impacts.** Cumulative impacts would generally be the same as under Alternative B.

**Conclusion.** Under Alternative C, impacts from exotic plants and nonnative vegetation would be long-term, adverse, and moderate to major. There could be a long-term, moderate to major, adverse cumulative impacts on native natural processes. The actions for exotic plant control contained in Alternative C would offset these cumulative adverse impacts to a negligible degree.

**Fish and Wildlife.** Impacts would include those from Alternative B, however, this alternative could include larger areas of clearing for parking lot expansion and trail development. Adverse impacts to fish and wildlife would result from increased siltation in adjacent waterways and loss of habitat due to removal of plant cover. Impacts to wildlife would be beneficial to the extent that removed vegetation consisted of non-native species. On balance, impacts to fish and wildlife would be local, short- and long-term, direct and indirect, minor to moderate, and both beneficial and adverse. Impacts resulting from the effort to obtain authority to allow ORV use on the beach, should such an effort be successful, would be determined as part of the ORV plan, environmental impact statement and related rulemaking process,

**Threatened and Endangered Species (See Table 17 for T&E Species List).** The impacts



would include those described under Alternative A and B, except there is a larger potential for habitat loss and fragmentation due to parking lot expansion and construction and the potential for future regulations allowing beach driving. The NPS has prepared a Biological Assessment for the species presented in the analysis portion of Alternative A and submitted it to the USFWS. The NPS will implement necessary mitigations and continue with current closures and management for the protection of these species. The park has implemented Endangered Species Protection Protocols (see Chapter 3), such as night closure of the beach during sea turtle nesting season, daily surveys for sea turtle nests, closure for least tern nesting, a conservation zone for the protection of dune species (Anastasia Island Beach Mouse, Eastern Indigo Snake, Gopher Tortoise), and regular patrols of the beach and dune system. These protocols provide necessary and adequate protection to the threatened and endangered species known to live and nest within the park. Future consultation with the U.S. Fish and Wildlife Service would be necessary to determine necessary mitigation for the protection of these species if an ORV regulation is pursued and if it is approved.

While access to public lands improves the experience of ORV users, motorized access to sensitive environments, such as coastal ecosystems, can pose a threat to sensitive species that rely on the beach habitat. Loud engines in quiet environments can disturb wildlife and affect visitor enjoyment for those who use parks as places of peace and solace (Proescholdt 2007). If Alternative C were to be selected and an ORV regulation pursued and approved, a thorough environmental analysis would occur prior to implementation.

**Cumulative Impacts.** Cumulative impacts would generally be the same as under Alternative B. The actions contained in Alternative C could contribute a minor to moderate increment to this cumulative impact if an ORV regulation were to be approved.

**Conclusion.** Under Alternative C, impacts on fish and wildlife would be local, short- and long-term, direct and indirect, minor to moderate, and both beneficial and adverse. Impacts would result primarily from modifications of the natural

environment to accommodate new trails, expanded parking lots, and visitor circulation patterns. Minor adverse impacts to soil, water quality, and vegetation would result in minor adverse effects on some fish and wildlife species. In contrast, the removal of exotics would result in minor beneficial effects on some wildlife species. This alternative would result in long-term, moderate, adverse cumulative impacts on fish and wildlife. The actions contained in Alternative C would contribute a minor to moderate increment to this cumulative impact. If this alternative were selected, NPS would seek to promulgate an ORV regulation with an ORV plan and environmental impact statement that would fully assess the effects of re-established driving on the beach under a number of alternative scenarios.

**Water Quality.** Impacts would include those from Alternative A (continue current management). Additional impacts could occur from the use of herbicides to control nonnative vegetation and the addition of parking areas / impervious surfaces and associated runoff. To mitigate impacts from herbicides, the NPS would use the appropriate class of herbicide for the vegetation setting in question, would strictly adhere to application directions, and would use appropriate best management practices. Additional impacts could occur due to the use of ORVs when a regulation is pursued and if it is approved. Impacts resulting from the effort to obtain authority to allow ORV use on the beach, should such an effort be successful, would be determined as part of the ORV plan, environmental impact statement and related rulemaking process. Alternative C would result in impacts to hydrology and water quality that are negligible to minor, long-term, indirect, and adverse. Overall, impacts to water quality would be local, short- and long-term, direct, minor, and adverse. These impacts would be partially mitigated by use of best management practices during clearing and site recovery.

**Cumulative Impacts.** Cumulative impacts would generally be the same as under Alternative B. The actions contained in Alternative C would contribute a minor increment to this adverse cumulative impact.

**Conclusion.** Under Alternative C, impacts on water quality would be local, short- and long-

term, minor, and adverse. There would be a long-term, adverse cumulative impact on water quality in the watershed. The intensity of the impact is unknown. The actions contained in Alternative C would contribute a minor increment to this cumulative impact. Impacts would be partially mitigated by use of best management practices during clearing and site recovery.

**Floodplains.** Impacts would be the same as those from Alternative A and B (continue current management). Ground disturbance would result in floodplain impacts because all of Fort Matanzas is in a 100-year floodplain with a wave velocity hazard zone extending from the beach on Anastasia Island to AIA and following around Matanzas Inlet. Depending on where additional parking construction would occur, the impacts to floodplains could be more or less. Overall, however impacts to floodplain functions would be negligible to minor.

**Cumulative Impacts.** Cumulative Impacts would be the same as under Alternative A and B. The actions contained in Alternative C would contribute a very small increment to this cumulative impact.

**Conclusion.** Impacts to floodplain functions under Alternative C would be local, direct and indirect, negligible to minor, and adverse. Impacts to infrastructure in the event of flooding would be short- and long-term, moderate to major, and adverse.

**Wetlands.** Impacts would be the same as those from Alternative A and B. Collectively, impacts on wetlands under Alternative C would continue to be long-term, minor, adverse, beneficial, and localized.

**Cumulative Impacts.** Cumulative Impacts would be the same as under Alternative A and B.

**Conclusion.** Under Alternative C, past impacts on wetlands would continue and would be long-term, minor, adverse, and localized. There would be a long-term, minor to major, adverse cumulative impact on wetlands. The actions contained in Alternative C would not contribute any new impacts to this cumulative impact.

## **Soundscape / Natural Sounds**

Alternative C would have the same effects to the natural sounds of the park as Alternative B with the emphasis on the preservation of the park's cultural environment. Alternative C includes measures to increase interpretation of the cultural environment, expand parking lots, add new trails, and improve visitor circulation patterns. Alternative C would also include actions to seek the authority to permit use of ORVs on the Anastasia Island beach within the boundary of the National Monument. The construction of new trails, potential increase in interpretive programs, and potential changes to visitor circulation would contribute a noticeable increase in sounds related to human activity on the natural and cultural environment of the park. These sounds would include construction activities during the time and in the immediate area of construction that would result in temporary and minor adverse effects. Effects would be apparent to those visitors seeking natural quiet, the sounds of the ocean, and the wildlife of a coastal environment. The effects of sounds attributable to the re-establishment of beach driving at Fort Matanzas, should Alternative C be selected and should the effort to promulgate a special regulation be successful, would be analyzed in detail in the required ORV plan and environmental impact statement that would be part of the rulemaking process.

**Cumulative Impacts.** Cumulative impacts would be the same as those discussed under Alternative B. The continuous sources of sound in the area are not likely to change significantly or decrease from the current levels and result in a moderate adverse effect to natural sounds in the area. This alternative would contribute some additional human generated sounds to other past, present and reasonably foreseeable project sounds, so there would be minor additional cumulative impact on the natural soundscape resulting from implementing this alternative.

**Conclusion.** Alternative C would have a long-term, minor adverse effect from ongoing visitor and park management sources and a temporary, minor adverse effect to the soundscape during the time of construction related to the expansion of the parking lots and new trails. Effects on the soundscape from the potential re-establishment of beach driving following the promulgation of a

rulemaking, should it be successful, would be determined through the preparation of an ORV plan and environmental impact statement.

## **Visitor Use and Experience**

**Analysis.** Impacts would generally be the same as Alternative A and B, except that implementation of Alternative C would include enhanced opportunities throughout the park interpreting the park's evolution and development, the addition of new trails, changes in visitor circulation patterns, more interpretive emphasis on the cultural history than the natural history of the site, and removal of vegetation to a greater extent for parking lot expansion. In addition, the park would explore adaptive reuse of the existing New Deal era visitor center, minimizing changes to the surrounding natural environment. Visitors may have vehicle access to the beach if Alternative C is selected and if the promulgation of a special regulation to permit beach driving is successful. In addition, the environmental analysis in the required ORV Plan would have to demonstrate no impairment of resources. There would be a focus on the north end of the Anastasia Island (west of A1A) section of the park with the New Deal era visitor center and interpretation of the land donations and other activities of St. Augustine organizations to restore and commemorate the Fort for local residents and tourists.

Overall, enhanced appreciation of the historic scene, improved visitor circulation, new opportunities for trail walks, and continued availability of varied recreational opportunities would result in long-term, beneficial impacts to visitor use and experience.

Under Alternative C, personal vehicular access to the Fort Matanzas beach would initially continue to be prohibited in accord with current law, regulation, NPS policy and presidential executive orders. However, the NPS would attempt to promulgate a regulation to permit beach driving within limits and conditions that would be established as part of the rulemaking process. If the regulation were to be approved, the effects on visitor use and experience would be analyzed in detail in the ORV plan and environmental impact statement that would be required as part of the process.

**Cumulative Effects.** Regional growth is expected to result in increased development in the vicinity of the monument. The use of vehicles on the beach is allowed just north of the park boundary. Combining the long-term, beneficial effects and long-term minor to moderate adverse effects of implementing Alternative C with the effects of other past, present, and reasonably foreseeable actions described above, the cumulative impact on visitor use and experience in the park would be long-term, and beneficial or adverse, depending on the beach experience desired by the visitor. The actions contained in Alternative C would contribute minor to moderate impacts to cumulative effects.

**Conclusion.** Impacts to visitor use and experience would stem primarily from the creation of additional parking and the adaptive reuse of the visitor center. Impacts would be local, short- and long-term, moderate, and both beneficial and adverse, depending on a given visitor's individual preferences. The impacts on visitor use and experience due the potential re-establishment of beach driving would be determined in detail as part of the required rulemaking process which includes an ORV plan and an environmental impact statement.

