North End Access and Transportation Management Plan

Environmental Assessment

Cumberland Island National Seashore

Prepared for: The National Park Service

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

This Environmental Assessment (EA) evaluates alternatives and associated environmental impacts related to the proposed North End Access and Transportation Management Plan for the Cumberland Island National Seashore (CUIS).

Comments and Availability

The EA is available for public review at the following locations:

- Camden County Public Library, 1410 Georgia Highway 40E, Kingsland, Georgia
- St. Marys Public Library, 101 Herb Bauer Dr., St. Marys, Georgia
- Fernandina Public Library, 25 N. 4th Street, Fernandina Beach, Florida
- Sea Camp Ranger Station, Cumberland Island, Georgia
- CUIS Visitors Center, 113 St. Marys Street, St. Marys, Georgia 31558
- CUIS Headquarters, 101 Wheeler Street, St. Marys, Georgia 31558
- National Park Service, Southeast Regional Office, 100 Alabama Street, 1924 Building, Atlanta, Georgia 30303
- Martin Luther King, Jr. National Historic Site, 450 Auburn Avenue, NE Atlanta, Georgia 30312
- Chattahoochee River National Recreation Area, 1978 Island Ford Parkway, Atlanta, Georgia 30350
- Kennesaw Mountain National Battlefield Park, 905 Kennesaw Mountain Drive, Kennesaw, Georgia 30152

The draft EA can also be viewed and downloaded at **http://parkplanning.nps.gov/cuis** or **www.nps.gov/cuis**.

Reviewers should provide the National Park Service (NPS) with their comments on the EA during the review period. This will allow NPS to analyze and respond to comments at one time and use information obtained from the public in the preparation of a Final EA, thus avoiding undue delay in the decision-making process. Reviewers are encouraged to structure their participation in the National Environmental Policy Act (NEPA) of 1969 process so that it is meaningful and alerts the agency to the reviewer's position and contentions. Comments on the EA should be specific and should address the adequacy of the analysis and the merits of the alternatives discussed. 40 CFR 1503.3.

Important Notice

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment – including your personal identifying information – may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

Comments on this EA for the North End Access and Transportation Management Plan for Cumberland Island National Seashore must be delivered or postmarked no later than **October 10, 2008**. If you wish to comment on this EA, electronic comments are preferred. The National Park Service's Planning, Environment, and Public Comment (PEPC) web site and a dedicated

email address are both available for this purpose. Comments may also be submitted to the following locations.

Electronic comments may be submitted via PEPC: **http://parkplanning.nps.gov/cuis** or by e-mail to: **CUIS_Transportation@nps.gov**.
Mailing Address: **Superintendent, Cumberland Island National Seashore, P.O. Box 806, St. Marys, Georgia 31558**

ENVIRONMENTAL ASSESSMENT

1.0 PURPOSE OF AND NEED FOR ACTION

An EA analyzes a preferred action, alternatives, and their impacts on the environment. This EA has been prepared in accordance with NEPA and regulations of the Council on Environmental Quality (CEQ) (40 CFR 1508.9).

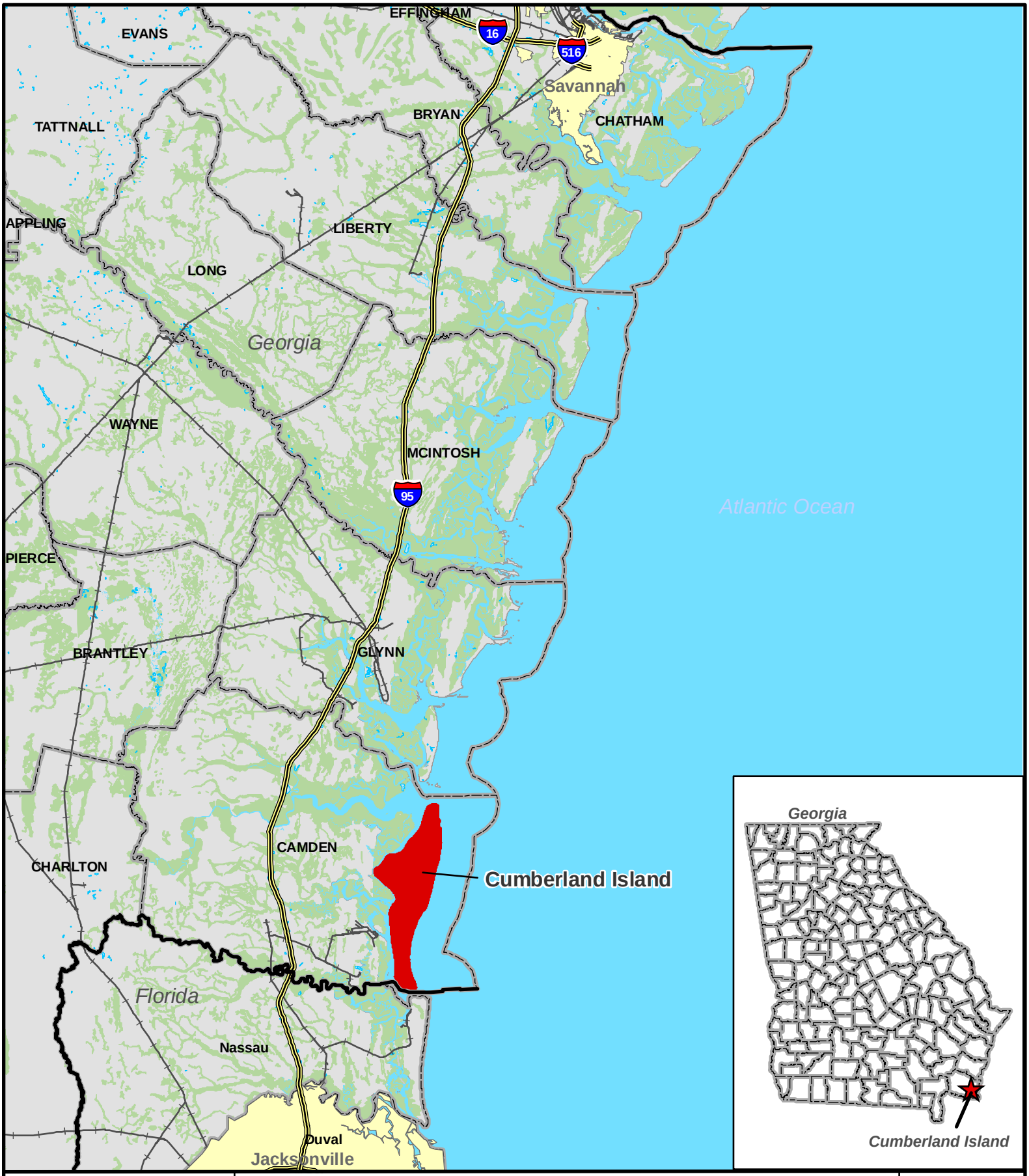
The NPS has developed this North End Access and Transportation Management Plan as mandated by legislation (Public Law 108-447) enacted by Congress in December 2004. The legislation directs the NPS to initiate motorized visitor access to historic sites located adjacent to the wilderness at the north end of Cumberland Island National Seashore, located in Camden County, Georgia. The plan also addresses visitor transportation over the entire island, including high visitor-use areas such as the island docks, the Dungeness Historic District and Ruins, beach access points, Sea Camp, Stafford, and the Plum Orchard mansion and Historic District. This action is needed to comply with the legal mandate and intention of Congress that NPS enhance access to and understanding of the many natural and cultural resources on the island while also addressing health and safety, accessibility, and mobility issues for island visitors.

1.1 Purpose and Significance of the Park

The purpose of this project is to develop a Transportation Management Plan for Cumberland Island National Seashore in response to the legal mandate of Public Law 108-447. The plan's principal focus will be management of access to the north end of the island consistent with the foregoing statute, the park's mission, and its enabling legislation. Additionally, the plan will also cover all other developed visitor use areas on the island.

Cumberland Island is the southernmost sea island of the Georgia coast and is separated from the mainland by the Cumberland River and Cumberland Sound, both of which are traversed by the Intracoastal Waterway. The island is located south of Jekyll Island, Georgia and north of Amelia Island, Florida, and consists of Little Cumberland and Great Cumberland islands. Great Cumberland is the southern portion that encompasses Cumberland Island National Seashore (CUIS). While the NPS does not administer Little Cumberland, it is included within the boundary of CUIS. Great Cumberland Island is approximately 17.5 miles long and 0.5 mile wide in the south, with the widest point being 3 miles. When Little Cumberland is included, the total length is approximately 19.5 miles long. See **Figure 1**, Project Location Map.

The island's undeveloped natural areas attract recreation enthusiasts for activities such as camping, swimming, fishing, hiking, bird watching, wildlife viewing, and beachcombing. Significant archaeological artifacts such as the shell middens on the island are evidence of visitation and occupation as early as the late Archaic Period of 4,000 to 5,000 years ago. Evidence of human burial in sand mounds also indicates pre-historic American Indian occupation of the island.



Cumberland Island Environmental Assessment/ Transportation Management Plan

Location Map
July, 2008

N W E S

Miles
0 5 10

- Cumberland Island
- State Boundary
- County Boundaries
- Interstate Highways
- Railroad
- Major Rivers
- Lake or Pond
- Swamp or Marsh
- Stream or River
- Inundation Area
- Artifical Basins
- Canal or Ditch

NATIONAL PARK SERVICE

Figure 1

P:\07\07036\002\GIS\Location_LET_bws_071007.mxd 07/28/08

Other physical remains and ruins have added to the historical record of the island through the colonial times, the plantation era, and to the present day. See **Figure 2** for a general map of the island.

1.2 Project Background and Scope

CUIS was established by Congress as a unit of the National Park System in the Act of October 23, 1972 (Public Law 92-536, codified at 16 U.S.C. 459i *et seq.*). The purpose of the park, as stated in Section 1 of the foregoing act, is "to provide for public outdoor recreation use and enjoyment of certain significant shoreline lands and waters of the United States and to preserve related scenic, scientific, and historical values." On September 8, 1982, much of the northern half of CUIS was designated as wilderness or potential wilderness to be managed as part of the National Wilderness Preservation System (Public Law 97-250, 16 U.S.C. 1131 *et seq.*).

The island can only be reached by boat, and there are no paved roads on the island. The CUIS General Management Plan (1984) limits visitation to no more than 300 persons per day. Most visitors travel to the island on a passenger ferry run by the park's single concessionaire. Once on the island, visitors travel primarily by foot or concessionaire-provided bicycle. The backcountry and its campsites are accessible by trail networks; however visitors must travel a considerable distance to those locations. As a result, visitation to the park is primarily clustered on the south end of the island, where the concessionaire docks the boat. Areas receiving high visitor traffic include the Dungeness Historic District, Sea Camp, the Dungeness and Sea Camp docks, and the southern beach area. See **Figure 3** for a General Map of Southern Cumberland Island.

The island is traversed from north to south by a single principal roadway, a narrow historic trace known as the Main Road. See **Figure 4**, Main Road. Various shorter dirt tracks radiate from the Main Road, principally on the southern half of the island. The Main Road extends from the Dungeness Mansion ruins on the island's south end to the Cumberland Wharf ruins on the north end, a distance of approximately 13 miles.

Before 2004, a large segment of the Main Road was included in the park's Potential and Designated Wilderness areas. Until the passage of Public Law 108-447 in 2004, only island residents having a pre-existing legal right to do so could drive on that portion of the Main Road within the Wilderness. The NPS was prevented from using motorized vehicles on this portion of the road for routine operations or most maintenance activities. For a time, the NPS offered a motorized trip to areas on the north end of the island once a month by "piggybacking" the tour onto a regularly scheduled administrative reconnaissance trip, which passed through Wilderness areas on the Main Road. Sites of principal interest on the trip included the Plum Orchard Mansion and a historic African-American community known as The Settlement. The tours were legally challenged in court and were discontinued in 2004.

ST. ANDREW SOUND
SATILLA RIVER
CUMBERLAND RIVER
Little Cumberland Island
Big Cypress Pond
CAMDEN COUNTY GEORGIA
Halls Swamp
Copeland Swamp
Cooper Swamp
Barren Swamp
The Settlement
Cedar Dock Road
High Point-Half Moon Bluff Historic District
Wilderness Area Boundary
Bunkley Trail
Whitney Lake
Brickhill Bluff
South Cut Trail
Roller Coaster Trail
Sweetwater Lake
Kings Bottom Trail
Table Point Trail
Tar Kiln Trail
Table Point Road
Plum Orchard
Yankee Paradise
Yankee Paradise Trail
Old River Trail
Hickory Hill
CROOKED RIVER
Stafford
Stafford Cemetery
Island
Old House Road
Parallel Trail
Stafford Beach
Little Greyfield
Greyfield
Cannon Swamp
Main Road
Sea Camp Ranger Station
Sea Camp Beach
River Trail
Ice House Museum
Dungeness Beach
Dungeness Ruins
Cemetery
CUMBERLAND SOUND
ATLANTIC OCEAN
40
St. Mary's
Passenger Ferry
ST. MARY'S RIVER
South End Trail
FLORIDA
Amelia Island

Cumberland Island Environmental Assessment/ Transportation Management Plan

General Map
July, 2008

N W E S

0 0.5 1 2 Miles

Ferry Routes
Primary Road
Secondary Road
Trail
Railroad
Major Rivers
Wilderness Area
Cumberland Island Nat'l Seashore
Campground
Lake or Pond
Swamp or Marsh
Stream or River
Canal or Ditch
Water and Restrooms

NATIONAL PARK SERVICE

Figure 2

P:\07\07036\002\GIS\General_TAB_bws_071007.mxd **08/17/08**

Cemetery
Stafford Beach
Old House Road
Main Road
Pratt's Trail
KING'S BAY
CUMBERLAND SOUND
Little Greyfield
Greyfield
CAMDEN COUNTY
GEORGIA
Parallel Trail
Sea Camp Ranger Station
Sea Camp Road
Sea Camp Beach
Dock
River Trail
Dock
Ice House Museum
Dungeness Beach
Dungeness Ruins
Cemetery
Raccoon Keys
Passenger Ferry
ST. MARY'S RIVER
South End Trail
Pelican Banks
ATLANTIC OCEAN
FLORIDA
Amelia Island

Cumberland Island Environmental Assessment/ Transportation Management Plan

General Map
Southern Cumberland Island
July, 2008

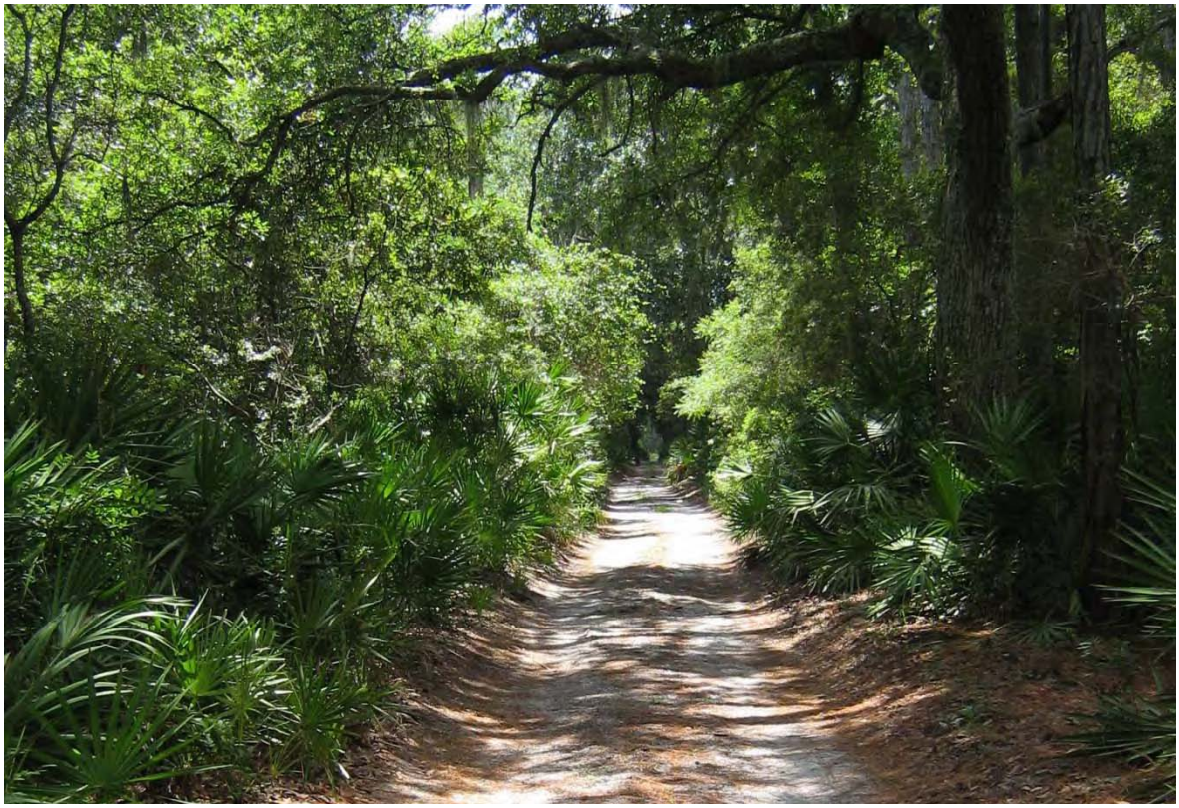
N W E S
0 0.25 0.5 1 Miles

- Dune Crossing
- Ferry Routes
- Primary Road
- Secondary Road
- Trail
- Railroad
- Major Rivers
- Wilderness Area
- Cumberland Island Nat'l Seashore
- Water and Restrooms
- Campground
- Lake or Pond
- Swamp or Marsh
- Stream or River
- Canal or Ditch

NATIONAL PARK SERVICE

Figure 3

P:\07\07036\002\GIS\GeneralSouth_TAB_bws_071007.mxd **07/17/08**



Cumberland Island
Environmental Assessment/
Transportation Management Plan

Main Road

Date: July 2008
Scale: Not to Scale

Figure 4

In December, 2004, Congress included language in the Cumberland Island Wilderness Boundary Adjustment Act (Public Law 108-447) removing the road corridor for the Main Road and two other roads (North Cut Road and the Plum Orchard Spur) from Wilderness designation. This statute also directs the Seashore to develop a plan for managing visitor access to the north end. Specifically, the statute directs NPS to:

> complete a management plan to ensure that not more than eight and not less than five round trips are made available daily on the Main Road north of the Plum Orchard Spur and the North Cut Road by the National Park Service or a concessionaire for the purpose of transporting visitors to and from the historic sites located adjacent to [the Cumberland Island] Wilderness.

NPS planners have defined a single trip as follows: a group of up to 30 people in two to three vehicles taken to the north end of the island and returning to their point of origin. In accordance with the legislation, between five and eight of these trips would be offered per day.

The purpose of this project is to develop a Transportation Management Plan for Cumberland Island. The plan's principal focus will be the management of access to the north end of the island consistent with the foregoing statute, the park's mission, and its enabling legislation. Additionally, the plan will cover all other developed visitor use areas on the island. Among other issues, the transportation plan will address options for travel routes, travel schedules, vehicle types, number of trips, and entities authorized to conduct tours such as a concessionaire. The final plan must be consistent with NPS policies and guidance documents, including but not limited to, Director's Order No. 89A ("Concession Management"), as well as NPS management policies 9.2 ("Transportation Systems") and 10.2 ("Concessions"). Because most of the north half of the island is congressionally designated Wilderness, it is imperative that the motorized transport of visitors through this area be compatible with Wilderness values to the greatest extent possible while complying with the legal intent and mandate of Public Law 108-447. The EA for this project will analyze the environmental consequences of implementing the proposed transportation plan.

1.3 Relationship to Other Planning Projects

The North End Access and Transportation Management Plan is consistent with the objectives of the CUIS General Management Plan (1984); the CUIS Statement for Management (1990); Resource Management Plan (1994); and objectives specific to each that support the proposed action.

1.4 Issues and Impact Topics

Issues Evaluated in Detail

Issues and concerns affecting this proposal were identified from past NPS planning efforts. Major issues are the conformance of this proposal with law, NPS policy and directives, the 1984 CUIS General Management Plan, natural resources, visitor use and experience, cultural resources, designated and potential wilderness, and CUIS operations.

Derivation of Impact Topics

Specific impact topics were developed for discussion focus and to allow comparison of the environmental consequences of each alternative. These impact topics were identified based on Federal laws, regulations, Executive Orders, NPS *Management Policies* (2006), and NPS knowledge of limited or easily affected resources. A brief rationale for the selection of each impact topic is given below, as well as the rationale for dismissing specific topics from further consideration.

Impact Topics included in this Document

Visitor Use and Experience: In the past decade, visitation to CUIS has ranged between 38,000 and 50,000 people per year. Visitation is to remain at approximately 300 people a day according to the 1984 CUIS General Management Plan. This limitation provides for a continuation of the existing natural character of the island, free from extensive development and intensive visitor use. Travel on the island will be changed to include vehicular transportation and will expand visitation to the northern end of the island. Visitor use and experience will be affected by the transportation management plan and is addressed in this EA.

Wilderness: Approximately 45% of the federally-owned land at CUIS is congressionally-designated wilderness. In 2004, Congress included language in Public Law 108-447 removing the Main Road and two other roads (North Cut Road and the Plum Orchard Spur) from the Cumberland Island Wilderness. The law also directed NPS to ensure that not more than 8 and not less than 5 round trips are made available daily on the Main Road to the north end of the island. The action analyzed in this document would implement Public Law 108-447 by authorizing motorized trips to travel, in part, on the Main Road, North Cut Road, and the Plum Orchard Spur. Because these roads are flanked by designated wilderness, trips on these roads could affect the wilderness experience of visitors to the Cumberland Island Wilderness. Therefore, wilderness will be addressed as an impact topic in this environmental assessment.

CUIS Operations: Transporting visitors to the north end of the island has the potential to affect CUIS operations due to increased requirements on the island for maintenance, ranger patrols, services, resource monitoring, mitigation, interpretation, administrative oversight, and facilities and infrastructure. Therefore, CUIS operations will be addressed in this EA.

Socioeconomic Environment: The historic and natural resources of CUIS are a major draw of visitors to the island. The transportation management plan will not increase the established park visitation limitation of 300 people a day. However, the plan may provide new activities,

services, and opportunities that have the potential to affect the socioeconomic environment. Therefore, the socioeconomic environment will be included in this EA for further analysis.

Community Character and Park Neighbors: Cumberland Island has multiple private inholdings within the park boundary. The transportation management plan and associated motorized trips may have an effect on these island residents as they will share the same roads and they have residences close to some of the activities. As a result, park neighbors will be included for further analysis in this EA.

Vegetation and Wildlife: The NEPA requires examining the impacts a proposed action may have on all components of affected ecosystems. NPS policy is to maintain all components and processes of naturally occurring ecosystems, including the natural abundance, diversity, and ecological integrity of plants and animals.

Over the past three hundred years, many of the natural communities on Cumberland Island have been extensively disturbed by human activities. For example, in the years leading up to the Civil War, a significant amount of forest cover on the island was cleared for cultivation of sea island cotton and other crops. Nevertheless, the island's natural communities began to recover in ensuing years, and they continue to undergo the processes of succession, albeit influenced by such human factors as the introduction of feral animals and the full suppression of fire. The island is now characterized by maturing forests and abundant wildlife.

It is possible that allowing visitors increased access to the north end of the island may cause impacts to vegetation and native wildlife habitat. Therefore, vegetation and wildlife will be addressed as an impact topic in this EA.

Threatened and Endangered Species: The Endangered Species Act requires examining the impacts of the action on all federally-listed threatened and endangered species. NPS policy requires an assessment of all Federal candidate species as well as State listed threatened, endangered, candidate, rare, declining, and sensitive species. This topic is included in the assessment because there are numerous potentially threatened or endangered plants and animals in the Camden County, Georgia area, which includes Cumberland Island.

Soils: The NPS strives to understand and preserve the soil resources of park units and to prevent, to the extent possible, the unnatural erosion, physical removal, or contamination of the soil or its contamination of other resources (NPS *Management Policies*, 2006). The implementation of an alternative to provide motorized access to the north end of the island has the potential to include minor to moderate soil disturbance through facility improvements, reinforcing existing structures, the grading and maintenance of existing roads, and vegetation removal. Additional soil disturbance may arise from the use of construction equipment, so soils are addressed in this EA.

Geology and Topography: NPS *Management Policies* (2006) require the protection of significant geologic and topographic features. Cumberland Island features topography that is inherently

dynamic, shaped by wind and tidal action. The geology of the site is characterized as stable dune/beach ridges (NPS, 1980). The proposed alternatives contain some geologic features such as the beach and dune systems that could be affected. Geology and topography will be included in this document for further analysis.

Water Resources (Water Quality and Wetlands): NPS policies require protection of water quality in accordance with the Clean Water Act, including the Section 404 provisions governing wetlands. Executive Order 11990, *Protection of Wetlands*, requires Federal agencies to avoid, where possible, adversely affecting wetlands. The proposed alternatives could impact water quality and wetlands. Therefore, these resources will be included in this document for further analysis.

Air Quality: Section 118 of the Clean Air Act (CAA), as amended (33 U.S.C. 7401 *et seq*.), requires each park unit to meet all Federal, State, and local air pollution standards. CUIS is designated as a Class II air quality area under the CAA. Section 163 of the CAA indicates the maximum allowable increase in concentrations of particulate matter and sulfur dioxide over baseline concentrations for Class II designations. Further, the CAA provides that the Federal land manager has an affirmative obligation to protect air quality-related values including visibility, plants, animals, soil, water quality, cultural resources, and visitor health from adverse pollution impacts. The increase in vehicle usage that may be associated with the proposed action could result in increased vehicle exhaust and emissions, which in turn could potentially affect CUIS' Class II air quality. Therefore, air quality was included in this EA as an impact topic.

Soundscape Management: According to the NPS *Management Policies* (2006) and Director's Order #47, Sound Preservation and Noise Management, part of the NPS mission is the preservation of natural soundscapes associated with park units. Natural soundscapes exist in the absence of human-caused sound. Transportation of visitors to the northern end of the island would result in human-caused sound that may affect visitor experiences and will be addressed.