## **Socioeconomic Environment**

**Analysis.** Under Alternative C, visitation is unlikely to increase to any appreciable degree over current levels, but may increase some due to population growth. Impacts to the local economy from increased visitation-related spending would be long-term, direct and indirect, negligible, and beneficial. There is a possibility of a loss of visitation, particularly from those who are currently enjoying the beach without the conflict of ORV use.

**Local Economy Employment.** Five new permanent jobs would be created under Alternative C for law enforcement, interpretation, and maintenance. As a result, St. Johns County would realize very minor measurable long-term changes to its employment levels and long-term impacts resulting from Alternative C would be localized and beneficial. In addition, there may be a realization of short-term hiring due to the construction resulting from the expansion of the

1 parking lots and the reuse of the visitor center;  
2 however, any impact would be negligible to  
3 minor. Short-term impacts of Alternative C  
4 would be localized and beneficial.

#### 6 **Housing.**

7 Because Alternative C would entail hiring  
8 additional permanent staff, demand for residential  
9 housing would likely increase subject to the new  
10 employees relocation. Short-term impacts  
11 resulting from Alternative B would be localized  
12 and beneficial.

13  
14 **Sales.** Under Alternative C, total sales of goods  
15 and services in St. Johns County, as a result of  
16 visitor spending, would likely increase a small  
17 amount over the life of this plan. Because  
18 Alternative B would result in only a small  
19 increase in sales revenue, long-term impacts  
20 would be localized, negligible, and beneficial.

21  
22 **Cumulative Impacts.** The action area for  
23 evaluating cumulative impacts on the  
24 socioeconomic environment is St. Johns County.  
25 The implementation of Alternative C does not  
26 have a strong likelihood of attracting significant  
27 numbers of new visitors and locals to the  
28 monument. Relatively steady to slightly  
29 increased visitation would translate into slightly  
30 increased spending in the area, resulting in  
31 negligible beneficial impacts for St. Johns County  
32 in terms of employment, housing, and taxable  
33 annual sales. Combining the likely effects of  
34 implementing Alternative C with the effects of  
35 other past, present, and reasonably foreseeable  
36 actions described above, the cumulative  
37 socioeconomic impacts would be localized,  
38 moderate, and beneficial. Alternative C would  
39 contribute a negligible increment to this  
40 cumulative impact.

41  
42 **Conclusion.** Because there would be only slight  
43 increases to visitor spending or park expenditures  
44 within St. Johns County under Alternative C,  
45 long-term and short-term impacts on the  
46 socioeconomic environment would be localized,  
47 negligible, and beneficial. As a result, county  
48 employment, housing, and sales would not be  
49 measurably affected. In terms of cumulative  
50 impacts, long-term and short-term impacts would  
51 be localized, moderate, and beneficial. Alternative  
52 C would contribute a negligible increment to this  
53 total cumulative effect.

## 54 55 56 **Park Operations**

57  
58 **Analysis.** The impacts of Alternative C on park  
59 operations would include those of Alternative A  
60 and B. Four new permanent employees would be  
61 necessary to implement Alternative C. This  
62 additional staffing would have minor to moderate  
63 beneficial effects on operations from the point of  
64 view of effectively achieving critical park work  
65 goals and objectives. The impacts on park  
66 operations resulting from re-established driving  
67 on the beach, should Alternative C be selected  
68 and should the effort to promulgate a regulation  
69 permitting beach driving be successful, would be  
70 determined in detail in the required ORV plan and  
71 environmental impact statement.

72  
73 **Cumulative Impacts.** Same as Alternative A and  
74 B.

75  
76 **Conclusion.** Operation of existing and projected  
77 visitor and administrative facilities in the  
78 monument would result in minor, long-term,  
79 neutral impacts on NPS operations. The  
80 cumulative impacts of Alternative C and other  
81 reasonably foreseeable future actions required of  
82 park staff would be minor to moderate, long-term,  
83 and neutral.

## 84 85 **Transportation**

86  
87 **Analysis.** The impacts would be the same as  
88 those listed under Alternative B; however, the  
89 effect to transportation could vary depending on  
90 the extent of the expanded parking. The increase  
91 in parking would be beneficial to overall  
92 circulation through the park and to and from the  
93 beach. The temporary effects from the rerouting  
94 of traffic during the construction of extended  
95 parking would be short-term, minor, and adverse.  
96 The effects from the reinstatement of ORV use on  
97 the beach, should Alternative C be selected,  
98 would be determined in the resulting ORV plan  
99 and environmental impact statement.

100  
101 **Cumulative Impacts.** Previous parking lot  
102 expansion has provided the opportunity for more  
103 parking since the absence of on-beach parking.  
104 Although vegetation was removed for the  
105 construction, the park was able to transplant some  
106 species. When added to the congestion of tourist

1 traffic to and from St. Augustine, the additional  
2 congestion at the park would continue to add a  
3 negligible to minor effect.

4  
5 **Conclusion.** Although the direct effects of  
6 construction would be noticeable due to rerouting  
7 of traffic, the effect would be temporary. The  
8 result of additional parking would alleviate some  
9 congestion at the park. The effects of Alternative  
10 C would be short-term, minor and long-term,  
11 beneficial. The cumulative impacts of Alternative  
12 C and other reasonably foreseeable future and  
13 past actions regarding transportation would be  
14 long-term, minor, and adverse.

### 15 16 **Effects on Energy Requirements and** 17 **Conservation Potential**

18  
19 Under Alternative C, no major new facilities  
20 would be developed, thereby eliminating any new  
21 long-term energy requirements for facility  
22 construction and maintenance. Some fuel would  
23 be consumed in the course of restoring historic  
24 sites and views and installing new recreational  
25 facilities, but the amounts would be minor. Public  
26 use of the monument would remain at about its  
27 current level. The fuel and energy consumed by  
28 visitors traveling to the monument would not be  
29 likely to increase because visitation is not likely to  
30 increase substantially. Energy would still be  
31 consumed to maintain existing facilities and for  
32 resource management of the monument.

### 34 **Unavoidable Adverse Impacts**

35  
36 Unavoidable adverse impacts are defined as  
37 impacts that cannot be fully mitigated or avoided.  
38 Adverse impacts on natural and cultural resources  
39 and visitor experience could occur in some areas  
40 throughout the monument, resulting from limited  
41 public use or NPS management activities.

### 42 43 **Irretrievable or Irreversible** 44 **Commitments of Resources**

45  
46 Under Alternative C, the energy requirements  
47 identified above would result in an irreversible  
48 commitment of resources. There would be no  
49 permanent effects on monument resources.

### 50 51 **Relationship between Local Short-** 52 **Term Uses of the Environment and** 53 **Maintenance or Enhancement of** 54 **Long-Term Productivity**

55  
56 In this alternative, most of the monument would  
57 be protected in a natural state and would maintain  
58 its long-term productivity. Only a small  
59 percentage of the monument would be maintained  
60 as developed areas.



**Fort Matanzas Visitor Center**

1  
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## CHAPTER 5 – CONSULTATION AND COORDINATION

### BRIEF HISTORY OF PUBLIC INVOLVEMENT

#### *The Draft General Management*

*Plan/Environmental Impact Statement* for Fort Matanzas National Monument represents thoughts of the NPS, park staff, state and local agencies and organizations, and the public. Consultation and coordination among the agencies and the public were vitally important throughout the planning process. Public meetings and newsletters were used to keep the public informed and involved in the planning process. A mailing list was compiled that consisted of members of governmental agencies, organizations, businesses, legislators, local governments, and interested citizens.

The consultation and civic engagement process began with a series of meetings with NPS subject matter experts and managers in the Southeast Regional Office in Atlanta in June and in St. Augustine in August of 2001. Meetings with various local agency and organization representatives were held in March and April 2002. Agencies and organizations consulted during this period included various tour bus companies, historical societies, State and Federal agencies, the Chamber of Commerce, the St. Augustine Visitors and Conventions Bureau, the St. Johns County Planning Department, the St. Augustine City Manager's office, the Historic District Manager, and the St. Augustine Police Chief, among others.

The planning team kept the public informed and involved in the planning process through public meetings and through the distribution of newsletters. Representatives of governmental agencies, organizations, businesses, legislators, local governments, and interested citizens contributed their names and addresses to a mailing list for the project. The NPS published a notice of intent to prepare the GMP/EIS in the Federal Register on March 28, 2002.

Newsletter No.1 described the planning effort and solicited public input. Public open house meetings were held at the St. Augustine Beach

City Hall on May 29 and 30, 2002. The NPS received comments in the meetings and in response to the first newsletter. At this point, due to an unforeseen shift in management priorities, the project was put on hold until August 2007 when another scoping newsletter restarted the project. Public meetings were held on September 18 and 19, 2007 at the University of Florida Whitney Laboratory for Marine Bioscience. In March 2008, a newsletter presenting the preliminary management alternatives was published and distributed. This newsletter was also posted on the National Monument's GMP/EIS website. On March 19 and 20, 2008, the planning team presented the preliminary alternatives to the public at the St. Augustine Beach City Hall to provide direct opportunities for the public to hear descriptions of and to comment on the proposed alternatives.

### CONSULTATIONS WITH OTHER AGENCIES AND ORGANIZATIONS

#### U.S. Fish and Wildlife Service, Section 7 Consultation

During the preparation of this document, NPS staff has coordinated formally with the U.S. Fish and Wildlife Service in Jacksonville, Florida throughout the planning process. The Fish and Wildlife Service also provided a list of federal threatened and endangered species that might be in or near the National Monument (Appendix E).

In accordance with the Endangered Species Act and relevant regulations at 50 *CFR* Part 402, the NPS determined that development and approval of the management plan is not likely to adversely affect any federally threatened or endangered species and requested written concurrence with that determination from the U.S. Fish and Wildlife Service.

The NPS will continue to consult with the Fish and Wildlife Service on future actions conducted under the framework described in this GMP/EIS.

## **Florida State Historic Preservation Officer, Section 106 Consultation**

Section 106 of the NHPA requires Federal agencies to take into account the effects of their undertakings on historic properties and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings (16 USC 470, et seq.). NPS staff has coordinated informally with the Florida SHPO's office.

Under the terms of the 2008 Programmatic Agreement among the NPS, the Advisory Council on Historic Preservation, and the NCSHPO, the NPS will consult with SHPOs on projects reviewed in accordance with the procedures set forth in Section IV of the Agreement.