Historic, Archaeological and Cultural Resources: The National Historic Preservation Act, as amended (16 U.S.C. 470 *et seq*.); the National Environmental Policy Act (42 U.S.C. 4321 *et seq*.); the NPS's Director's Order #28, *Cultural Resource Management Guideline* (1997); *NPS Management Policies* (2006); and Director's Order #12 *Conservation Planning, Environmental Impact Analysis, and Decision-making* (2001) require the consideration of impacts on properties listed in or eligible for listing in the National Register of Historic Places. The island's resources may be affected by increased accessibility and visitation. Therefore, historic, archaeological and cultural resources were included in this EA for further analysis.

<u>Impact Topics Dismissed from Further Analysis</u>

Prime and Unique Farmland: In August 1980, the CEQ directed that Federal agencies must assess the effects of their actions on farmland soils classified by the U.S. Department of Agriculture's Natural Resource Conservation Service (NRCS) as prime or unique. Prime or unique farmland is defined as soil that particularly produces specialty crops such as fruits, vegetables, and nuts. No qualifying soils exist on Cumberland Island. The proposed action

would result in neither the degradation nor irreversible conversion of existing prime farmland to nonagricultural uses. Therefore, the topic of prime and unique farmland was dismissed as an impact topic.

Environmental Justice: According to the Environmental Protection Agency, environmental justice is the fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including a racial, ethnic, or socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of Federal, State, local, and tribal programs and policies.

Presidential Executive Order 12898, "General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," requires all Federal agencies to incorporate environmental justice into their missions by identifying and addressing the disproportionately high and/or adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. The proposed action would not have health or environmental effects on minorities or low-income populations or communities as defined in the Environmental Protection Agency's Draft Environmental Justice Guidance (July 1996). Therefore, environmental justice was dismissed as an impact topic.

Floodplains: Executive Order 11988, Floodplain Management, requires all Federal agencies to avoid construction within the 100-year floodplain unless no practicable alternatives exist. Preferred actions that would require certain construction activities in the 100-year floodplain must be addressed in a Statement of Findings. Based on USGS elevation data, areas below the 13-14 foot elevation are generally assumed to define the 100-year floodplain of CUIS (NPS, 1980). The construction of new facilities is not anticipated as part of the proposed transportation plan. However, should construction of new structures be necessary in the future there is ample opportunity to locate such facilities outside the 100 year floodplain. Since locations for support facilities would avoid floodplains, potential floodplain impacts have been excluded from further water resources analysis.

Lightscape Management: In accordance with NPS *Management Policies* (2006), the agency strives to preserve natural ambient landscapes that exist in the absence of human-caused light. The proposed action would not be operated after dark. Therefore, lightscape management was dismissed as an impact topic.

2.0 PREFERRED ACTION AND ALTERNATIVES

Introduction

The alternatives section describes a No Action Alternative and two action alternatives for the CUIS Transportation Management Plan (TMP). Alternatives for this project were developed to devise a management plan to ensure that the NPS or a concessionaire provide trips to the north end of the island. These trips would provide access to the north end of the island for visitors and ensure to the greatest extent possible universal accessibility for all. Alternatives were derived from an internal scoping meeting, input from a public scoping meeting, an external scoping process, an alternatives workshop, and the NPS "choosing by advantages" process.

2.1 Description of Alternatives

Alternative 1 (No Action)

Alternative 1 describes the action of continuing the present management and operation of the existing access to CUIS by ferry, the rental of bicycles on the island, and continued ranger-led pedestrian tours. The No Action Alternative provides a basis for comparing the management direction and environmental consequences of the other alternatives. Should the No Action Alternative be selected, the NPS would not be in compliance with Public Law 108-447 (2004). The NPS would respond to future needs and conditions in the project area without major actions or policy changes.

Alternative 2 (North End Access)

Alternative 2 proposes to provide motorized trips to the north end of the island that would also incorporate a shuttle service. The trips would use a combination of the Main Road, Plum Orchard Spur, and North Cut Road. Trips could originate at the Dungeness Dock, Sea Camp, or the Plum Orchard Dock. Operation of vehicles would be restricted to the aforementioned roads and no beach driving would be allowed as part of the guided trips. The guided trips would be tailored around the historic and/or natural resources of the island's northern area. The shuttle service would drop-off and pick-up visitors at specific locations, such as trailheads, to provide better accessibility. See **Figure 5** for a map of Alternative 2.

Alternative 3 (Island Mobility: Preferred Alternative)

The Preferred Alternative, and the NPS's proposed action, calls for an integrated transportation plan to fulfill the Congressional mandate of Public Law 108-447 as well as increase visitor access opportunities. It incorporates the north end access in Alternative 2 and offers a separate south end-only shuttle system. Implementation of this alternative would provide access to multiple destinations at both the southern and northern ends of the island. No beach driving would be allowed as part of the motorized trips/shuttle service. The south end shuttle system would provide access to the beach at Dungeness Crossing, with the Stafford or Little Greyfield crossings used as alternatives in the event of high water or other safety issues preventing reasonable access at Dungeness. The shuttle would likely be a single vehicle on a scheduled route through the various points of interest on the south end.

ST. ANDREW SOUND
SATILLA RIVER
CUMBERLAND RIVER
Little Cumberland Island
Big Cypress Pond
CAMDEN COUNTY GEORGIA
Halls Swamp
Copeland Swamp
Cooper Swamp
Barren Swamp
The Settlement
First African Baptist Church
High Point Road
North Cut Road
Wilderness Area Boundary
Bunkley Trail
Whitney Lake
Brickhill Bluff
South Cut Trail
Kings Bottom Trail
Roller Coaster Trail
Sweetwater Lake
Table Point Trail
Table Point Road
Tar Kiln Trail
Plum Orchard
Yankee Paradise
Yankee Paradise Trail
Old River Trail
Hickory Hill
CROOKED RIVER
Stafford
Stafford Island
Cemetery
Stafford Beach
Old House Road
Parallel Trail
Little Greyfield
Greyfield
Main Road
Cannon Swamp
Sea Camp Ranger Station
Sea Camp Beach
River Trail
Ice House Museum
SOUND
ATLANTIC OCEAN
Dungeness Ruins
Cemetery
Passenger Ferry
South End Trail
40
St. Mary's
ST. MARYS RIVER
FLORIDA
Amelia Island

Cumberland Island Environmental Assessment/ Transportation Management Plan

Alternative 2
North End Access
July, 2008

N W E S

0 0.5 1 2 Miles

North End Access
Ferry Routes
Primary Road
Secondary Road
Trail
Railroad
Major Rivers
Cumberland Island Nat'l Seashore
Wilderness Area
Lake or Pond
Swamp or Marsh
Stream or River
Canal or Ditch

NATIONAL PARK SERVICE

Figure 5

P:\07\07036\002\GIS\Alt2_TAB_bws_071007.mxd **08/30/07**

Alternative 3 (Island Mobility: Preferred Alternative) cont.
Alternative 3 is designed to provide access to the north end of the island while also providing connections to destinations on the south end, particularly for visitors with mobility or disability challenges. See **Figure 6** for a map of Alternative 3.

2.2 Alternative Development Process

In keeping with NEPA directives, the NPS conducted an alternatives and consequences analysis workshop to assess the feasibility of alternatives. The alternatives for the CUIS TMP were developed through an iterative evaluation process, which included public input from the scoping process (see the *CUIS Final Public Scoping Report* on file with the NPS or online at http://parkplanning.nps.gov/cuis). The purpose of the alternatives and consequences analysis was to determine which were the more reasonable alternatives for further evaluation and comparison. These alternatives and the No Action Alternative were defined as the reasonable alternatives to be considered for further impact evaluation as part of the EA.

The alternatives analysis procedure consisted of an initial pre-screening and a comparative evaluation process. The pre-screening phase served to advance only the alternatives that would have a reasonable chance for implementation. During this phase, alternatives were assessed on overall feasibility and whether or not they met the need and purpose of the TMP. The pre-screening was followed by a more detailed comparative analysis of the remaining alternatives. Some of the information considered during this process included the internal and public scoping reports that reflected public opinions on the TMP. During this process, alternatives were examined to determine degrees of effectiveness for achieving project goals. A full report of the alternatives and consequences analysis is on file with the NPS. Additionally, a report showing the results of the NPS choosing by advantages process can be found in Appendix C.

The Comparative Evaluation evaluated the following categories: Transportation Mode, Route, Trip Operations, Support Facilities, and Visitor Access.

Alternative 1- No Action
The NPS' concessionaire provides access to the island by ferry; however, once on the island motorized transportation is not provided for park visitors to access many cultural and natural sites located in the park. Destinations can be accessed from the ferry docks by foot, and more recently via bicycle rentals from the ferry concessionaire. Therefore, under the existing conditions, the only way for visitors to access the north end of the island is by hiking or biking in conjunction with an overnight stay on the island. Under the No Action Alternative, access to the north end would not be changed. No additional analysis is needed for impacts to Transportation Mode, Route, Trip Operations, Support Facilities, and Visitor Access.

ST. ANDREW SOUND
SATILLA RIVER
CUMBERLAND RIVER
Little Cumberland Island
Big Cypress Pond
CAMDEN COUNTY GEORGIA
Halls Swamp
Copeland Swamp
Cooper Swamp
Barren Swamp
The Settlement
First African Baptist Church
High Point Road
North Cut Road
Wilderness Area Boundary
Bunkley Trail
Whitney Lake
Brickhill Bluff
South Cut Trail
Kings Bottom Trail
Table Point Trail
Table Point Road
Roller Coaster Trail
Tar Kiln Trail
Sweetwater Lake
Plum Orchard
Yankee Paradise
Yankee Paradise Trail
Old River Trail
Hickory Hill
CROOKED RIVER
Stafford
Stafford Island
Cemetery
Stafford Beach
Old House Road
Parallel Trail
Little Greyfield
Greyfield
Cannon Swamp
Sea Camp Ranger Station
Main Road
Sea Camp Beach
River Trail
Ice House Museum
Dungeness Beach
Dungeness Ruins
Cemetery
Passenger Ferry
South End Trail
40
St. Mary's
ST. MARYS RIVER
FLORIDA
Amelia Island
SOUND
ATLANTIC OCEAN

Cumberland Island Environmental Assessment/ Transportation Management Plan

Alternative 3
Island Mobility
July, 2008

N W E S

0 0.5 1 2 Miles

Island Mobility
Alternate Access
Ferry Routes
Primary Road
Secondary Road
Trail
Railroad
Major Rivers
Cumberland Island Nat'l Seashore
Wilderness Area
Lake or Pond
Swamp or Marsh
Stream or River
Canal or Ditch

NATIONAL PARK SERVICE

Figure 6

P:\07\07036\002\GIS\Alt2_TAB_bws_071007.mxd **08/30/07**

Alternative 2- North End Access

Alternative 2 proposes to provide motorized trips and a shuttle service to the north end of the island using a combination of the Main Road, Plum Orchard Spur, and the North Cut Road. Trips could originate from Dungeness dock, Sea Camp, or the Plum Orchard dock.

Transportation Mode

Several factors must be considered as part of the evaluation to determine the preferred vehicle type for trips to the north end of the island. The following are some of the factors and preferences currently under consideration:

- Consider petroleum-powered vehicles. There are proven efficient petroleum-powered vehicles. Under Alternative 2, the initial implementation plan could include a petroleum-based vehicle for timely start-up of trips. This may be an interim provision until the full TMP is implemented.
- The ultimate preferred vehicles would be alternative fuel vehicles, but the type and fuel source need to be further defined, i.e. E10 to E85, bio-diesel, etc. Fuel considerations must examine availability, reliability, disposal, and environmental effects. A flex-fuel vehicle is presently being considered as part of the Preferred Alternative.
- Vehicle should be 4-wheel drive, considering potential road and weather conditions.
- Vehicle should have adequate ground clearance for rough terrain.
- Vehicle should be able to operate on narrow dirt roads and be able to clear relatively low tree branches.
- Vehicles should be universally accessible for all passengers.
- Vehicles should be able to accommodate additional visitor gear including wheelchairs, strollers, backpacks, coolers, etc.

In order to meet the size specifications noted above, it is likely that the trip vehicle would be limited to a 10-15 passenger van, SUV, or modified truck type vehicle. Other limiting criteria include the existing timber bridges that are rated at 20-ton capacity and how much area may be needed for vehicle storage.

Route

As noted, a possible route for Alternative 2 would start at Dungeness, Sea Camp or Plum Orchard and proceed to the north end of the island following the Main Road, Plum Orchard Spur, and North Cut Road. The return trip would reverse the route taken to the north end.