## **Florida Department of Environmental Protection, Coastal Management Program**

The federal Coastal Zone Management Act (1972), through its Federal Consistency Provisions, gives the state the ability to require that all federal activities in the state be consistent with the state's Coastal Management Program. Florida's management program was approved by the National Oceanic and Atmospheric Administration in 1981. The Florida program consists of a network of 11 state agencies and 4 of the 5 water management districts to

- to ensure the wise use and protection of the state's water, cultural, historic, and biological resources,
- to minimize the state's vulnerability to coastal hazards,
- to ensure compliance with the state's growth management laws,
- to protect the state's transportation system,
- and to protect the state's proprietary interest as the owner of sovereign submerged lands.

The state's coastal zone includes the area encompassed by the state's 67 counties and its territorial seas. Therefore, federal actions that occur throughout the state are reviewed by the state for consistency with the Florida Coastal Management Program.

For direct federal activities, the state is required by the Coastal Zone Management Act to complete its review and provide the federal agency with its federal consistency concurrence within 60 days following the receipt of the required information. If the state does not provide the federal agency with its federal consistency concurrence or objection within 60 days, the federal action is presumed to be consistent with the Florida Coastal Management Program. Information for consistency determination is submitted to the Florida State Clearinghouse, which is in the Department of Environmental Protection. The state clearinghouse serves as the single point of contact for the receipt of documents that require federal consistency review. The State Clearinghouse is the only entity legally authorized to accept information and/or materials on behalf of the state that require federal consistency review.

The National Park Service has requested a consistency determination for the federal Coastal Zone Management Act via the Florida State Clearinghouse program of the Florida Department of Environmental Protection. The National Park Service proposes no development in any area of the National Monument that would conflict with the coastal management program.

## **Tribal Consultations**

In accordance with the various laws, policies, and Executive Orders concerning government-to-government consultation with and outreach to Federally recognized tribal governments, the Superintendent of Fort Matanzas National Monument sent letters to the tribal representatives inviting their participation in the park's GMP process. There was no interest in formal consultations regarding Fort Matanzas National Monument.



## **APPENDIX A: PREPARERS AND CONSULTANTS**

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Rich Sussman, Former Chief, Planning and Compliance Division, NPS, Southeast Region  
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Cynthia Walton, Historian, Southeast Region  
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Andrew Rich, Site Manager, Fort Matanzas NM  
Linda Chandler, Park Ranger, Interpretation, Fort Matanzas NM  
Jehu Walker, Facility Manager, Fort Matanzas NM

Consultants:  
Timothy Pinion, NPS, Southeast Region, Wildlife Biologist  
Brian Coffey, NPS, Southeast Region, Historian  
John Milio, U.S. Fish and Wildlife Service



## APPENDIX B: SERVICEWIDE MANDATES AND POLICIES

Laws and executive orders that apply to the management of Fort Matanzas National Monument are provided below.

### **FORT MATANZAS NATIONAL MONUMENT SPECIFIC LEGISLATION AND EXECUTIVE ORDERS**

Presidential Proclamation No. 1713 (43 Stat. 1968), October 15, 1924 – Established Fort Matanzas National Monument under the authority of the Antiquities Act of 1906 (16 USC 431–433).

Executive Order No. 6166 of June 10, 1933 and Executive Order No. 6228 of July 28, 1933 (5 U.S.C Secs. 124-132) transferred Fort Matanzas National Monument from the War Department to the National Park Service.

Presidential Proclamation No. 2114 (49 Stat. 3433), January 9, 1935 – Expanded the boundaries of the Fort Matanzas NM on Anastasia Island.

Presidential Proclamation No. 2773 (62 Stat. 1491), March 24, 1948 – Expanded the boundary of Fort Matanzas NM on Rattlesnake Island.

Public Law 106-524 (114 Stat. 2493), November 22, 2000 – Expanded the boundary of Fort Matanzas NM by 70 acres to include land previously donated during the 1960s.

Executive Order No. 11644 of February 8, 1972 established limits and prohibitions on the use of off-road vehicles on public (Federal) lands.

Executive Order No. 11989 of May 24, 1977 amended Executive Order No. 11644.

Executive Order No. 13186 of January 10, 2001 established responsibilities of Federal Agencies to protect migratory birds.

### **NATIONAL PARK SERVICE ENABLING LEGISLATION**

Act of August 25, 1916 (National Park Service Organic Act); Public Law 64-235; 16 United States Code Section 1 et seq. as amended

Reorganization Act of March 3, 1933; 47 Stat. 1517

General Authorities Act, October 7, 1976; Public Law 94-458; 90 Stat. 1939; 16 United States Code 1a-1 et seq.

Act amending the Act of October 2, 1968 (commonly called Redwoods Act), March 27, 1978; Public Law 95-250; 92 Stat. 163; 16 United States Code Subsection(s) 1a-1, 79a-q

National Parks and Recreation Act, November 10, 1978; Public Law 95-625; 92 Stat. 3467; 16 United States Code 1 et seq.

### **OTHER LAWS AFFECTING NPS OPERATIONS**

#### **Accessibility**

Architectural Barriers Act of 1968; Public Law 90-480; 82 Stat. 718; 42 United States Code 4151 et seq.

Rehabilitation Act of 1973; Public Law 93-112; 87 Stat. 357; 29 United States Code 701 et seq. as amended by the Rehabilitation Act Amendments of 1974; 88 Stat. 1617

#### **Cultural Resources**

American Indian Religious Freedom Act; Public Law 95-341; 92 Stat. 469; 42 United States Code 1996

Antiquities Act of 1906; Public Law 59-209; 34 Stat. 225; 16 United States Code 432; 43 CFR 3

Archeological and Historic Preservation Act of 1974; Public Law 93-291; 88 Stat. 174; 16 United States Code 469

Archeological Resources Protection Act of 1979; Public Law 96-95; 93 Stat. 712; 16 United States Code 470aa et seq.; 43 CFR 7, subparts A and B; 36 CFR 79

Indian Sacred Sites. Executive Order 13007. 3 CFR 196 (1997).

National Historic Preservation Act as amended; Public Law 89-665; 80 Stat. 915; 16 United States Code 470 et seq.; 36 CFR 18, 60, 61, 63, 65, 79, 800

Protection of Historic and Cultural Properties, Executive Order 11593; 36 CFR 60, 61, 63, 800; 44 Federal Register 6068

1 Public Buildings Cooperative Use Act of 1976;  
2 Public Law 94-541; 90 Stat. 2505; 42 United  
3 States Code 4151-4156

#### 4 **Natural Resources**

5 Analysis of Impacts on Prime or Unique  
6 Agricultural Lands in Implementing the National  
7 Environmental Policy Act; E.S. 80-3, 08/11/80,  
8 45 Federal Register 59109

9 Clean Air Act as amended; Public Law Chapter  
10 360; 69 Stat. 322; 42 United States Code 7401 et  
11 seq.

12 Coastal Zone Management Act of 1972 as  
13 amended; Public Law 92-583; 86 Stat. 1280; 16  
14 United States Code 1451 et seq.

15 Endangered Species Act of 1973, as amended;  
16 Public Law 93-205; 87 Stat. 884; 16 United States  
17 Code 1531 et seq.

18 Executive Order 11988: Floodplain Management;  
19 42 Federal Register 26951; 3 CFR 121 (Supp 177)

20 Executive Order 11990: Protection of Wetlands;  
21 42 Federal Register 26961; 3 CFR 121 (Supp 177)

22 Executive Order 11991: Protection and  
23 Enhancement of Environmental Quality

24 Executive Order 12898: Environmental Justice

25 Federal Caves Resource Protection Act of 1988

26 Federal Insecticide, Fungicide, and Rodenticide  
27 Act; Public Law 92-516; 86 Stat. 973; 7 United  
28 States Code 136 et seq.

29 Federal Water Pollution Control Act (commonly  
30 referred to as Clean Water Act); Public Law 92-  
31 500; 33 United States Code 1251 et seq. as  
32 amended by the Clean Water Act; Public Law 95-  
33 217

34 Fish and Wildlife Coordination Act of 1958 as  
35 amended; Public Law 85-624; 72 Stat. 563; 16  
36 United States Code 661 et seq.

37 Migratory Bird Conservation Act; Public Law  
38 Chapter 257; 45 Stat. 1222; 16 United States  
39 Code 715 et seq.

40 Migratory Bird Treaty Act of 1918; Public Law  
41 186; 40 Stat. 755

42 Magnuson-Stevens Fishery Conservation and  
43 Management Act

44 National Environmental Policy Act of 1969;  
45 Public Law 91-190; 83 Stat. 852; 42 United States  
46 Code 4321 et seq.

47 National Park System Final Procedures for  
48 Implementing Executive Order. 11988 and 11990  
49 (45 Federal Register 35916 as revised by 47  
50 Federal Register 36718)

51 Protection and Enhancement of Environmental  
52 Quality; Executive Order 11514 as amended,  
53 1970; Executive Order 11991; 35 Federal Register  
54 4247; 1977; 42 Federal Register 26967)

55 Resource Conservation and Recovery Act; Public  
56 Law 94-580; 30 Stat. 1148; 42 United States Code  
57 6901 et seq.

58 Rivers and Harbors Act of 1899; 33 United States  
59 Code Chapter 425, as amended by Public Law 97-  
60 332, October 15, 1982 and Public Law 97-449; 33  
61 United States Code 401-403

62 Water Resources Planning Act of 1965 (Public  
63 Law 89-80; 42 United States Code 1962 et seq.)  
64 and Water Resource Council's Principles and  
65 Standards; 44 Federal Register 723977

66 Watershed Protection and Flood Prevention Act;  
67 Public Law 92-419; 68 Stat. 666; 16 United States  
68 Code 100186

#### 69 **Other**

70 Administrative Procedures Act; 5 United States  
71 Code 551-559, 701-706

72 Concessions Policy Act of 1965; Public Law 89-  
73 249; 79 Stat. 969; 16 United States Code 20 et  
74 seq.

75 Department of Transportation Act of 1966; Public  
76 Law 89-670; 80 Stat. 931; 49 United States Code  
77 303

78 Energy Supply and Environmental Coordination  
79 Act of 1974

80 Executive Order 12003: Energy Policy and  
81 Conservation; 3 CFR 134 (Supp 1977); 42 United  
82 States Code 2601

83 Executive Order 12088: Federal Compliance with  
84 Pollution Control Standards

85 Executive Order 12372: Intergovernmental  
86 Review of Federal Programs; 47 Federal Register  
87 30959

88 Farmland Protection Policy Act PL-97-98

1 Forest and Rangeland Renewable Resources  
2 Planning Act; Public Law 95-307; 92 Stat. 353;  
3 16 United States Code 1600 et seq.  
4 Freedom of Information Act; Public Law 93-502;  
5 5 United States Code 552 et seq.  
6 Intergovernmental Cooperation Act of 1968;  
7 Public Law 90-577; 40 United States Code 531-  
8 535 and 31 United States Code 6501-6508  
9 Intergovernmental Coordination Act of 1969; 42  
10 United States Code 4101, 4231, 4233  
11 Noise Control Act of 1972 as amended; Public  
12 Law 92-574; 42 United States Code 4901 et seq.  
13 Outdoor Recreation Coordination Act of 1963;  
14 Public Law 88-29; 77 Stat. 49  
15 Payment in Lieu of Taxes Act; Public Law 94-  
16 565; 90 Stat. 2662; 31 United States Code 6901 et  
17 seq.  
18 Surface Transportation Assistance Act of 1982;  
19 96 Stat. 2097; 23 United States Code 101; and  
20 many others  
21 Wildfire Disaster Recovery Act; Public Law 101-  
22 286

## 23 **Management Policies 2006**

24 This is an update to the *2001 Management*  
25 *Policies*. The policies are derived from the laws  
26 that have been enacted to establish and govern the  
27 NPS and the National Park System. This  
28 document serves as the basic, Servicewide policy  
29 manual used by park superintendents and other  
30 NPS managers to guide their decision-making.  
31 The manual prescribes policies which enable the  
32 NPS to preserve park resources and values  
33 unimpaired for the enjoyment of future  
34 generations, as required by law. The policies have  
35 been updated to keep pace with new laws that  
36 have been enacted, changes in technology and  
37 American demographics, and new understandings  
38 of the kinds of actions that are required to best  
39 protect the natural and cultural resources of the  
40 parks. The policies stress the importance of: using  
41 the parks for educational purposes; demonstrating  
42 environmental leadership in the parks; managing  
43 park facilities and resources in ways that will  
44 sustain them for future generations of Americans  
45 to enjoy; and working with partners to help  
46 accomplish the NPS mission. The new  
47 Management Policies is available on the NPS

48 website at  
49 <http://www.nps.gov/policy/MP2006.pdf>.

## 50 **Director's Order #12**

51 Director's Order #12 describes the policy and  
52 procedures by which the NPS will comply with  
53 NEPA. The Council on Environmental Quality,  
54 part of the Executive Office of the President, is  
55 the "caretaker" of National Environmental Policy  
56 Act. The National Park Service is required to  
57 abide by all National Environmental Policy Act  
58 regulations (40 CFR 1500-1508) and any other  
59 procedures and requirements imposed by other  
60 higher authorities, such as the Department of the  
61 Interior.

## 62 **Director's Order #24**

63 Director's Order #24: Museum Collections  
64 Management Director's Order 24 lays the  
65 foundation by which the NPS meets its  
66 responsibilities toward museum collections. This  
67 Director's Order provides policy guidance,  
68 standards, and requirements for preserving,  
69 protecting, documenting, and providing access to,  
70 and use of, NPS museum collections.

## 71 **Director's Order #28 (NPS 1998e)**

72 Director's Order #28, issued pursuant to 16  
73 United States Code (1 through 4), addresses  
74 cultural resource management. The National Park  
75 Service will protect and manage cultural resources  
76 in its custody through effective research,  
77 planning, and stewardship and in accordance with  
78 the policies and principles contained in the NPS  
79 Management Policies 2006.

## 80 **Director's Order #28A**

81 Director's Order #28A: Archeology provides a  
82 management framework for planning, reviewing,  
83 and undertaking archeological activities and other  
84 activities that may affect archeological resources  
85 within the National Park System.

## 86 **Director's Order # 47**

87 Director's Order #47, Soundscape Preservation  
88 and Noise Management, articulates NPS  
89 operational policies that will require, to the fullest  
90 extent practicable, the protection, maintenance, or  
91 restoration of the natural soundscape resource in a  
92 condition unimpaired by inappropriate or  
93 excessive noise sources.

1 **Director's Order #75A**

2 Director's Order #75A, Civic Engagement and  
3 Public Involvement, clarifies and strengthens the  
4 commitment of the NPS to legally require public  
5 involvement and participation as it relates to  
6 accomplishing its mission and management  
7 responsibilities under the NPS Organic Act of  
8 1916.

9 **Directors Order #77-1**

10 Directors Order #77-1, Wetland Protection,  
11 establishes NPS policies, requirements, and  
12 standards for implementing Executive Order  
13 (E.O.) 11990: "Protection of Wetlands" (42 Fed.  
14 Reg. 26961). E.O. 11990 was issued by President  
15 Carter in 1977 in order "...to avoid to the extent  
16 possible the long and short-term adverse impacts  
17 associated with the destruction or modification of  
18 wetlands and to avoid direct or indirect support of  
37

19 new construction in wetlands wherever there is a  
20 practicable alternative...."

21 **Directors Order #77-2**

22 Directors Order #77-2, Floodplain Management,  
23 applies to all NPS proposed actions, including the  
24 direct and indirect support of floodplain  
25 development, that could adversely affect the  
26 natural resources and functions of floodplains,  
27 including coastal floodplains, or increase flood  
28 risks. This Director's Order also applies to  
29 existing actions when they are the subjects of  
30 regularly occurring updates of NPS planning  
31 documents.

32 This Director's Order does not apply to historic or  
33 archeological structures, sites, or artifacts whose  
34 location is integral to their significance or to  
35 certain actions as specifically identified in  
36 Procedural Manual 77-2.

**APPENDIX C: STATEMENT OF FLOODPLAIN FINDINGS**

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Superintendent, Fort Matanzas National Monument

Chief, Water Resources Division Date

Director, Southeast Region Date



## INTRODUCTION

In accordance with Executive Order 11988, “Floodplain Management” and NPS guidelines for implementing the order, the NPS has reviewed the flood hazards in Fort Matanzas National Monument (Monument) and has prepared this “Statement of Findings” (SOF).

In examining the Monument, the structures at the following sites were identified as being within a regulatory 100-year floodplain:

National Park Service Sites include the coquina watchtower structure Rattlesnake Island, the Johnson House on Anastasia Island, road segments, two parking areas, archaeological sites, and docks.

There are no other occupied structures within a regulatory floodplain at these sites that warrant inclusion in this flood hazard assessment.

This “Statement of Findings” focuses on evaluating the flood hazards for the aforementioned structures in the 100-year floodplain. As a part of the effort to develop a general management plan (GMP) for the Monument, the “Statement of Findings” describes the flood hazard, alternatives, and possible mitigation measures for the continued use of this area. Additional detail regarding the Monument lands and resources, future actions to be taken in the area, and environmental impacts may be found in the *Draft General Management / Environmental Impact Statement* (GMP/EIS).

## DESCRIPTION OF THE SITES AND USES

National Park Service Sites. The following inventory of structures in the floodplain at Fort Matanzas National Monument is taken in large part from the monument’s List of Classified Structures (LCS). The LCS is an evaluated inventory of all historic and prehistoric structures within the National Monument boundary that have historical, architectural, and/or engineering significance. The structures on the LCS include Fort Matanzas on Rattlesnake Island. Other structures are in the regulatory 100-year floodplain under NPS ownership, but are not included in the LCS.

List of Classified Structures. Fort Matanzas: LCS ID Number 000350

Fort Matanzas is a coquina masonry structure with a square plan, 120' on a side. Scarp walls 12' high rise to a terreplein, with sentry box at southwest, which covers 2/3 of the base. On the western third is a 30' tower with a rooftop observation platform.

Fort Matanzas is nationally significant as an example of an eighteenth-century Spanish fortification and for its associations with the period of rivalry between Spain, France, and England for control of North America.

Archaeological Sites.

Site #	Site Name	Location	Description
8SJ28	North Midden	Rattlesnake Island, north of the fort	Shell midden containing artifacts related to the Spanish and British occupations of Fort Matanzas
8SJ44B	Fort Matanzas	Rattlesnake Island	The site number refers to the archeological materials that are related to, but distinct from, the fort
8SJ90	Pompano Farm Midden	Anastasia Island, northern park boundary	Prehistoric shell midden

Site #	Site Name	Location	Description
8SJ3231	West Midden	Rattlesnake Island, west of the fort	Shell midden with artifacts related to the Spanish and British periods of occupation
8SJ3233	Johnson House	Anastasia Island	Prehistoric and historic artifact scatter
8SJ3225	Visitor Center Site	Anastasia Island, parking lot vicinity	Prehistoric and historic midden; camp site
N/A	Marker Midden	Anastasia Island, at massacre marker	Prehistoric artifact scatter

## Other NPS Structures

**Headquarters and Visitor Center.** The Headquarters and Visitor Center (HQ/VC) is located on Anastasia Island, on the west side of Highway A1A. The HQ/VC consists of two buildings: a multi-use building that serves as both the primary visitor contact point and park housing, and a secondary utility building that now serves as a ranger office. The main building is two stories, intersected by an arched breezeway on the ground level. The exterior walls on the first floor are constructed of coquina block masonry. The second floor is of wood frame construction faced with wood siding. The secondary utility building is located 50 feet to the north of the main building.

**Johnson House.** In the 1960s, the scope of the park was greatly expanded with the donation by the Johnson family of most of the southern end of Anastasia Island, including the ocean side beaches, dunes, and maritime forests bisected by Highway A1A. Included in this donation was the Johnson family residence, which is located a few hundred feet south of the visitor center. The two-story house is currently used as park housing and is in good condition.

The Johnson House is somewhat rambling and features a large number of double-hung sash windows. The house is constructed of wood and brick with a roof composed of asphalt shingled gables. The west side of the house features an elongated covered porch that faces out to a lawn and the Matanzas River beyond. It is believed that there are portions of the house that date back more than 50 years. Additional research is necessary to determine the history and age of the structure.