The Main Road (which is designated to be within a 25-foot wide corridor excluded from Wilderness) is unpaved. Maintenance consists of periodic grading and limited clearing along the edges up to the northern edge of the Stafford Plantation, and occasionally as far north as the Plum Orchard Spur. Beyond this point, the Main Road receives minimal maintenance by the NPS and consequently is in an unimproved condition. Four timber bridges crossing tidal creeks provide an additional constraint as each has a 20-ton weight limit rating. These one-lane bridges, which are approximately 30 feet in length, are all in excellent shape. However, they limit the size of any transport vehicles used. North Cut Road, similar to this section of the Main Road, is

also not maintained. Currently, it is traveled less frequently than the Main Road. However, CUIS has received FY2008 funding to conduct cyclic maintenance on the entire length of the Main Road, as well as the other primary island roads. The maintenance project's primary objectives include filling and leveling ruts, dips, potholes, washboarding and other depressions that have developed in the roadbeds.

The travel way for north end roads typically consists of one lane; therefore, vehicles that are traveling in the opposite direction are required to pass each other in a manner where they are only partially on the road. Periodic trimming or cutting of vegetation will be necessary to provide a safe, single-lane travel corridor. Some minor cutting of vegetation may be needed in isolated cases to allow safe passage of two vehicles. Potential hazards, site lines, and shoulder conditions will dictate if and where this type of work is needed for a vehicle to pull off and allow safe passing. Additionally, using the 4-wheel drive vehicle proposed for this plan will allow travelers more flexibility in passing on the roads in their current condition.

Trip Operations

All trip operations would need to be coordinated with the ferry schedule to ensure visitors are returned to the docks prior to the last ferry departing from the island. Although the first ferry of the day does not arrive until 9:45 am, it would be feasible to begin trips at an earlier hour, which would service the campers and other visitors who are already on the island. This could also be true for the final trip of the day with the last ferry leaving at 4:45 pm, providing service to visitors remaining on the island overnight, since they would not be restricted by the ferry schedule. A specific trip schedule for implementation is beyond the scope of this document. However, a hypothetical schedule has been developed to provide some ideas and guidance on trip possibilities. See Table 1 for a potential trip schedule.

Table 1: Potential Trip Schedule

	***Trip 1: Depart 8:00AM, Return 1:00 PM**	**Trip 2: Depart 10:00AM, Return 3:00 PM**	**Trip 3: Depart 12:00 PM, Return 4:00 PM**	**Trip 4: Depart 1:30PM, Return 4:30 PM**	***Trip 5: Depart 2:30 PM, Return 5:30 PM**
Vehicle(s) 1	**X**			**X**	
Vehicle(s) 2		**X**			**X**
Vehicle(s) 3			**X**		

**Trips offered to guests remaining on the island due to ferry schedule conflicts*

Another feature to promote mobility on the north end includes a shuttle service where visitors could be dropped off at designated points of interest such as trailheads for day use activities. This option could prove helpful for visitors interested in day hiking or just experiencing the northern parts of the island at their own pace. The service would run on a regular schedule to allow users to plan their experience according to their needs and shuttle availability.

Interpretation
As part of this project evaluation, potential trip routes were driven in an NPS vehicle to identify potential physical and environmental constraints associated with the different routes. An attempt to determine potential trip timeframes was also completed. Factors influencing travel time include the island's 25 MPH speed limit, road conditions, wheeled and pedestrian traffic encountered, and the safety and comfort of passengers.

Table 2 is a listing of potential stops and approximate times between each location. **Figure 7** identifies these locations on a map of the island. The trip began at the Sea Camp ranger station at 8:35 a.m., which has been defined as time 0. The approximate speed of travel is noted periodically.

Table 2: Elapsed Time between Points of Interest

Elapsed Time (in minutes)	Locations	Cumulative Time (in minutes)	Approximate Speed
Time 0	Begin at Sea Camp		-
+ 6	Little Greyfield Crossing	6	20 MPH
+ 6	Stafford Cemetery	12	-
+ 4	Edge of Wilderness	16	10 – 15 MPH
+ 4	Willow Pond Trail	20	20 MPH
+ 8	Plum Orchard via spur road	28	-
+ 4	Return to Main Road at Plum Orchard Spur	32	-
+ 2	Duck House Trail	34	10 - 15 MPH
+ 6	Rayfield Chimney	40	-
+ 12	Brick Hill Camp Site	52	10 MPH
+ 15	Cumberland Wharf	67	-
+ 5	High Point Cemetery	72	-
+ 4	Church at Settlement	76	15 MPH
+ 2	North Cut Road	78	-
+ 15	North Cut Crossing at Beach	93	25 MPH
+ 80	Return to Sea Camp via North Cut and Main Roads	173	-

Locations	Cumulative Time (minutes)
Begin at Sea Camp	0
Little Greyfield Crossing	6
Stafford Cemetery	12
Edge of Wilderness	16
Willow Pond Trail	20
Plum Orchard via spur road	28
Return to Main Road at Plum Orchard Spur	32
Duck House Trail	34
Rayfield Chimney	40
Brick Hill Camp Site	52
Cumberland Wharf	67
High Point Cemetery	72
Church at Settlement	76
North Cut Road	78
North Cut Crossing at Beach	93
Sea Camp	173

ST. ANDREW SOUND
CUMBERLAND RIVER
Little Cumberland Island
Cumberland Wharf
High Point Cemetery
Church at Settlement
North Cut Road
North Cut Crossing at Beach
North Cut Road
Wilderness Area Boundary
Bunkley Trail
Brickhill Camp Site
Whitney Lake
South Cut Trail
Roller Coaster Trail
Main Road
Kings Bottom Trail
Rayfield Chimney
Tar Kiln Trail
Sweetwater Lake
Plum Orchard
Duck House Trail
Return to Main Road
Willow Pond Trail
Old River Trail
Edge of Wilderness
Stafford Cemetery
Stafford Island
Old House Road
Pratts Trail
Little Greyfield Crossing
Greyfield Beach Road
Goats Way Road
Sea Camp
River Trail
South End Trail
CAMDEN COUNTY GEORGIA
Halls Swamp
Copeland Swamp
Cooper Swamp
Barren Swamp
CROOKED RIVER
Cannon Swamp
40
St. Mary's
Passenger Ferry
ST. MARYS RIVER
FLORIDA
Amelia Island
SOUND
ATLANTIC OCEAN

Cumberland Island Environmental Assessment/ Transportation Management Plan

Elapsed Time Between Points of Interest July, 2008

N W E S

0 0.5 1 2 Miles

Points of Interest
Timed Route
Ferry Routes
Primary Road
Secondary Road
Trail
Railroad
Major Rivers
Wilderness Area
Cumberland Island Nat'l Seashore
Lake or Pond
Swamp or Marsh
Stream or River
Canal or Ditch

NATIONAL PARK SERVICE

Figure 7

P:\07\07036\002\GIS\Elapsed_TAB_bws_071007.mxd **07/17/08**

The times in Table 2 do not account for the time required for stops or interpretation. They are provided to develop potential trip routes and assess approximate route timing. It is not likely that each of the areas listed above would be a stop on each trip and, likewise, other points could be added. At a minimum, all trips would likely go to The Settlement. Trips would be offered based on level of demand, themes, services provided, time constraints, logistical constraints, natural conditions, and availability of resources including staff. Trips and interpretation could be developed around a specific theme, such as important cultural resource sites or specific ecological resource areas, to determine which areas would become stops on a particular trip. The routes for trips would likely be adjusted periodically based on the response of the public and the demand for visiting particular sites.

It is recommended that concessionaires, if used, would run operations and track number of people on the island via reservation systems and ferry coordination. Likewise, the primary role for the NPS during trips could be to provide interpretive services.

Fares and Ticketing

Fares would be established during the implementation phase and would be based on the estimated ridership, expenses including maintenance and start up costs, and funding sources. All relevant aspects would be addressed as part of the final service delivery plan.

Currently, tickets for the island ferry can be purchased at the St. Marys Visitor Center and by phone and fax. An internet reservation system is presently in the planning stages. It is anticipated that the tickets for the north end trips could also be purchased at the Visitor Center. It is also anticipated that tickets should be available at a location on the island to enable campers and visitors an opportunity to purchase them during their stay.

Support Facilities

In order to provide trips to the north end of the island, additional facilities or modifications to existing island infrastructure may be required. As the TMP moves toward full implementation, further planning and review would be required on this topic. Some options are outlined in the following text and in **Figure 8**, Potential Visitor Facilities.

Vehicle Storage/Maintenance: Concessionaires, if used, may need facilities to provide weather protection for themselves and their vehicles. An economic feasibility study on file with the NPS assessed a projected trip program once it expanded beyond initial implementation to encompass the full intent of legislation. The study suggested multiple trip vehicles would be required in order to provide five to eight trips to the north end of the island on a daily basis, and further stated a maintenance facility may also be a consideration. Likewise, if the NPS were to operate the trips, the existing storage and maintenance facility would require minimal improvements to store and service additional vehicles. Regardless, vehicle storage, maintenance, and expenses associated with replacement will need further consideration to sustain the service.

ST. ANDREW SOUND
SATILLA RIVER
CUMBERLAND RIVER
Little Cumberland Island
Big Cypress Pond
CAMDEN COUNTY GEORGIA
Halls Swamp
Copeland Swamp
Cooper Swamp
Barren Swamp
The Settlement
First African Baptist Church
Alberty House
North Cut Road
Wilderness Area Boundary
Bunkley Trail
Whitney Lake
Brickhill Bluff
South Cut Trail
Table Point Trail
Kings Bottom Trail
Main Road
Roller Coaster Trail
Tar Kiln Trail
Sweetwater Lake
Plum Orchard
Table Point Road
Yankee Paradise
Plum Orchard District
CROOKED RIVER
Old River Trail
Hickory Hill
Stafford
Stafford Island
Cemetery
Stafford Beach
Old House Road
Pratt's Trail
Little Greyfield
Greyfield
Greyfield Beach Road
Goats Way Road
Cannon Swamp
Sea Camp
Sea Camp Ranger Station
Sea Camp Beach
River Trail
Ice House Museum
Dungeness District
Dungeness Beach
Dungeness Ruins
Cemetery
CUMBERLAND SOUND
ATLANTIC OCEAN
40
St. Mary's
Passenger Ferry
ST. MARYS RIVER
South End Trail
FLORIDA
Amelia Island

Cumberland Island Environmental Assessment/ Transportation Management Plan

Potential Visitor Facilities
July, 2008

N W E S

0 0.5 1 2 Miles

Potential Visitor Facilities
Ferry Routes
Primary Road
Secondary Road
Trail
Railroad
Major Rivers
Wilderness Area
Cumberland Island Nat'l Seashore
Lake or Pond
Swamp or Marsh
Stream or River
Canal or Ditch

NATIONAL PARK SERVICE

Figure 8

P:\07\07036\002\GIS\PotVisitorFacs_TAB_bws_071007.mxd **07/17/08**

North End Visitor Contact Station: The historic Alberty House, which is located in The Settlement next to the First African Baptist Church, is a possible location on the North End for visitor contact and restrooms. As a separate repair/rehabilitation project, the facility is being adapted to potentially serve in this capacity. When completed, the Alberty House will be ADA (Americans with Disabilities Act) compliant and accessible for the mobility impaired. It will have four rooms in the front for museum displays and NPS offices. A photo of the property can be found in **Figure 9**, Alberty House.

Restrooms: Restrooms will also be needed in some areas and could be provided at existing facilities such as Plum Orchard and the Alberty House on the north end. As part of the Alberty House repair/rehab project, two restrooms were installed in addition to a new well and new, approved septic system. These improvements make it an acceptable candidate to address visitor needs.

Trip Staging Area: A central area from which to initiate trips will be needed such as Sea Camp, the Dungeness Historic District, or Plum Orchard. This area would contain a possible ticketing/trip information area, and would be the point at which trip vehicles load and unload.

Ferry Docks: If Plum Orchard is proposed as the trip staging area, some improvement and expansion of the dock would be needed to handle the projected increase in activity. In addition to capacity improvements, all of the public docks need to be modified for access by mobility challenged visitors.

Visitor Access

Alternative 2 would provide a major improvement for visitor access to the cultural and ecological resources of CUIS, which are now accessible only on a very limited basis. Currently, there are several key points of interest at the north end of the island including the recently restored Plum Orchard mansion, the Cumberland Wharf, Fort St. Andrews, High Point Cemetery, the Settlement and First African Baptist Church, and numerous pristine ecological resource areas. Currently, these areas can only be reached by island visitors on foot or in some cases bicycles. Island residents have easier access to these areas by private vehicle. Greyfield Inn also offers private motorized tours to many of these areas for its guests. With a round trip distance between Sea Camp and these sites at generally more than 20 miles, access is somewhat limited. This is especially true for visitors who are only coming to the island for a single day, small children, and visitors with limited physical capabilities.

With regard to access to the south end of the island, this alternative proposes no changes in access. Visitors would continue to access the island by ferry, and once on the island, they would be required to walk to their destination or rent a bicycle at Sea Camp.

Cumberland Island
Environmental Assessment/
Transportation Management Plan

Alberty House

Date: July 2008
Scale: Not to Scale

Figure 9

Alternative 3 - Island Mobility: Preferred Alternative

Alternative 3 facilitates increased island mobility from the ferry docks to key south end sites including Dungeness, the beach area, and Sea Camp. It consists of the same north end motorized trips and a shuttle service that was described in Alternative 2, while adding a south end shuttle service. Rather than restate the specific details regarding the components of Transportation Mode, Route, Trip Operations, Support Facilities, and Visitor Access on the north end, the reader is referred to the Alternative 2 description for this information. Only the additional changes in south end access will be presented in the following Alternative 3 discussion.