## GENERAL CHARACTERIZATION OF THE NATURE OF FLOODING AND FLOODPLAIN PROCESSES IN THE AREA

Structures located in Fort Matanzas National Monument are dispersed across two islands, separated by the Matanzas River, and bordered by the Intracoastal Waterway and the Atlantic Ocean. A variety of flood hazard zones including, 100-year flood hazard zones, are dispersed throughout the National Monument. A levee protects Florida State Road A1A which bisects Anastasia Island. The levee removes SR A1A, flood hazard zone X, from the 100-year floodplain. Immediately west of A1A is an elevated strip of land, flood hazard zone X, also removed from the 100-year floodplain on which the visitor center and maintenance facility is located. East of SR A1A is flood hazard zoned VE vulnerable to coastal flooding and wave velocity hazard. The remainder of Anastasia Island has a measured base flood elevation in the 100-year flood hazard zone AE. NPS structures include the Johnson House, road segments, docks, three parking areas, and archaeological sites. (Source: *St. Johns County Flood Zone Map dated 9/10/2008*, St. Johns County Graphic Information Systems Division – Data Source – Federal Emergency Management Agency [FEMA] 9-2-2004)

Rattlesnake Island is completely located within the 100-year flood hazard zone with the exception of a small higher elevation area well away from NPS structures. Fort Matanzas and documented archaeological sites on Rattlesnake Island are located in the 100-year flood hazard zone AE. Both shorelines of the Matanzas River are constantly affected by tidal flows, which change

four times daily with maximum tidal currents in excess of 5 knots and a tidal amplitude of 3 to 3.5 feet. High tides in the spring and fall flood portions of Rattlesnake Island several times annually.

The National Oceanic and Atmospheric Administration (NOAA) collects oceanographic and meteorological data (historical and real-time) from stations on major water bodies throughout the country. NOAA has specifically collected historical (limited) high/low water level data at two stations in the vicinity of Fort Matanzas: one station (8720651) is located approximately 5 miles north of the fort on the Matanzas River in Crescent Beach, FL along the Route 206 bridge and the second station (8720692) is located at the Matanzas inlet (0.7 miles from the fort) along the Route A1A bridge. A data review of the minimum and maximum station elevations for both gauges from 2003 through 2005 provides a comparison for water elevations occurring at both locations (Table 1). The majority of the minimum values occurred between January and July of 2004 and the majority of the maximum values occurred from August through December of 2004. The maximum elevation value (ft) at the Crescent Beach station was 4.32 in September of 2004 and the minimum elevation value (ft) was -4.53 in April of 2004; this represents a maximum total elevation change in elevation of 8.85 ft in the Matanzas River at the Crescent Beach station in the year 2004. (Source: *Draft Environmental Assessment, Proposed Shoreline Stabilization Features and Boat Dock Replacement, Fort Matanzas National Monument*, National Park Service, June 2006).

## JUSTIFICATION FOR USE OF THE FLOODPLAIN

### Description of Preferred Alternative and Why Facilities Would Be Retained in the Floodplain

Under the preferred alternative in the general management plan, all of the structures currently maintained by the NPS, the Visitor Center, Johnson House, Fort Matanzas, archaeological sites, and associated structures are located within the 100-year floodplain. The justification for

retaining these structures in their existing locations in the 100-year floodplain is as follows:

- The National Park Service is required by law and policy to maintain all historic structures in their present locations. Existing administrative structures (e.g., park offices, maintenance facility, and visitor center) must remain on the island in order to manage resources effectively and serve visitors. The nearest non-floodplain site is miles away.
- Relocating the facilities and services at both sites may be infeasible and very costly, from both a financial cost perspective and from a level/quality of service perspective.
- All sites are located on disturbed ground. Moving the facilities would likely result in adverse impacts and the loss of other natural resource values in the area.

## DESCRIPTION OF SITE-SPECIFIC FLOOD RISK

The potential for storm surge associated with hurricanes and tropical storms is the primary flood risk for the structures on Anastasia Island and Rattlesnake Island. Anastasia and Rattlesnake Islands lie between the Atlantic Ocean and the Intracoastal Waterway with the Matanzas Inlet separating the two islands. Therefore, if the banks of the Intracoastal Waterway, Matanzas Inlet, or Atlantic Ocean are overtopped by storm surge, the structures at the site might be flooded from several directions.

The timing and duration of potential flooding at Anastasia and Rattlesnake Islands would vary depending on the intensity of the storm causing water levels to rise. Typically, tropical storms would arise with sufficient advance warning to give persons working on the island hours or days to evacuate.

Because of the site's location on the Matanzas Inlet, there are notable issues related to surface erosion and sediment deposition that could result from flooding. There could be some sediment and debris deposition at this site as a result of storm surge, and storm surge would likely have the energy to produce detectable erosion or channelization. Hydrologic changes resulting

from geomorphic and erosion processes could occur, particularly in the form of channel changes to the Matanzas Inlet or Intracoastal Waterway.

## **FLOOD MITIGATION MEASURES**

The highest level of flood mitigation for Anastasia and Rattlesnake Islands would be to relocate the facilities and/or services out of the floodplain, i.e., off of the islands. This option is not currently feasible and has several costs associated with it. Thus, this option has not been chosen by the NPS. If or when non-historic structures reach their usable lifespan, or if a future flood results in severe damage, then the NPS should assess possibilities for relocating the facilities.

The continued use of Anastasia and Cockspur Island, would necessitate the development (and future implementation) of an evacuation plan for the site. Given the nature of the flood risks associated with use of the island, the primary flood mitigation measure available to the NPS is the early, prompt, and safe evacuation of people working on the site. An evacuation plan would include strategies that ensure proper storm monitoring, emergency communication methods, effective evacuation routes, and timely emergency evacuation notification for staff and visitors.

Because the island is connected by bridge to Florida State Road A1A, a convenient evacuation routes is available to staff or visitors on the island. Evacuees could seek higher ground by driving north or south along Florida State Road A1A to westerly roads running inland.

The plan would be developed in concert with the protocol and strategy of the existing St. Johns County emergency management system and the National Weather Service. This St. Johns County emergency management system is already well developed and has proven to be very successful at providing people in the area with advanced warning of potential floods. During past floods, this emergency management system has given warning well in advance of storm activity, leaving ample time for evacuation.

Once the plan is developed, all staff of the monument would be informed of the plan's details and their respective implementation

responsibilities. Staff at all facilities would also be informed on how to appropriately disseminate evacuation information to visitors who may be at any of the facilities when a flood occurs.

## **SUMMARY**

The National Park Service has determined that there is no practicable alternative to maintaining the historic and administrative structures currently in use at Fort Matanzas National Monument. This determination is primarily based on the necessity of these facilities remaining in place to fulfill their essential functions, and the notable costs and impacts that would be incurred by moving and/or constructing these facilities in new locations outside the floodplain.

The primary flood mitigation measure for Fort Matanzas National Monument is to develop an evacuation plan for all facilities at monument sites and keep all NPS staff informed of the plan. Although the sites are within areas subject to flooding, there would be ample time to warn staff and visitors using the facilities to evacuate the area. If a flood occurs, visitors and staff could evacuate to higher ground via Florida State Road A1A.

# APPENDIX D: DESCRIPTIONS OF FEDERAL AND STATE PROTECTED SPECIES

## FEDERALLY PROTECTED SPECIES

### FEDERALLY PROTECTED THREATENED AND ENDANGERED SPECIES AT FORT MATANZAS

Scientific Name	Common Name	Federal Status	Federal Agency with Jurisdiction
<b>Birds</b>			
<i>Charadrius melodus</i>	Piping plover	Threatened	USFWS
<i>Aphelocoma coerulascens</i>	Florida Scrub-jay	Threatened	USFWS
<i>Mycteria americana</i>	Wood stork	Endangered	USFWS
<b>Mammals</b>			
<i>Peromyscus polionotus phasma</i>	Anastasia Island Beach Mouse	Endangered	USFWS
<i>Trichechus manatus latirostris</i>	West Indian (Florida) Manatee	Endangered/Critical Habitat Designated	USFWS
<b>Reptiles</b>			
<i>Caretta caretta</i>	Loggerhead Sea Turtle	Threatened	USFWS/NMFS
<i>Drymarchon corais couperi</i>	Eastern Indigo Snake	Threatened	USFWS
<i>Chelonia mydas</i>	Green sea turtle	Endangered	USFWS/NMFS
<i>Dermochelys coriacea</i>	Leatherback sea turtle	Endangered	USFWS/NMFS
<i>Eretmochelys imbricata</i>	Hawksbill sea turtle	Endangered	USFWS/NMFS
<i>Lepidochelys kempii</i>	Kemp's Ridley sea	Endangered	USFWS/NMFS

Source: U.S. Fish & Wildlife Service, North Florida Ecological Services Office, Federally Listed Species Website: <http://www.fws.gov/northflorida/CountyList/Johns.htm> , (Accessed 12-15-2010).

## Birds

**Bald Eagle:** The bald eagle is the second largest North American bird of prey, with an average 7-foot wingspan. Bald eagles are opportunistic foragers with a diet varying across a wide range based on prey species available. They prefer fish, but will eat a great variety of mammals, amphibians, crustaceans, and birds, including many species of waterfowl. Bald eagles are monogamous and thought to mate for life unless one mate dies. Bald eagles build large stick nests lined with soft materials that are used for several years by the same pair of eagles. In Florida, breeding behaviors commence in September, and young begin to fly at 11 or 12 weeks. The U.S. Fish and Wildlife Service has announced a final rule on two new permit regulations that would allow for the take of eagles and eagle nests under the Bald and Golden Eagle Protection Act (Eagle Act). The final rule should be published in the Federal Register on September 11, 2009.

Bald Eagles were removed from the endangered species list in June 2007 because their populations recovered sufficiently. However, the protections under the Eagle Act continue to apply. When the

Bald Eagle was delisted, the Service proposed regulations to create a permit program to authorize limited take of Bald Eagles and Golden Eagles where take is associated with otherwise lawful activities.