Transportation Mode

The type of vehicle which meets the needs of a south end shuttle service will have to be carefully evaluated. It must have the capacity to carry numerous passengers on bench seating, such as a tram. It also must have 4-wheel drive and sufficient clearance to be able to traverse beach crossings. In addition, the vehicle needs to be environmentally sustainable such as an alternative fuel or electric-powered vehicle. It is anticipated that during the initial start-up phase the vehicles used will not likely meet all of these criteria, but will gradually be converted as the program develops.

Route

The proposed south end shuttle would follow the existing dirt roads between docks, Sea Camp, Dungeness, and the beach. No new roadway facilities or improvements to the existing roads on the south end of the island would be required to implement this portion of the alternative. The shuttle would access the beach at Dungeness Crossing to pick-up and drop-off passengers at that point, and return directly inland. The shuttle will not travel along the beach. In the event of high water or other safety complications at the Dungeness Crossing the shuttle may use Little Greyfield Crossing or Stafford Crossing to provide beach access.

Trip Operations

Currently, the only tour on the south end of the island is a walking tour which identifies some of the general island history with the Dungeness Historic District as the tour focal point. A portion of the shuttle service proposed in this alternative would traverse the existing south end walking tour route. Continued planning will explore options to separate vehicular and pedestrian traffic to the greatest extent possible.

Support Facilities

No new or additional support facilities would be needed to implement the Island Mobility Alternative. It is anticipated that the existing storage and maintenance facilities could be used to service and accommodate the proposed vehicles for this alternative, or such requirements would be incorporated into those potentially needed for north end operations.

Visitor Access

Currently, there are no public motorized services available on the south end of the island. Alternative 3 would improve mobility and visitor access to Sea Camp, the beach area, and the cultural resources on the south end of CUIS. Additionally, it would provide health and safetbenefits to groups that are not prepared for the island's primitive conditions, or groups

having mobility limitations. This alternative would benefit those individuals who may have difficulty walking, including young children, the elderly, and mobility impaired visitors.

Under this alternative, visitors would continue to access the island by ferry, and once on the island, they would walk to their destination, rent a bicycle at Sea Camp, or use the proposed shuttle service. The proposed service would be coordinated with the ferry schedule to improve mobility between the docks and south end destinations including Sea Camp, the beach, and Dungeness.

2.3 Alternative Considered but Rejected

A Comprehensive Island Mobility alternative was considered which was essentially identical to Alternative 3, except that it would have also allowed beach driving as part of island trips. This alternative was rejected as infeasible primarily because of beach driving's potential impact to 14 special status species, including: bald eagle, piping plover, Wilson's plover, least tern, American oystercatcher, peregrine falcon, gull-billed tern, black skimmer, red knot, wood stork, gopher tortoise, loggerhead sea turtle, leatherback sea turtle, and green sea turtle. Mitigation measures (including avoiding the beach during sensitive times) were considered but determined infeasible. Given the extensive array of potentially affected special status species and their widely varying habits and nesting behaviors, it was determined that beach driving would have to be curtailed for most of the year to protect all potentially affected species.

In addition, obtaining access to the beach on the north end of the island was found to be problematic. Access via the existing North Cut Road may infringe on the rights of a reserved-estate holder, which maintains a private beach structure immediately adjacent to the road. While alternative beach access is a possibility via an earlier, abandoned route for North Cut Road, using this route would require the clearing of a substantial amount of vegetation and coping with eight wetland areas. Even if the necessary clearances could be obtained for opening this route to the beach, the issues with respect to special status species would remain, as discussed above.

This alternative was deemed by the review team to be inconsistent with the park's enabling legislation and its existing General Management Plan, both of which call for managing the island in such a way as to preserve its primitive character.

2.4 Mitigation Measures of the Preferred Alternative

Mitigation measures are presented as part of the Preferred Alternative. These actions have been developed to lessen the adverse effects of the Preferred Alternative.

Social Environment

To minimize potential impact to the social environment of CUIS from the Preferred Alternative, the proposed transportation management plan should be implemented with the following conditions:

Develop a buffer, probably vegetation, in The Settlement area between the reserved estate residence and the adjoining First African Baptist Church and Alberty House. The buffer will help minimize the effect on the park neighbor of increased visitation in the area. The design for the buffer should be done in coordination with the neighbor and must be compatible with both the historic landscape and the island environment.

Natural Resources

To minimize potential impact to the natural resources of CUIS from the Preferred Alternative, the proposed transportation management plan should be implemented with the following conditions:

- Manage visitor activity adjacent to the Plum Orchard Mansion pond to prevent disturbance of wood storks and other wading birds. Ideally, the number of visitors directly adjacent to the pond should be controlled. If necessary, fencing could be designed to complement and blend with the historic cultural landscape. If fencing is not feasible, then a screen/barrier using natural vegetation should be developed to prevent access to the pond.

- NPS staff will monitor the two known bald eagle nest locations annually to determine if eagles are present. If visitor use patterns of these areas change significantly as a result of the Preferred Alternative the following actions should be considered. 1) Allow nest sites to go unregulated if human presence is outside the 330-foot buffer recommended by the USFWS National Bald Eagle Management Guidelines for non-motorized recreation and human entry. 2) Install signs posting a no entrance zone if NPS determines substantial visitor activity is present in these areas. A 330-foot buffer would be used as recommended by the USFWS National Bald Eagle Management Guidelines for non-motorized recreation and human entry. Resource management staff must weigh the benefits of not posting nest sites and having these areas remain relatively unknown, versus the potential for drawing more attention by posting signs that may act to advertise the presence of nests and tempt hikers to locate (and thus disturb) the site(s).

- Develop an educational program for concession staff and park interpretive staff involved in trips that focuses on Threatened and Endangered (T & E) species identification and proper actions when species are encountered. Provide refresher training for staff on a regular basis and ensure that new personnel receive training promptly.

- NPS staff will monitor trip activities on a regular basis for compliance and potential impacts to T & E species and natural resources in general.

- Establish a slower speed limit on the Main Road from the Greyfield Inn entrance to Stafford Mansion to reduce the potential for gopher tortoise strikes (no gopher tortoises occur on the island north of Stafford Mansion).

- NPS staff will monitor visitor use of the beach north of Stafford Campground. Providing better access to north-end trails has the potential to place more visitors on the beach in this area relative to present use levels. Accesses include Willow Pond Trail, Duck House Trail, South Cut Road, and North Cut Road. As with the rest of the beach this northern section contains valuable nesting, feeding, and loafing habitat for a variety of shorebirds, including Federal and State listed species, and should remain as undisturbed as possible.

- NPS staff will monitor visitor use of the trails north of Stafford Campground. Visitation in these areas is currently minimal and it will be necessary to monitor any potential impacts to the trails and immediate environment from increased use.

- NPS staff will monitor the beach for nesting American oystercatcher pairs, least tern colonies, and other species of concern. Informational signs and rope barriers will be used to identify nesting areas and restrict access when and where necessary to protect the species of concern.

- Staff involved in the annual sea turtle nest monitoring and protection project will continue to maintain records of disturbances to nest sites. A database will be developed to evaluate trends in human disturbance potentially related to implementation of the Preferred Alternative. Mitigation in the form of increased visitor education efforts and nest protection measures will be necessary to maintain a reduced pedestrian presence/disturbance around nest sites.

- Transportation services within the TMP may be modified on a seasonal or emergency basis to protect species of concern or to address unacceptable impacts to park resources.

- No activity will generally occur from dusk to dawn, so artificial lighting would not be required, eliminating night time light and noise disturbances.

- In the event of high water in intermittent wetlands at the Dungeness Crossing, the shuttle will use Little Greyfield Crossing or Stafford Crossing to provide beach access.

Cultural Resources

To minimize potential impact to the cultural resources of CUIS from the Preferred Alternative, all work is subject to the following conditions:

- NPS staff will monitor trip activities on a regular basis for conduct and potential impacts to historic structures and features, archeological sites, and cultural resources in general. If necessary, additional conditions will be developed to eliminate potential impacts.

- If the Rayfield Chimneys are part of a trip, the lone standing chimney and other prominent features will be cordoned off (fence, barricade) to discourage visitors from disturbing the fragile structures.

Wilderness Resource and Values

To minimize potential impacts that the Preferred Alternative may have on users of the adjacent Cumberland Island Wilderness, the proposed transportation management plan should be implemented with the following condition:

> Develop an educational program for concession staff and park interpretive staff involved in trips that explains what Congressionally designated wilderness is, provides an understanding of the type of experience sought by typical wilderness users, and describes methods for minimizing impacts to the wilderness experience. Provide refresher training for staff on a regular basis and ensure that new personnel receive training promptly.

2.5 Sustainability

The NPS has adopted the concept of sustainable design as a guiding principle of facility planning and development. The objectives of sustainability are to design CUIS facilities to minimize adverse effects on natural and cultural values; to reflect their environmental setting and to maintain and encourage biodiversity; to construct and retrofit facilities using energy-efficient materials and building techniques; to operate and maintain facilities to promote their sustainability; and to illustrate and promote conservation principles and practices through the sustainable design and ecologically sensitive use. Essentially, sustainability is living within the environment with the least impact on the environment. By using existing island resources, the Preferred Alternative subscribes to and supports the practice of sustainable planning, design, and the intended use of the CUIS facilities. For example, under the plan, the Alberty House is being adapted for a north end visitor contact station, only minor improvements are proposed for the Main Road rather than a complete overhaul, and alternative fuel vehicles are an objective.

2.6 Environmentally Preferred Alternative

The CEQ has stated that the environmentally preferred alternative is the alternative that would promote the national environmental policy expressed in NEPA, Section 101(b). The environmentally preferred alternative is determined by applying the six following NEPA criteria. The environmentally preferred alternative would:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;

- Assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;

- Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;

- Preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment which supports diversity and variety of individual choice;

- Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and

- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Alternative 3 is the alternative that best achieves consistency with the values set forth in Sections 101 and 102(1) of NEPA. By confining trips to existing unpaved roads on the interior road system, Alternative 3 would have only minor impacts on the important historic, cultural, and natural aspects of our national heritage preserved at CUIS, and thereby fulfill the responsibilities of this generation as trustee of the environment for succeeding generations. In addition, by providing access to cultural resources at the north end of the island, Alternative 3 would facilitate the long-term appreciation and maintenance of those resources. Alternative 3's call for motorized trips between the northern and southern portions of the island would allow the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences. Alternatives 1 and 2 would have somewhat fewer adverse environmental impacts than Alternative 3 because they call for less (or no) use of island roads. They would also provide correspondingly fewer opportunities for visitors to experience the island. By allowing more access than Alternatives 1 and 2, with only minor adverse impacts, Alternative 3 would maintain an environment that supports diversity and variety of individual choice, while achieving a balance between population and resource use that permits a wide sharing of amenities. More so than the other alternatives, Alternative 3 would allow NPS to offer all visitors a safe, healthful, productive, and aesthetically and culturally pleasing experience. Therefore, Alternative 3 is the alternative that best achieves the requirements of sections 101 and 102(1) of NEPA.

3.0 AFFECTED ENVIRONMENT

The affected environment section focuses on existing conditions of environmental and cultural resources that would affect or would be affected by the implementation of the alternatives. This information provides the baseline conditions for determining the resource impact of the preferred action. Topics analyzed include visitor use and experience, natural resources, and cultural resources.

3.1 Social Environment

Socioeconomics

The City of St. Marys is located in Camden County. It is situated on the northern bank of the St. Marys River in the coastal plain region of Georgia. The CUIS visitor center and ferry dock are located at the waterfront. This is the only location where visitors can register with the NPS and travel to the island on the concessionaire ferry.

Population growth in St. Marys is anticipated to continue through at least 2025 (JJG Water and Sewer Master Plan). The proximity of the City to the coast makes it an attractive location for retirees and families purchasing second (vacation) homes. In fact, the majority of the land use within St. Marys is residential. The Interstate 95 (I-95) and State Route (SR) 40 corridors provide easy access to other nearby cities, such as Brunswick, GA, and Jacksonville, FL. A number of light commercial/retail centers have located in the area.

Greyfield Inn is the only commercial operation on Cumberland Island. The Inn has been in operation since the mid-1960s and houses related business activities. Most of the non-public properties on Big Cumberland Island are in reserved estate agreements with the NPS. The agreement allows the respective party(s) to retain use of the property for a defined period of time ranging from as little as 25 years to the lifetime of a given descendant(s). These reserved estates are consistent with the CUIS enabling legislation, but the properties are NOT considered to be commercial.

Commercial operations related to the park itself are limited. Those identified in the CUIS draft Commercial Services Plan consist of the ferry concession, various Commercial Use Authorizations, a cooperating association, and holders of certain Special Use Permits, e.g., for commercial photography. The sole concessionaire, Lang's Seafood, Inc., has provided ferry service to the island for over a decade. Eastern National is a cooperating association with the NPS founded in 1947. Its one outlet in the park is located in the mainland Visitor Center, where books, videos, and related items are sold. Language in the 1972 Establishing Legislation and 1984 General Management Plan lead the NPS to limit the number of concessions at CUIS in order to maintain its primitive state. Additionally, the 2004 Cumberland Island Wilderness Boundary Adjustment Act states that trips of CUIS may not be conducted with the use of more than 3 concession contracts.

Transportation

Cumberland Island is accessible by private boat or passenger ferry only. Visitors seeking private transportation may charter a boat with the approved concessionaire or use personal boats. Day use docking is available at the north end of both Dungeness and Sea Camp docks, but only a limited amount of space is available, and the slips are on a first-come, first-served basis. Visitors are asked to deposit an entrance fee in collection boxes upon arrival at the docks. No overnight docking is permitted.

An NPS concessionaire runs the passenger ferry that departs from St. Marys to transport visitors to the island on a 45-minute ride to the Dungeness or Sea Camp Docks on the western shore of Cumberland Island. The ferry does not transport pets, bicycles, kayaks, or cars to the island. Bicycles and kayaks may be transported to the island by an authorized concessionaire charter boat.

The passenger ferry schedule varies throughout the year. From March 1st to November 30th, two daily round trips are made departing St. Marys at 9:00 a.m. and 11:45 a.m. and departing Cumberland Island at 10:15 a.m. and 4:45 p.m. From March 1st to September 30th, there is an additional departure from Cumberland Island at 2:45 p.m., Wednesday through Saturday. From December 1st to February 28th, the ferry keeps the same departure and arrival times with no ferry service on Tuesdays or Wednesdays.

Once on the island, visitor travel is primarily by foot or bicycle. Bicycles are available for rent at Sea Camp through contract with the passenger ferry concessionaire. NPS staff does not manage bike rentals. These limited travel options result in a concentration of visitation and day use on the southern end of the island.

While visitor transportation is generally pedestrian, there are approximately 85 vehicles on the island. Twenty-five of the vehicles are owned by the NPS. Private landowners, including the Greyfield Inn, and those with reserved estates have approximately 60 additional vehicles. Island driving is restricted for some by Wilderness areas and private roads. However, some reserved estate agreements allow for driving within the Wilderness. Beach driving is a permitted privilege regulated by the Georgia Department of Natural Resources (GA DNR). As of January 2007, 347 permits have been issued by the GA DNR to allow driving on the beaches of Cumberland Island. Permits must be renewed every five years. Through an agreement with GA DNR, the NPS has the opportunity to review and comment on permit applications prior to issuance.

Visitor Use and Experience

Visitor use and experience consists of: visitation patterns on CUIS, visitor experiences and activities, and interpretive opportunities for cultural and natural resources. CUIS is open year round with the exception of December 25th. In the past decade, visitation to CUIS has averaged approximately 43,500 people per year. Peak visitation is during spring break (March–May). Visitation is to remain at approximately 300 people a day according to the park's General

Management Plan (1984). This limitation provides for a continuation of the existing natural character of the island, free from extensive development and intensive visitor use. Overnight guests of Greyfield Inn, guests of island residents, and visitors by private boat (shoreline landings) are not counted toward the visitor limit number.

Activities

Island Museums: Visitors to Cumberland Island first begin their experience at the NPS Visitor Center in St. Marys. The facility is open daily from 8:00 a.m. to 4:30 p.m. While there, visitors can view limited exhibits of the natural and cultural features of the island. Some exhibits are designed to suggest places to visit and opportunities to enjoy the experience when visiting the island. Additional exhibits in the form of audiovisual programs about the island are presented daily.

The park also has a museum located in downtown St. Marys, just off of the waterfront, that has two primary exhibits. One is a general park museum that has interpretive information about natural resources and the island's continuum of human history from American Indian occupation through the Carnegie era. Included in these displays are pieces of a dug out canoe, a wagon room with three restored wagons/ carriages and a replica of a cotton gin. Visitors to the museum may also watch videos about the history of the island in the viewing room. The second primary museum exhibit is dedicated to St. Marys' involvement in the War of 1812, and includes artifacts and displays related to archeological discoveries at nearby Point Peter.

The Dungeness Icehouse on the island has been adaptively restored for use as a museum and restroom facility. Photographs, descriptions, and other memorabilia of the island's history are displayed for visitor enjoyment.

Guided Tours: Four formal programs are currently offered by the NPS. See **Figure 10** for current guided tour paths and locations. All ranger-led activities are dependent on staff availability.

The "Footsteps" tour is a ranger-guided, walking tour of the Dungeness Historic District. The walk begins at Dungeness Dock and continues along Coleman Avenue turning onto Grand Avenue (Main Road) to the entrance of the Dungeness ruins and concluding in the support area of the former estate. Visitors learn about the cultural history of the island from the Timucuan through the Carnegies. Additionally, the island's natural history is discussed including the maritime forest, marsh ecology, and wildlife. Tours are offered twice daily and last approximately an hour.

ST. ANDREW SOUND
SATILLA RIVER
CUMBERLAND RIVER
Little Cumberland Island
Big Cypress Pond
CAMDEN COUNTY GEORGIA
Halls Swamp
Copeland Swamp
Cooper Swamp
The Settlement
First African Baptist Church
High Point Road
North Cut Road
Wilderness Area Boundary
Bunkley Trail
Whitney Lake
Brickhill Bluff
South Cut Trail
Roller Coaster Trail
Kings Bottom Trail
Table Point Trail
Tar Kiln Trail
Sweetwater Lake
Stafford Island
Plum Orchard
Yankee Paradise
Old River Trail
Yankee Paradise Trail
Hickory Hill
CROOKED RIVER
Stafford
Cemetery
Old House Road
Parallel Trail
Stafford Beach
Little Greyfield
Greyfield
Main Road
Cannon Swamp
Sea Camp Ranger Station
Sea Camp Beach
River Trail
Ice House Museum
SOUND
CUMBERLAND
ATLANTIC OCEAN
Dungeness Ruins
Cemetery
Passenger Ferry
South End Trail
40
St. Mary's
ST. MARYS RIVER
FLORIDA
Amelia Island

Cumberland Island Environmental Assessment/ Transportation Management Plan

Current Guided Tours July, 2008

N W E S

0 0.5 1 2 Miles

Dockside Program/Campfires & Crafts

Footsteps Tour

Plum Orchard Tour

Ferry to Plum Orchard

Hike or Bike to Plum Orchard

Ferry Routes

Primary Road

Secondary Road

Trail

Railroad

Major Rivers

Wilderness Area

Cumberland Island Nat'l Seashore

Lake or Pond

Swamp or Marsh

Stream or River

Canal or Ditch

NATIONAL PARK SERVICE

Figure 10

P:\07\07036\002\GIS\tours_TAB_bws_071007.mxd **07/19/07**

The "Plum Orchard" tour is another walking tour offered by the NPS that allows visitors to see an early 20th century mansion with antiques from the Carnegie families. This tour requires an hour and a half roundtrip ferry ride from Sea Camp or seven-mile hike or bicycle ride to the Plum Orchard Historic District. The tour is currently offered on the second and fourth Sundays of each month.

The "Dockside" tour is a 30-minute program presented at the Sea Camp Ranger Station on a daily basis. The programs highlight a variety of cultural and natural history topics and are often seasonal.

Finally, the summer schedule also includes a daily "Campfires and Crafts" program at Sea Camp Ranger Station and evening programs on Saturday nights at the Sea Camp Campground. The topics of these presentations vary, but generally cover the native flora and fauna, and barrier island ecology.

Self-Guided Interpretation: Daytime visitors arriving at Dungeness Dock are presented with interpretive materials including maps and brochures regarding interpretive opportunities through the park including the Dungeness Historic District and other points of interest. Adjacent to the dock is the Icehouse Museum, which has been adaptively restored. Here, visitors can learn about the island's history including American Indian habitation through the Carnegie period by looking at memorabilia, including photographs and artifacts. Restrooms are located in the rear of the building.

The NPS provides interpretive facilities to educate visitors about the sensitivity of park resources while enhancing the visitor experience on the island. In the Dungeness Ruins area, wayside panels educate visitors following the self-guided tour. After disembarking at the historic dock, visitors walk along the oak-lined Coleman Avenue to Main Road – the formal entrance of the Dungeness Ruins. In this area, visitors can view the Dungeness Ruins, the gardens, a waterwheel, and other landscape features. Next, visitors walk to the Tabby House – a historic house museum that presents the house as it was used by the record keeper during the Carnegie Period. At the end of the tour, visitors can return to the dock or continue on to the beach and other points of interest such as the marsh boardwalk.

Camping: Both developed and backcountry camping is available. See **Figure 11** for photos of both camping options. Overnight visitation limit is set at 120. Sea Camp can accommodate 60 campers per night, and the additional 60 campers are divided among the remaining campgrounds. All camping is limited to seven days. Spring and late Fall are peak seasons. Reservations are encouraged and may be made up to six months in advance.

Developed Camping

Backcountry Camping

Cumberland Island
Environmental Assessment/
Transportation Management Plan

Camp Grounds

Date: July 2008
Scale: Not to Scale

Figure 11

Backcountry Camping: Backcountry sites are $2.00 per person per night. All of the backcountry sites are located within Wilderness, there are no facilities, and water must be treated. Campfires are not permitted in the backcountry, and portable stoves are recommended. The backcountry sites range from 5.5 to 10.5 miles from the Sea Camp ferry dock. Sites are assigned upon arrival.

- Hickory Hill: 5.5 miles from Sea Camp, in the heart of the island, offers visitors the opportunity to explore an interior freshwater wetland and its wildlife. Insects are seasonally prevalent due to the proximity of the campsite to a wetland area.
- Yankee Paradise*:* 7.5 miles from Sea Camp, also in the center of the island and a two hour round trip walk to the Plum Orchard Mansion.
- Brickhill Bluff*:* 10.5 miles from Sea Camp, located on the Brickhill River. This location is a favorite place for spotting dolphins.

Developed Camping: Developed camping sites are $4.00 per person per night. Sites have various levels of facilities.

- Sea Camp Campground: Includes restroom facilities with cold water showers, a small amphitheater for ranger programs, boardwalk access to the beach, and a treated water supply. This campground consists of 16 individual camp sites and two group sites. Group sites can accommodate 10-20 people. Each campsite has a fire ring with grill, secure food storage, and picnic table. Sites are assigned upon arrival.
- Stafford Campground: Located 3.5 miles from the ferry dock. Restrooms, showers, and treated water are available at the site. Each campsite has a fire ring with grill.

Hiking: A total of 50 miles of hiking trails meander through maritime forests, interior wetlands, historic districts, marsh ecosystems, and beaches. Trails are accessible only by foot. On the south end of the island, trails provide an opportunity to view a number of different ecosystems including the maritime forest, marsh, and dune systems. The trail systems include Dungeness Trail, River Trail, and Nightingale Trail. For visitors traveling north on the island, there is an extensive network of north-south trails that provide a path through the heart of the island. Visitors can see a variety of plant life, open fields, tidal creeks, freshwater wetlands and lakes, Plum Orchard Mansion, and the site of the First African Baptist Church located in the historic Settlement area at the north end of Cumberland Island.

Hunting and Fishing: Hunting is permitted on the island during six managed hunts that are open to the public and held during the State of Georgia's hunting seasons. The hunts are advertised in newspapers, and a lottery drawing is held to select participants. Fishing is not restricted by season or participant selection but is subject to all State regulations.
Anglers can enjoy numerous fresh and saltwater fishing opportunities. The island's surrounding waters and marshes offer additional recreational opportunities including the

harvest of shrimp, crabs, and oysters. Anyone 16 years or older must possess a State of Georgia fishing license to fish.

Photography: Visitors to the island will find endless opportunities for photography. Numerous historic structures and ruins scatter the island. Sunrise at the beach, sunset over the marsh, gnarled live oak limbs, diverse island wildlife, and interesting cultural and natural features all provide excellent subjects for photos.

Beach Combing: Visitors are allowed to collect shark teeth and unoccupied sea shells with few limitations. The limit on unoccupied shells is 2 gallons. There is no defined limit on shark teeth due to their scarcity and unlikelihood that more than 2 gallons would be gathered in a day/visit. Shells and shark teeth may not be gathered for commercial purposes.