The permits will authorize limited, non-purposeful take of Bald Eagles and Golden Eagles; authorizing individuals, companies, government agencies (including tribal governments), and other organizations to disturb or otherwise take eagles in the course of conducting lawful activities such as operating utilities and airports. Most permits issued under the new regulations would authorize *disturbance*. In limited cases, a permit may authorize the physical take of eagles, but only if every precaution is taken to avoid physical take. Removal of eagle nests would usually be allowed only when it is necessary to protect human safety or the eagles. (Source: U.S. Fish and Wildlife Service North Florida Field Office Website: <http://www.fws.gov/migratorybirds/baldeagle.htm> ; Accessed 12-13-2010)

**Piping Plover:** The piping plover is a small, stocky, sand-colored bird that resembles a

1 sandpiper. Adults have yellow-orange legs, a  
2 black band across their foreheads from eye to eye,  
3 and a black ring around the base of their necks.  
4 The bird is named for its call notes, which are  
5 often heard before the bird is actually seen. Piping  
6 plovers breed on coastal beaches in Canada.  
7 However, they winter primarily on the Atlantic  
8 coast from North Carolina to Florida, although  
9 some migrate to the Bahamas and West Indies.  
10 The 2009 Species Status Review of the piping  
11 plover from the U.S. Fish and Wildlife Service  
12 summarizes their situation as follows:

13  
14 “Habitat loss and degradation on winter and  
15 migration grounds from shoreline and inlet  
16 stabilization efforts, both within and outside of  
17 designated critical habitat, remain a serious threat  
18 to all piping plover populations.”

19  
20 “The threats of habitat loss and degradation, when  
21 combined with the threat of sea-level rise  
22 associated with climate change (WM 2.2.2.5\*),  
23 raise serious concerns regarding the ability of  
24 private beaches to support piping plovers over the  
25 long-term.”

26 \*This alphanumeric term refers to a section in the 2009  
27 Species Status Review cited above.

28  
29 “While public lands may not be at risk of habitat  
30 loss from private development, significant threats  
31 to piping plover habitat remain on many  
32 municipal, state, and federally owned properties.  
33 These public lands may be managed with  
34 competing missions that include conservation of  
35 imperiled species, but this goal frequently ranks  
36 below providing recreational enjoyment to the  
37 public, readiness training for the military, or  
38 energy development projects.” (Source: “Piping  
39 Plover (*Charadrius melodus*) 5-Year Review:  
40 Summary and Evaluation”, U.S. Fish and Wildlife  
41 Service, September 2009)

42  
43 **Wood Stork** (*Mycteria Americana*): The wood  
44 stork is a large, long-legged wading bird with  
45 white plumage except for iridescent black primary  
46 and secondary wing feathers and a short black  
47 tail. On adults, the rough, scaly skin of the head  
48 and neck is unfeathered and blackish in color, the  
49 legs are dark, and the feet are dull pink. The bill  
50 color is also blackish. It is the only stork to  
51 regularly occur and breed in the United States.  
52 Storks can be found feeding in shallow water in  
53 both freshwater and coastal wetlands, including  
54 tidal creeks and flats, marshes, cypress swamps,

55 ponds, ditches, and flooded fields. The wood stork  
56 eats fish, small reptiles, amphibians, and  
57 mammals, as well as other aquatic organisms. It is  
58 more numerous in summer at Fort Matanzas,  
59 indicating a fall migration to South Florida.  
60 Spring migration occurs during March and April.  
61 Following breeding, adults and young disperse  
62 widely and are often noted well outside their  
63 normal breeding range.

64  
65 The wood stork is listed as endangered on both  
66 the federal and state level. However, The U.S.  
67 Fish and Wildlife Service, on September 21,  
68 2010, announced in the Federal Register a 90-day  
69 finding on a petition to reclassify the United  
70 States breeding population of the wood stork from  
71 endangered to threatened under the Endangered  
72 Species Act of 1973, as amended. Based on that  
73 review the Service found that the petition  
74 presented substantial scientific or commercial  
75 information indicating that reclassifying the U.S.  
76 breeding population of the wood stork to  
77 threatened may be warranted. Therefore, a review  
78 of the species status is under way at this writing  
79 (January 2011), the results of which will be  
80 published as part of a 12-month finding.

## 81 **Mammals**

82  
83  
84 **Anastasia Island Beach Mouse:** The Anastasia  
85 Island beach mouse is listed as federally  
86 endangered. This mouse only remains on  
87 Anastasia Island with viable populations at Fort  
88 Matanzas. This species inhabits sand dunes,  
89 which are vegetated by sea oats and dune panic  
90 grass. Sometimes the mice use the former  
91 burrows of ghost crabs, but they usually dig their  
92 own. Burrow entrances are typically found on the  
93 sloping side of a dune at the base of a clump of  
94 grass. The burrows are used for nesting and food  
95 storage as well as a refuge. Breeding activities  
96 start in November and end in early January. The  
97 beach mice are primarily threatened by beach and  
98 residential development, which has eliminated  
99 suitable habitat. (Source: *Anastasia Island Beach*  
100 *Mouse, 5-Year Review: Summary and Evaluation*,  
101 U.S. Fish and Wildlife Service, Jacksonville  
102 Ecological Services Field Office, Southeast  
103 Region, September 6, 2007)

## 104 **Marine Mammals**

1 **Blue Whale:** Blue whales are the largest animals  
2 to have ever lived on the earth. They eat tiny  
3 organisms like plankton and krill and live in pods,  
4 or small groups. They have two blowholes and a  
5 2-14 inch thick layer of blubber. These whales  
6 grow to around 80 feet long and can weigh up to  
7 120 tons. Females are larger than males. Blue  
8 whale's flippers are 8 feet long and they are very  
9 fast swimmers. These whales inhabit all oceans  
10 worldwide, excluding the polar seas. They do not  
11 usually live near coasts. These whales are listed as  
12 endangered in both Florida and the rest of the  
13 United States. Packs of killer whales have been  
14 known to attack and kill young blue whales and  
15 man also over hunted blue whales until 1966  
16 (NPCA 2005).

17  
18 **Finback Whale:** Finback Whales are light grey  
19 with white bellies and occasional splashes of  
20 orange or yellow across the back. They do not lift  
21 their tails when diving and their blow is easily  
22 visible. They can grow to a maximum length of  
23 24 m. and their diet consists of schooling fish and  
24 krill. They are the second largest baleen whale  
25 and are fast, difficult to follow when traveling and  
26 not particularly active at the surface. These  
27 whales are endangered on the state and Federal  
28 level (NPCA 2005).

29  
30 **Humpback Whale:** Humpback whales grow to  
31 be around 40-60 feet and are dark with white  
32 underbellies and flippers. Their flippers can reach  
33 a length of 15 feet and they lift their tails when  
34 they dive. Their dive durations range from four to  
35 ten minutes or longer.

36 Humpback whales are very active at the surface  
37 and employ various means to fish such as bubble  
38 nets, bubble spirals, and their own flippers. These  
39 whales are endangered in both Florida and  
40 federally (NOAA 2005).

41  
42 **Right Whale:** Northern right whales are now  
43 considered one of the most endangered large  
44 mammals in the world due to over hunting which  
45 ended in 1935. They are endangered both in  
46 Florida and federally. Today there are only around  
47 300 right whales left, making them close to  
48 extinction. These whales grow to around 55 feet  
49 long and are black with a broad, flat back and no  
50 dorsal fin. Right whales have two blowholes and  
51 spout in a V-shaped blow. The right whale can  
52 grow up to 50 tons on a diet of zooplankton.  
53 These whales travel to the north Florida coast just

54 off the shore at Fort Matanzas to give birth each  
55 year during the winter months. The waters of the  
56 southern U.S. are the only known calving ground  
57 for this species. This area is a small strip of water  
58 extending only 5-15 miles offshore from the  
59 Altamaha River in Georgia south to the Sebastian  
60 Inlet in Florida. Unfortunately, these waters  
61 contain shipping lanes and ports and today,  
62 collision with a ship causes 30 to 50 percent of  
63 whale deaths. (National Park Service, Fort  
64 Matanzas. Northern Right Whale Pamphlet).

65  
66 **Sei Whale:** Sei whales can grow to a length of 15  
67 m and are slate gray with occasional round scars.  
68 They do not lift their tails when diving and eat  
69 copepods and krill. These whales eat by skimming  
70 small plankton and are fast swimmers with a dive  
71 time of about 10 minutes. When they are on the  
72 surface, a "footprint" can be seen, which allows  
73 them to be tracked. These whales are endangered  
74 on both the state and federal level (NPCA 2005).

75  
76 **Sperm Whale:** Sperm whales are tooth whales  
77 and live in pods. They have a single s-shaped  
78 blowhole that measures twenty inches long on the  
79 left side of their heads. The sperm whale has a  
80 four to 12 inch layer of blubber and they can grow  
81 to be 50 to 60 feet long and 40 to 50 tons, which  
82 makes them the largest of the toothed whales.  
83 Their four-chambered heart is an average of 277  
84 pounds. Sperm whales survive on mostly a diet of  
85 large squid and can eat a ton of food a day. They  
86 are found in many open oceans, both tropical and  
87 cool waters. They live at the surface of the ocean,  
88 but dive deeply to feed. These whales are  
89 endangered on both a state and federal level  
90 (NOAA 2005).

91  
92 **West Indian Manatee:** The manatee is a large,  
93 herbivorous, aquatic mammal that inhabits coastal  
94 waters and rivers. The West Indian manatee's  
95 range is from the southern United States  
96 throughout the Caribbean Islands, Central  
97 America, and to northern South America. In the  
98 United States the manatee ranges up the eastern  
99 coastline into Georgia, the Carolinas, and beyond  
100 during warm months. In the Gulf they are  
101 occasionally sighted as far west as Texas. During  
102 cold months manatees in the southern United  
103 States migrate to the warm waters of south  
104 Florida, or find a source of warm water such as  
105 artesian springs or industrial discharges.

106

Adults are typically 9-10 feet long and weigh around 1000 pounds. However, they may grow to over 13 feet and weigh more than 3500 pounds. Adults are gray in color, with very sparse fine hairs distributed over much of the body. Stiff whiskers grow around the face and lips. Algae growing on the dermis may make them appear green or brown. They have two fore limbs, usually with 3 or 4 nails, that they use for slow movements and to grasp vegetation while eating. They have a rounded flattened tail for swimming. The nostrils, located on the upper surface of the snout, tightly close with valves when underwater. While they can hold their breath for up to 20 minutes they typically surface to breathe approximately every 3-5 minutes. Source: Florida Fish and Wildlife Commission website: <http://myfwc.com/wildlifehabitats/profiles/mammals/aquatic-mammals/manatee/>, Accessed 3-25-2011.

The West Indian (Florida) manatee is both federally and state endangered. However, the 5-Year Status Review of the West Indian Manatee, signed by the Regional Director of the U.S. Fish and Wildlife Service on April 6, 2007, recommended downlisting the species from endangered to threatened. As of January 26, 2011 no downlisting has occurred and the West Indian Manatee is still federally endangered.

The manatees are found in the Matanzas River in the spring and summer months. Observations of mating herds indicate that females mate with a number of males during their 2- to 4-week estrus period, and then they go through a pregnancy estimated to last 12 to 14 months (O'Shea 1992). Births occur during all months of the year with a slight drop during winter months. Manatees inhabit both salt and fresh water of sufficient depth (1.5 meters to usually less than 6 meters) throughout their range (FWCC 2005g). The aquatic habitats associated with the Matanzas River and the Matanzas Inlet are generally considered a part of the migratory corridor for this species rather than a long-term residence. This is because of the scarcity of sufficient forage and fresh water resources to support their extended habitation within the vicinity of Fort Matanzas National Monument.

## Reptiles

**Green Turtles:** Green turtles live in estuarine and marine coastal and oceanic waters. These turtles come ashore at Fort Matanzas beaches from June to July to nest. Nesting occurs at night on the upper beach and sand dunes like the loggerhead. Hatchlings emerge and head toward sea approximately 60 days later from August through November. Large juveniles and adults feed on seagrasses and algae. Juveniles can be found in coastal bays, inlets, lagoons, and offshore warm reefs. The green turtle is listed as federally and state endangered. The 2007 Green Sea Turtle Endangered Species Act Five-Year Review recommended no change in the status of this species.

**Hawksbill Sea Turtle:** The Hawksbill sea turtle is both federally and state endangered. The 2007 Hawksbill Sea Turtle Endangered Species Act Five-Year Review recommended no change in the status of this species. This critically endangered marine turtle is mainly exploited for its carapace, the main source of commercial tortoiseshell. The Hawksbill sea turtle gets its common name for its narrow head with a slightly hooked beak. One of the smallest species of sea turtles, the hawksbill grows up to 3 feet in carapace length and can weigh up to 180 lbs. The turtle prefers pan-tropical environments, and is particularly fond of clearwater coral reefs and ecosystems, although they can also be found residing in rocky inland waters, mangrove-edged inlets, and bays. These reptiles have an unusual diet consisting of fish, gastropods, echinoderms, coelenterates, bryzoa, and sponges. Female Hawksbill's nest every 3 to 5 years and demonstrate a fair degree of near site fidelity. They prefer to nest on warm, smaller beaches and generally deposit their eggs in a nest excavated within the beachside vegetation zone. The turtles can lay between 100 to 200 small eggs the size of a ping-pong ball. As well as being exploited for their tortoiseshell, the Hawksbill can also be eaten which has aided its endangered status (NOAA 2005).

**Kemp's Ridley Sea Turtle:** The Kemp's Ridley sea turtle is both federally and state endangered. The 2007 Kemp's Ridley Sea Turtle Endangered Species Act Five-Year Review recommended no change in the status of this species. Female turtles lay their eggs on beaches along the east coast of Mexico. Occasionally this turtle will be found on the beaches of Fort Matanzas after being injured



by shrimp trapping nests (King and Krysko 1999c).

**Leatherback Sea Turtle:** Leatherback sea turtles are the largest of the three sea turtles occurring on the beaches at Fort Matanzas. They live in oceanic waters and come ashore at Fort Matanzas to nest on the beaches during the summer months. Hatchlings emerge and head toward sea midsummer to early fall. They feed primarily on jellyfish. This turtle is listed as endangered at both the federal and state level (King and Krysko 1999b). The 2007 Leatherback Sea Turtle Endangered Species Act Five-Year Review recommended no change in the status of this species.

**Loggerhead Sea Turtle:** The loggerhead sea turtle is listed as threatened at both the state and federal levels. The 2007 Loggerhead Sea Turtle Endangered Species Act Five-Year Review recommended no change in the status of this species. Loggerheads live in marine coastal and oceanic waters. These turtles come ashore at night to nest on the beach at Fort Matanzas during May through August. The females nest on the upper beach or in the dunes. Hatchlings emerge at night approximately 50-60 days later and find their way to the sea (July through November). Juveniles frequent coastal bays, inlets, and lagoons. Fort Matanzas is part of the largest loggerhead sea turtle rookery in the western Atlantic Ocean (FWCC 2005d).

**Eastern Indigo Snake:** The Eastern indigo snake is listed as threatened at both the state and Federal levels. The 2008 Eastern indigo snake Endangered Species Act Five-Year Review recommended no change in the status of this species. Average adult size is 60-74 inches (152-188 cm); record is 103.5 inches (262.8 cm). Adults are large and thick bodied. The body is glossy black and in sunlight has iridescent blue highlights. The chin and throat is reddish or white, and the color may extend down the body. The belly is cloudy orange and blue-gray. The scales on its back are smooth, but some individuals may possess some scales that are partially keeled. There are 17 dorsal scale rows at mid-body. The pupil is round. Juveniles are black-bodied with narrow whitish blue bands. Eastern indigo snakes can be found in almost any habitat in Florida. They are non-venomous.

(Source: <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=C026> , Accessed 01/03/2011).

## Fish

**Shortnose Sturgeon:** The shortnose sturgeon is one of the smallest varieties of sturgeons in the United States. This fish is listed as endangered in both the state of Florida and federally. This sturgeon only grows to a maximum of 3.5 feet in length and rarely reaches more than 14 pounds in weight. Unlike most fish that spawn every year, the shortnose male sturgeons spawn every other year, and females spawn every third year. These fish are bottom feeders, and consume sludge worms, aquatic insect larvae, plants, snails, shrimp, and crayfish. The shortnose sturgeon is restricted to the Atlantic seaboard in North America, and can be found from the Saint John's River in New Brunswick to the Saint John River in Florida. A combination of factors has led to the shortnose sturgeon's endangered status, in the 1800 and early 1900s, many larger tidal rivers served as dumping grounds for pollutants that led to major oxygen depletions and high fish D-1 losses. Also, the great demand for sturgeon eggs (or caviar) and the fish's smoked flesh have led to overexploitation of the sturgeon population (USFWS 2005).

**Smalltooth Sawfish:** The smalltooth sawfish is technically a ray; however this fish resembles a shark. It's long, flat, snout or rostrum is embedded with sharp, tooth-like scales along both edges. Besides being found in the southeastern United States, they can be found in the Caribbean, Central America (along South America to mid Brazil), possibly in the Mediterranean Sea, along the African coast, and in the western Indo-Pacific. These fish can attain lengths of around 20 feet and weigh up to a ton. They are endangered both federally and in the state of Florida due to their tendency to become entangled in commercial fishing nets. At the same time, smalltooth sawfish can cause extensive damage with their teeth, so anglers have long regarded them as nuisances and there is a high tendency to kill them before these fish can cause any trouble (NOAA 2005).

## Seagrasses

**Johnson's Seagrass:** This seagrass thrives in coastal lagoons in the intertidal zone. They need sandy bottoms to grow and are often found in deeper waters with other varieties of seagrass. Johnson's seagrass is only found in southeastern Florida (FWCC 2005a). It has short, elliptical leaves that grow in pairs. The leaves reach around 2.5 cm long and are up to 4 mm wide. These plants grow best in areas at high risk to damage from boat propellers and where there is water quality degradation. Johnson's seagrass serves as a food resource for other threatened and endangered species such as the green sea turtle and the West Indian manatee. These plants do not reproduce sexually; instead they spread their rhizomes. Due to limited range, high damage risk, and slow reproduction, these plants are considered threatened in Florida and on the federal level (NOAA 2005).

On November 8, 2010 new threatened species rules approved by the Florida Fish and Wildlife Commission went into effect. All federally listed species that occur in Florida are now included on Florida's list as federally-designated endangered or federally-designated threatened species. In addition, the state has a listing process to identify species that are not federally listed but at risk of extinction. These species will be called State-designated Threatened. All state-designated species were grandfathered on the list and are currently undergoing status reviews. FWC will continue to maintain a separate Species of Special Concern category until all the species have been reviewed and those species either designated as threatened or endangered are removed from the list.

## **SPECIES OF SPECIAL CONCERN**

### **Fish**

Atlantic sturgeon (*Acipenser oxyrinchus*)  
Blackmouth shiner (*Notropis melanostomus*)  
Bluenose shiner (*Pteronotropis welaka*)  
Crystal darter (*Crystallaria asprella*)  
Key silverside (*Menidia conchorum*)  
Harlequin darter (*Etheostoma histrio*)  
Lake Eustis pupfish (*Cyprinodon hubbsi*)  
Rivulus (*Rivulus marmoratus*)  
Saltmarsh topminnow (*Fundulus jenkinsi*)  
Southern tessellated darter (*Etheostoma olmstedii maculaticeps*)

### **Amphibians**

Florida bog frog (*Lithobates okaloosae*)  
Georgia blind salamander (*Haideotriton wallacei*)  
Gopher frog (*Lithobates capito*)  
Pine Barrens treefrog (*Hyla andersonii*)

### **Reptiles**

Alligator snapping turtle (*Macrochelys temminckii*)  
Barbour's map turtle (*Graptemys barbouri*)  
Florida brown snake (*Storeria victa*)-lower Keys population only  
Florida Keys mole skink (*Eumeces egregius egregius*)  
Florida pine snake (*Pituophis melanoleucus mugitus*)  
Key ringneck snake (*Diadophis punctatus acricus*)  
Peninsula ribbon snake (*Thamnophis sauritus sackenii*)-lower Keys population only  
Red rat snake (*Elaphe guttata*)-lower Keys population only  
Rim rock crowned snake (*Tantilla oolitica*)  
Short-tailed snake (*Stilosoma extenuatum*)  
Striped mud turtle (*Kinosternon baurii*)-lower Keys population only  
Suwannee cooter (*Pseudemys suwanniensis*)