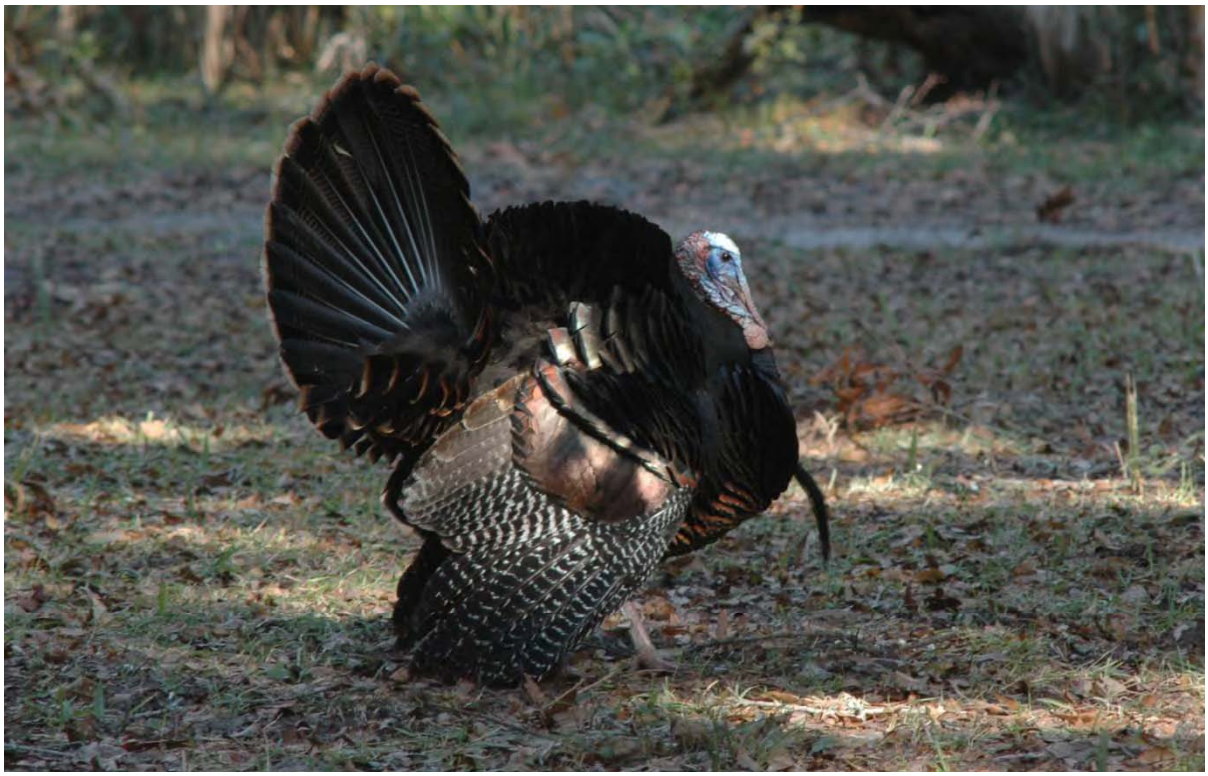
Beach findings may include coquinas, disc clams, heart cockles, ark shells, moon snails, and an occasional sand dollar or olive shell. Shark teeth can often be found in the roads because they are conditioned with dredge fill.

Swimming**:** Swimming is allowed anywhere on the island. However, visitors are encouraged to be mindful of riptides in the ocean and wildlife in freshwater ponds. There are no lifeguards, so visitors must swim at their own risk.

Wildlife and Bird Watching: Numerous species can be found at Cumberland Island, from threatened and endangered manatees and sea turtles to more than 300 species of birds. Often in the same day, visitors may see wild turkeys, armadillos, feral horses, vultures, dolphins, and lizards. Camping is encouraged for visitors who want to experience more elusive white-tailed deer, bobcats, alligators, and otters. Animal activity is often greater at dawn and dusk and camping allows visitors to be on location during these hours. Birding is often good at the south end at Pelican Banks, as well as on the marsh edge and in the interior wetlands. See **Figure 12** for photos of some of the island wildlife.

Wilderness

On September 8, 1982, Congress designated much of the northern half of Cumberland Island as wilderness or potential wilderness to be managed as part of the National Wilderness Preservation System (Public Law 97-250, 16 U.S.C. 1131 *et seq*.). The Wilderness Act of 1964 requires the NPS to protect and manage designated wilderness so that it "generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable," and so that it "has outstanding opportunities for solitude, or a primitive and unconfined type of recreation." As a general rule, vehicular travel is prohibited in congressionally designated wilderness areas.



Cumberland Island
Environmental Assessment/
Transportation Management Plan

Island Wildlife

Date: July 2008
Scale: Not to Scale

Figure 12

In the case of potential wilderness, NPS endeavors to preserve as much as possible of the area's wilderness character so that it may be designated as wilderness once non-conforming uses cease.

Through the Cumberland Island Wilderness Boundary Adjustment Act of 2004 (Division E, Section 145 of Public Law 108-447), Congress directly and specifically removed three roads from the Cumberland Island Wilderness (i.e., the Main Road, North Cut Road, and the Plum Orchard Spur) and mandated that the NPS provide public access to the historic resources adjacent to the Wilderness. It also adjusted the external boundary of the Cumberland Island Wilderness. Specifically, the act designated approximately 9,886 acres in the park as wilderness, and stated that an additional 231 acres are to become designated wilderness upon acquisition by NPS. The act also designated approximately 10,500 acres as potential wilderness. The act provides that when all uses prohibited by the Wilderness Act on the 10,500 acres of potential wilderness have ceased, the Secretary may designate those lands as wilderness.

NPS wilderness management policies are based on statutory provisions of the 1916 Organic Act for the National Park Service, the 1964 Wilderness Act, and legislation establishing individual units of the National Park System. NPS' *Management Policies* (2006) require that NPS-managed wilderness areas be administered for the use and enjoyment of the American people in such a manner as will leave them unimpaired for future use and enjoyment *as wilderness*. This means that NPS must protect the natural and cultural resources within a particular area while preserving its wilderness character. Most significantly, the Wilderness Act generally prohibits commercial activities and the use of motorized equipment in wilderness, subject to valid existing private rights. 16 U.S.C. 1133(c). The Cumberland Island Wilderness is managed in accordance with these laws and policies.

Recreational uses in National Park Service wilderness areas are to be such as will enable the areas to retain their primeval character and influence; protect and preserve natural conditions; leave the imprint of man's work substantially unnoticeable; provide outstanding opportunities for solitude or primitive and unconfined types of recreation; and preserve wilderness in an unimpaired condition.

Community Character and Park Neighbors

Cumberland Island includes twenty private entities that have interests in at least one or more parcels of land on the island. These parcels are in either fee simple ownership or are under reserved estate agreements with the NPS. In addition, the U.S. Navy, U.S. Army Corps of Engineers, and State of Georgia own property within the legislated boundary. Although Little Cumberland Island is also within the CUIS boundary, it is completely under private ownership and is managed by a property owner's association.

The fee simple and reserved estate properties on Cumberland range in size from less than 1/3-acre to approximately 200 acres, generally include at least one residential structure, and are dispersed throughout the island. The national register historic districts of Dungeness, Stafford, Plum Orchard, and High Point – Half Moon Bluff all contain inholdings. Several other tracts are located within the Wilderness Area. The island properties serve a variety of functions including

full-time residence, vacation homes, rental properties and commercial inn. The residents, their employees and guests use the Main Road as the primary transportation artery on the island.

3.2 Natural Resources

Congress recognized the national significance of Cumberland Island when it included the island within the National Park System. The significance of the diverse resources on Cumberland Island received international recognition in 1986 when the UNESCO Bureau of the International Coordinating Council for Man and the Biosphere designated CUIS as part of the Carolina-South Atlantic Biosphere Reserve-Sea Island Unit.

Cumberland Island is bounded by the Atlantic Ocean on the east, the Cumberland River on the west, by St. Andrews Sound on the north, and by Cumberland Sound on the south. The authorized boundary of CUIS encompasses both Cumberland and Little Cumberland islands, but Congress directed that Little Cumberland Island remain in private ownership so long as the residents of Little Cumberland maintain an irrevocable trust or other irrevocable agreement that ensures the preservation of that island's resources. Of Cumberland Island's 36,415 acres, approximately 19,565 acres are considered upland and 16,850 acres contain marsh, mud flats, and tidal creeks. The NPS owns 18,814.17 acres within the CUIS boundary, with most of the remainder being privately owned, owned by the State of Georgia, or owned by the NPS subject to reserved estates. Two other Federal entities own land within the CUIS boundary: the U.S. Army Corps of Engineers (518 acres) and the U.S. Navy (139 acres).

Barrier island landscapes are dynamic, with the ocean being the primary force of change. Beach sands are in constant motion as a result of southwest littoral (i.e., along-the-shore) currents, high waves and surge caused by storms, routine wave action, and rising sea levels. Sand movement changes the appearance of the island, sometimes increasing and sometimes eroding the shoreline.

Vegetation and Wildlife

Vegetation is critical in maintaining stability on the island. Extensive root systems of maritime grasses and herbaceous plants help to stabilize sediments, whether windblown or waterborne. The grasses themselves trap windblown sand. In this way, sand dunes build naturally, and the topography is elevated just enough that other plant life can take root. Shrubs and trees shield other vegetation from the harsh salt-spray of the ocean, allowing different plant life to grow. Therefore, the vegetation forms distinctive ecological zones across the island.

Just over 10% of the island is composed of dune plant communities. This includes sparse stands of grasses, forbs, and sedges along the primary dunes, interdune meadow, and secondary dunes along the 17½-mile ocean beach. Sea oats (*Uniola paniculata*), railroad vine (*Ipomoea pes-caprae*), beach morning glory (*Ipomoea stolonifera*), and beach pennywort (*Hydrocotyle bonariensis*) are important stabilizing plants.

The entire tidal area of the west side of the island is linked into a single functional unit. Extensive salt marshes meander along the creeks and create pockets of stabilizing grasses dominated by salt-marsh cordgrass (*Spartina alterniflora*). *Spartina* grows over the entire

marsh, is eaten by insects, dies, decomposes, and, as detritus, furnishes food for most of the other marsh fauna. Shrimp, crabs, and small fish use the marshes as a nursery and feeding area, moving in and out with the tides. Fiddler crabs are the most conspicuous animals that feed on the detritus covering the soft mud. The tidal amplitude in Georgia is large, approximately seven feet. Tidal data from Sea Camp dock shows the mean high water level at approximately 6.83 feet and the mean low water level at 0.0 feet. These "bar-built" estuaries are energy absorbing systems.

The aquatic systems of Cumberland Island are more extensive and diverse than those of other Georgia barrier islands. Permanent ponds comprise 0.2% of the island. Three quarters of these are freshwater ponds. Water levels in ponds and sloughs fluctuate, changing their salinity. These areas provide nesting, feeding, and roosting areas for a large number of wading birds and shore birds, as well as many amphibians, reptiles, and mammals.

Fire, storms, grazing, and agricultural use have been, and remain, significant influences in determining the present vegetation communities of Cumberland Island. Twenty-two (22) plant communities have been described and mapped (Hillestad 1975). Mature forests are dominated by broadleaf evergreen species. Thirty-nine percent of the island is made up of five upland forest communities, with oak species playing an important role in every one. Important tree species include live oak (*Quercus virginiana*), laurel oak (*Quercus laurifolia*), several species of pine (*Pinus spp.*), and bayberry (*Myrica cerifera*). Common understory plants include saw palmetto (*Serenoa repens*), bristly panic grass (*Panicum aciculare*), other grasses, and many vine species. No-federally listed plants have been found on the island. Hard (acorns) and soft (fruits) mast producing trees, shrubs, and vines are a significant food source for numerous species of wildlife on CUIS.

Thirty-nine (39) species of mammals, both marine and terrestrial, are known to occur or have occurred on CUIS. There are resident populations of white-tailed deer (*Odocoileus virginianus*), gray squirrels (*Sciurus carolensis*), and raccoons (*Procyon lotor*). There are many smaller mammals, including rodents, bats, opossums, marsh rabbits, mice, and voles. Armadillos were first documented on the island in 1974. Bobcats were reintroduced in 1989. The presence of coyotes was documented in 2006.

Feral animals exist in a wild or untamed state; especially, having reverted to such from a domesticated state. Two feral species inhabit Cumberland, hogs and horses, and both owe their presence to past activities of man. Primary concerns presented by feral animals include competition with native wildlife for food and habitat, and damage to the environment. The horses inflict unnatural grazing pressure on sea oats which stabilize dune systems and spartina which stabilizes the marsh environment. Trampling of dune and marsh areas denudes vegetation and facilitates erosion. Hogs are capable of damaging numerous facets of a local ecosystem due to their omnivorous feeding habits. They are known to consume hard and soft mast vegetation, roots and tubers, small reptiles and amphibians. During periods of high hog populations in the late 1990s and early 2000s Cumberland experienced significant damage to loggerhead sea turtle

nests. In addition to their feeding habits, hogs can potentially damage soils and related communities through their intense rooting activities.

Birds are by far the most numerous animals on the island, with more than 300 species recorded within CUIS boundaries. Their abundance is due to the CUIS location on the Atlantic Flyway and the lack of development and human disturbance. At least 101 species are known to nest on the island. Of special importance are the bald eagle, wood stork, and peregrine falcon that use CUIS in limited numbers for feeding and resting. Eagles currently nest on the island and storks have done so in the recent past. The piping plover is threatened along the Atlantic coast. Non-breeding migrant piping plovers spend a considerable amount of time on the CUIS coast annually, with individuals normally arriving in late July and early August and remaining into mid-May. Least terns, Wilson's plovers, and American oystercatchers nest behind beach/berm, among scattered low dunes, and on tidal flats. Cumberland Island provides critical nesting habitat for 18 species of colonial nesters such as least and gull-billed terns, wood storks, herons, and egrets. The mature oak forest provides nesting habitat for 77 species of tree nesting birds and feeding habitat for over 100 species of insect-eating birds. Large multi-species flocks of shorebirds frequent the beaches.