### **Birds**

American oystercatcher (*Haematopus palliatus*)  
Black skimmer (*Rynchops niger*)  
Brown pelican (*Pelecanus occidentalis*)  
Burrowing owl (*Athene cunicularia*)  
Florida sandhill crane (*Grus canadensis pratensis*)  
Least tern (*Sterna antillarum*)  
Limpkin (*Aramus guarauna*)  
Little blue heron (*Egretta caerulea*)  
Marian's marsh wren (*Cistothorus palustris marianae*)  
Osprey (*Pandion haliaetus*)-Monroe County population only  
Reddish egret (*Egretta rufescens*)  
Roseate spoonbill (*Platalea ajaja*)  
Scott's seaside sparrow (*Ammodramus maritimus peninsulae*)  
Snowy egret (*Egretta thula*)  
Snowy plover (*Charadrius alexandrinus*)  
Southeastern American kestrel (*Falco sparverius*)

1 *paulus*)  
 2 Tricolored heron (*Egretta tricolor*)  
 3 Wakulla seaside sparrow (*Ammodramus*  
 4 *maritimus juncicola*)  
 5 White-crowned pigeon (*Patagioenas*  
 6 *leucocephala*)  
 7 White ibis (*Eudocimus albus*)  
 8 Worthington's marsh wren (*Cistothorus palustris*  
 9 *griseus*)

10

## 11 **Mammals**

12

13 Big Cypress fox squirrel (*Sciurus niger avicennia*)  
 14 Eastern chipmunk (*Tamias striatus*)  
 15 Everglades mink (*Neovison vison evergladensis*)  
 16 Florida black bear (*Ursus americanus floridanus*)  
 17 Florida mastiff bat (*Eumops glaucinus floridanus*)  
 18 Florida mouse (*Podomys floridanus*)  
 19 Homosassa shrew (*Sorex longirostris eonis*)  
 20 Sanibel Island rice rat (*Oryzomys palustris*  
 21 *sanibeli*)  
 22 Sherman's fox squirrel (*Sciurus niger shermani*)  
 23 Sherman's short-tailed shrew (*Blarina*  
 24 *carolinensis shermani*)

25

## 26 **Corals**

27

28 Pillar coral (*Dendrogyra cylindricus*)

29

## 30 **Mollusks**

31

32 Florida treesnail (*Liguus fasciatus*)

33

## 34 **Crustaceans**

35

36 Black Creek crayfish, also known as Spotted royal  
 37 crayfish (*Procambarus pictus*)  
 38 Santa Fe Cave crayfish (*Procambarus erythropus*)  
 39 (Source: Florida Fish and Wildlife Commission  
 40 Website:  
 41 [http://myfwc.com/WILDLIFEHABITATS/imperiledSpp\\_index.htm](http://myfwc.com/WILDLIFEHABITATS/imperiledSpp_index.htm) ; Florida's Threatened and  
 42 Endangered Species, Florida Fish and Wildlife  
 43 Commission, November 2010)

44

45

46

## 47 **STATE PROTECTED SPECIES**

48

49 **Black Skimmer:** The black skimmer is listed as a  
 50 species of concern by the FWCC. Black skimmers  
 51 and least, royal, and sandwich terns nest in  
 52 colonies in the open sand on beaches, sandbars,  
 53 and dredged material islands. Their nests are built

54 on the ground and often consist of simple scrapes  
 55 in the sand. Habitat loss from coastal development  
 56 has reduced the number of suitable nesting spots  
 57 for black skimmers. This permanent resident nests  
 58 May through August in Florida. Individuals from  
 59 northern states swell the Florida population in the  
 60 fall (August through October), and south Florida  
 61 birds move north in the state to breed (FBBA  
 62 2005d).

63

64 **Brown Pelican:** USFWS lists the brown pelican  
 65 as federally endangered, except in particular states  
 66 such as Florida and Alabama. Here, the FWCC  
 67 lists the brown pelican as a state species of  
 68 concern. The brown pelican is one of Florida's  
 69 largest shorebirds living exclusively in coastal  
 70 environments. It is the only pelican that skydives  
 71 for food, mainly menhaden and other herring  
 72 species. Brown pelicans breed in colonies, mostly  
 73 on small islands along the Intracoastal Waterway.  
 74 Egg-laying in brown pelicans generally happens  
 75 between December and February. Pelicans pair up  
 76 for one year, and both the male and female help  
 77 brood and rear the young, which fledge in about  
 78 76 days. Brown pelicans are often seen from the  
 79 dock of both Rattlesnake and Anastasia Islands  
 80 (FWCC 2005b, USFWS 1995).

81

82 **Least Tern:** The least tern is listed as state  
 83 threatened by the FWCC. This bird is commonly  
 84 found on the beach areas of Anastasia and  
 85 Rattlesnake Island during the spring and summer.  
 86 This bird prefers to nest in colonies on open,  
 87 shelly, or coarse sand beaches, which are flat with  
 88 sparse vegetation from April through August. The  
 89 nests consist merely of a shallow depression  
 90 scratched in the sand. Populations of least terns  
 91 were depleted after the turn of the century, when  
 92 they were hunted to harvest their features to  
 93 decorate women's hats. They have lost nesting  
 94 habitat due to beach development and an increase  
 95 in human activity on the beaches (FWCC 2005c).

96

97 **Snowy Egret:** The snowy egret, a state species of  
 98 concern, is commonly found throughout the year  
 99 on the coast of Rattlesnake and Anastasia Islands.  
 100 The snowy egret breeds from January through  
 101 August, nesting in colonies with other species of  
 102 waders in swamps and mangroves on islands or in  
 103 emergent vegetation over water. This bird forages  
 104 in both freshwater and saltwater habitats, where it  
 105 often pursues its prey, small fish, shrimp, and  
 106 small vertebrates (FBBA 2005a).

1  
2 **White Ibis:** The white ibis, a state species of  
3 concern, is commonly found on Rattlesnake and  
4 Anastasia Islands. White ibises feed primarily on  
5 aquatic prey, including crayfish, crabs, snakes,  
6 anurans, and fish. They breed from March  
7 through September in mixed colonies located over  
8 standing water, within freshwater marshes or  
9 ponds, or on coastal islands. Incubation requires  
10 21 to 22 days, and the young leave their parents  
11 when they are 40 to 50 days old (FBBA 2005b).

12  
13 **Gopher Tortoise:** The gopher tortoise is listed as  
14 a species of concern for Florida (FWCC). The  
15 gopher tortoise is one of the most abundant  
16 reptiles in Fort Matanzas. Gopher tortoises can be  
17 found in all open dry habitats, dunes, dunes  
18 meadows, and areas between patches of forest.  
19 Tortoises excavate deep burrows for refuge from  
20 predators, oldfields, and road shoulders for refuge  
21 from predators, weather, and fire; other species of  
22 animals, such as eastern diamondback  
23 rattlesnakes, indigo snakes, coachwhips, six-lined  
24 racerunners, and mice have been recorded sharing  
25 these burrows. Gopher tortoises feed on grasses,  
26 herbs, green brier, and cactus pads. Gopher  
27 tortoises are not aquatic species, but they  
28 occasionally are found floating in the Matanzas  
29 River and Intracoastal Waterways. During colder  
30 months, above ground activity is greatly reduced;  
31 however burrows are relatively conspicuous year-  
32 round (FWCC 2005f).

## APPENDIX E: HISTORY AND LEGISLATIVE BACKGROUND REGARDING DRIVING ON THE BEACH AT FORT MATANZAS NATIONAL MONUMENT

**Establishment of the National Monument:** Fort Matanzas National Monument was established by Proclamation of President Calvin Coolidge on October 15, 1924 under the authority of the American Antiquities Act of 1906. The site consisted of one acre, within which stood a structure built by the Spanish in 1740 to protect the Matanzas Inlet. The fort is located on Rattlesnake Island in the Matanzas River about 14 miles south of the historic district of St. Augustine, Florida. The War Department administered the site until it was transferred to the Department of the Interior, National Park Service, by Executive Orders of President Franklin D. Roosevelt. Presidential Proclamations in 1935 and 1948 authorized the acquisition of additional acreage.

In 1962 and 1963, two tracts of land, including nearly one mile of beachfront property on Anastasia Island, were donated to the NPS. Today, the park encompasses approximately 300 acres--200 acres on Rattlesnake Island and 100 acres on Anastasia Island. The eastern boundary of the Anastasia Island portion of the National Monument is the mean high water line of the Atlantic Ocean. The State of Florida owns the beach seaward of this line.

**Background and Laws Relating to Beach Driving:** Public beach driving was allowed throughout St. Johns County before the establishment of Fort Matanzas National Monument. In 1941, the Florida legislature made the Atlantic Ocean beach within St. Johns County a public highway under county jurisdiction. However, during the 1980s, a series of state laws beginning in 1985, prohibited beach driving throughout Florida except for cleanup, repair, or public safety, although it left local governments with the power to authorize traffic on beaches within their jurisdiction. In 1997 St. Johns County adopted an ordinance opening specified areas of its beaches to motor vehicles (Ordinance 97-34, June 24, 1997). However, the beach seaward of the Fort Matanzas boundary was not one of the areas where driving was authorized.

President Richard Nixon's Executive Order number 11644, issued February 8, 1972, directly governs the use of off-road vehicles (ORVs), which would include vehicles driven on the beach, in units of the National Park System. This Executive Order and the regulations established under it, prohibit the operation of motor vehicles in units of the National Park System except on park roads, in designated parking areas, and on routes and areas designated for ORV use. Finally, ORV routes and areas may only be established in national recreation areas, national seashores, national lakeshores, and national preserves. Fort Matanzas was established as a National Monument on a 1-acre site on Rattlesnake Island, which sits in the Matanzas River between Anastasia Island (the barrier island that faces the Atlantic Ocean to the east) and the Intracoastal Waterway to the west. Therefore, beginning in 1985 both law and Federal law, including presidential executive orders prohibited driving on the Atlantic Ocean beach south of the Matanzas ramp.

**Current Status:** Visitation at Fort Matanzas was 673,700 in 2010. Beach use constitutes approximately 80% of that total. The National Park Service is preparing a General Management Plan and Environmental Impact Statement for Fort Matanzas. Public meetings, held in March, 2008, provided opportunities for people to express their opinions and ideas regarding the management of the National Monument. In May of 2009 the park received a Freedom of Information Act request from a Florida resident with regard to beach driving. In September of 2009 the National Parks and Conservation Association and the Florida Audubon Society expressed concern that NPS failure to enforce the regulations restricting off-road driving on the beach could impact resources. After consultation with the Southeast Regional office the decision was made to close the beach to vehicles as of January 1, 2010.



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