Reptiles dominate the herpetofauna of Cumberland Island. There are 44 species of reptiles and 17 species of amphibians. Many varieties of tree frogs, toads, snakes, and lizards are also common residents. The American alligator occurs commonly throughout aquatic areas.

Cumberland consistently supports one of the largest nesting sea turtle populations along the Georgia coast. The loggerhead sea turtle (*Caretta caretta*), a federally threatened species, is a regular summer visitor to Cumberland Island, nesting on or near the base of dunes fronting the beach. Over the last 15 years, CUIS has documented an average of 206 sea turtle nests established per year. During the 2007 nesting season, 177 loggerhead sea turtle nests were laid. Green, Kemp's ridley and leatherback sea turtles occasionally visit the shores of Cumberland, but rarely nest.

Numerous marine animals inhabit the intertidal zones of the beaches, tidal flats, and salt marshes. Manatees, dolphins, and several whale species frequent the waters adjacent to Cumberland. Burrowing mole crabs, ghost crabs, and coquina clams are found on the ocean beaches, and crustaceans and worms on the tidal flats. Many species of commercially valuable invertebrates and fish are supported by the food chain of CUIS salt marshes and tidal creeks.

Threatened and Endangered Species

The Endangered Species Act requires an examination of impacts on all federally-listed threatened or endangered species. National Park Service policy also requires an assessment of the impacts on all Federal candidate species, as well as State listed threatened, endangered, candidate, rare, declining, and sensitive species. The Federal and State listed threatened or endangered species, candidate species, and species of special concern that may be potentially found in Camden County, Georgia, are discussed in this section. Table 3 provides a comprehensive list of those species, their habitat and potential known threats. Information on

these species is from the U.S. Fish and Wildlife Service, National Marine Fisheries Service, and Georgia Department of Natural Resources. The list includes four mammals, thirteen birds, seven reptiles, one fish, and four plants. It is difficult to say that all of these species are in the study area because their range is likely at the county level. Camden County covers approximately 659 square miles.

Table 3: Federal and State Listed Species Known to Occur in Camden County

Species	Federal Status	State Status	Habitat	Threats
Mammal				
Humpback whale *Megaptera novaeangliae*	E	E	Coastal waters during migration	Entanglement in commercial fishing gear and collisions/disturbance associated with boats and barges
Right whale *Eubalaena glacialis*	E	E	Mate and calve in shallow coastal waters; critical habitat designated from the mouth of Altamaha River south to Sebastian Inlet, FL (from shoreline east 5-15 nautical miles)	Initial decreases probably due to over harvesting. Slow population growth after exploitation halted may be due to collisions/disturbance associated with boats and barges, inbreeding, inherently low reproductive rates, or a reduction in population below a critical size for successful reproduction.
Round-tailed muskrat *Neofiber alleni*	No Federal Status	T	Bogs and ponds; creates pyramid-shaped nest in vegetation	Habitat loss from human activities and natural succession. Loss of bog/floating mat vegetation-type habitat due to man's suppression of wildfires.
West Indian manatee *Trichechus manatus*	E	E	Coastal waters, estuaries, and warm water outfalls	Initial decreases probably due to over harvesting for meat, oil and leather. Current mortality due to collisions with boats and barges and from canal lock operations. Declines also related to coastal development and loss of suitable habitat, particularly destruction of seagrass beds.

Species	Federal Status	State Status	Habitat	Threats
Bird				
Bachman's warbler *Vermivora bachmanii*	E	E	Probably extinct; last seen in Georgia in 1976	
Kirtland's warbler ***Dendroica kirtlandii***	E	E	Varying habitats during late spring and fall as the bird migrates between Michigan and wintering grounds in the Bahamas.	Habitat degradation as a result of wildfire suppression, and incubation and hatchling competition from brown-headed cowbirds are major threats for this species.
Bald eagle *Haliaeetus leucocephalus*	No Federal Status	T	Inland waterways and estuarine areas in Georgia. One active eagle nest was documented on Cumberland in 2007.	Major factor in initial decline was lowered reproductive success following use of DDT. Current threats include habitat destruction, disturbance at the nest, illegal shooting, electrocution, impact injuries, and lead poisoning.
Peregrine Falcon *Falco peregrinus*	No Federal Status	R	Extreme north Georgia is the southern limit of the historic nesting range. Peregrines are commonly seen along the Georgia coast during winter migration.	Major factor in initial decline was lowered reproductive success from DDT concentrations. While DDT use in South America is still a concern, expansion of human population and subsequent loss of undisturbed nesting habitat and foraging areas is a factor currently.
Gull-billed tern *Sterna nilotica*	No Federal Status	T	Nests in colonies on sandy sites; forages over salt marsh, dunes and other grassy areas for insects, spiders, and other invertebrates	Nest disturbance and loss of habitat to beach-front development are the major threats to this species.
Piping plover *Charadrius melodus*	T	T	Winter on Georgia's coast; prefer areas with expansive sand or mudflats (foraging) in close proximity to a sand beach (roosting)	Habitat alteration and destruction and human disturbance in nesting colonies. Recreational and commercial development has contributed greatly to loss of breeding habitat.

Species	Federal Status	State Status	Habitat	Threats
Wilson's Plover *Charadrius wilsonia*	No Federal Status	T	Atlantic Coast breeding populations range from New Jersey to northern South America. Nesting habitat includes beaches, sand flats and spits.	Loss of nesting habitat from human development; predation from wild, feral, and domestic animals; and human disturbance in the form of pedestrians and vehicles are primary threats to this species.
Least Tern *Sterna antillarum*	Not listed in GA; interior U.S. populations Endangered	R	Atlantic Coast breeding populations range from Massachusetts to Florida. Nesting colonies have been documented in all Georgia coastal counties.	Human disturbance of nesting colonies is the primary threat to this species' success. Predation also is a concern.
American Oystercatcher *Haematopus palliates*	Not Listed	R	Nests on marsh islands, upland dunes, beaches, and dredge spoils. Atlantic Coast population nests from Massachusetts to southern Florida.	Human disturbance, loss of nesting habitat to development, and predation are known threats to this species' success.
Black Skimmer *Rynchops niger*	Not Listed	R	Atlantic Coast population nests on barrier island beaches and man-made dredge spoil islands primarily in the mid-Atlantic States. Winters in southern U.S. and Caribbean.	Main threats include loss of nesting habitat due to beachfront development and human disturbance at nesting colony sites.
Red Knot *Calidris canutus*	Not Listed	R	Nests in the Arctic and winters on southern tip of South America. Georgia coast serves as a stopover for winter/early spring migrants.	Reduction in population is thought to be related to lack of preferred food sources during migration and subsequent decline in body condition.

Species	Federal Status	State Status	Habitat	Threats
Red-cockaded woodpecker *Picoides borealis*	E	E	Nest in mature pine with low understory vegetation (<1.5m); forage in pine and pine hardwood stands > 30 years of age, preferably > 10" dbh	Reduction of older age pine stands and encroachment of hardwood midstory in older age pine stands due to fire suppression
Wood stork **Mycteria americana**	E	E	Primarily feed in fresh and brackish wetlands and nest in cypress or other wooded swamps. Active rookeries were located in Camden County 1991-2002.	Decline due primarily to loss of suitable feeding habitat, particularly in south Florida. Other factors include loss of nesting habitat, prolonged drought/flooding, raccoon predation on nests, and human disturbance of rookeries.
Reptile				
Eastern indigo snake *Drymarchon corais couperi*	T	T	During winter, den in xeric sand ridge habitat preferred by gopher tortoises; during warm months, forage in creek bottoms, upland forests, and agricultural fields	Habitat loss due to uses such as farming, construction, forestry, and pasture and to over collecting for the pet trade
Gopher tortoise *Gopherus polyphemus*	Not listed in GA; federally threatened in portions of its range in AL, MS, and LA	T	Well-drained, sandy soils in forest and grassy areas; associated with pine overstory, open understory with grass and forb groundcover, and sunny areas for nesting	Habitat loss and conversion to closed canopy forests. Other threats include mortality on highways and the collection of tortoises for pets.
Green sea turtle *Chelonia mydas*	T	T	Rarely nests in Georgia; migrates through Georgia's coastal waters	Exploitation for food, high levels of predation, loss of nesting habitat due to human encroachment, hatchling disorientation due to artificial lights on beaches, and drownings when trapped in fishing and shrimping nets

Species	Federal Status	State Status	Habitat	Threats
Hawksbill sea turtle *Eretmochelys imbricata*	E	E	Migrates through Georgia's coastal waters	Primary causes of population decline are development and modification of nesting beaches and exploitation for the shell. Secondary causes include egg consumption, use of the skin for leather, and heavy predation of eggs and hatchlings.
Kemp's ridley sea turtle *Lepidochelys kempi*	E	E	Migrates through Georgia's coastal waters	Over harvesting of eggs and adults for food and skins and drowning when caught in shrimp nets
Leatherback sea turtle *Dermochelys coriacea*	E	E	Rarely nests in Georgia; migrates through Georgia's coastal waters	Human exploitation, beach development, high predation on hatchlings, and drowning when caught in nets of commercial shrimp and fish trawls and longline and driftnet fisheries
Loggerhead sea turtle *Caretta caretta*	T	E	Nests on Georgia's barrier island beaches; forages in warm ocean waters and river mouth channels	Loss of nesting beaches due to human encroachment, high natural predation, drownings when turtles trapped in fishing and shrimping trawls, and marine pollution
Fish				
Shortnose sturgeon[1] *Acipenser brevirostrum*	E	E	Atlantic seaboard rivers	Construction of dams and pollution, habitat alterations from discharges, dredging or disposal of material into rivers, and related development activities.
Plant				
Climbing buckthorn *Sageretia minutiflora*	No Federal Status	T	Calcareous rocky bluffs, forested shell middens on barrier islands, and evergreen hammocks along stream banks and coastal marshes. Recorded from 5 counties in Georgia.	

Species	Federal Status	State Status	Habitat	Threats
Hartwrightia *Hartwrightia floridana*	No Federal Status	T	Peaty muck of pine flatwoods, sedge meadows, and wettest parts of poorly drained ditches/sloughs; often with water-spider orchid (*Habenaria repens).* Recorded from 3 counties in Georgia.	
Pondspice *Litsea aestivalis*	No Federal Status	R	Margins of swamps, cypress ponds, and sandhill depression ponds and in hardwood swamps. Recorded from 13 counties in Georgia.	
Wagner spleenwort *Asplenium heteroresiliens*	No Federal Status	T	Marl outcrops, damp limestone ledges, and tabby masonry. Recorded from 3 counties in Georgia.	

Key: E = Endangered; T = Threatened; SC = Species of Concern; R = Rare

Soils

Most of Cumberland Island's soils were derived from homogenous quartz sands deposited during the island's formation. These soils are highly resistant to weathering and closely resemble their parent materials. Some characteristics of these island soils are low water-retention capacity, rapid permeability, and vulnerability to leaching and low pH. Rapid leaching leads to soils that cannot retain essential plant nutrients. Therefore, nutrients must be retained by plants or they are briskly recycled. Barrier island soils are especially vulnerable to disturbances, and plant litter plays a major role in reducing nutrient leaching by dissipating the force of rainfall. Removal of plant litter or plant biomass results in rapid exhaustion and leaching of soil nutrients. Disruption of stabilizing vegetation permits wind erosion that is difficult to reverse. As sands begin to shift, a loss of productivity results in erosion to adjacent areas as well as where sand deposits bury stable soils and vegetation.

Air Quality

Cumberland Island National Seashore is designated as a Class II air quality area under the Clean Air Act (CAA). Furthermore, Section 118 of the (CAA), as amended (33 U.S.C. 7401 *et seq*.), requires each park unit to meet all Federal, State, and local air pollution standards. There are no air quality (AQ) monitoring stations on Cumberland Island. However, modeling and estimates

generated by the NPS and based on regional AQ sites indicate that CUIS is within the national standards for ozone, particulates, and acid deposition.

Soundscape Management

In accordance with NPS *Management Policies* (2006) and Director's Order #47, *Sound Preservation and Noise Management*, an important part of the NPS mission is preservation of natural soundscapes associated with national park units. Natural soundscapes exist in the absence of human-caused sound. The natural ambient soundscape is the aggregate of all natural sounds that occur in park units, together with the physical capacity for transmitting natural sounds. Natural sounds occur within and beyond the range of sounds that humans can perceive and can be transmitted through air, water, and solid materials. The frequencies, magnitudes, and duration of human-caused sound considered acceptable varies among NPS units, as well as potentially throughout each park unit, being generally greater in developed areas and less in undeveloped areas. Throughout Cumberland Island the natural soundscape may be affected by industrial and military facilities to the south and west, persistent mid and low level aircraft overflights, vessel traffic on the waterways surrounding the island, and day-to-day human activities associated with the park and residence settings.

3.3 Historic, Archaeological and Cultural Resources

For more than 4,000 years, a variety of human visitors and residents have interacted with and relied upon the natural resources of Cumberland Island. The island and its inhabitants have played important roles in numerous significant periods of American history. The first occupation dates back to before 3000 BC, with early ceramic cultures appearing around 2,000 BC. Cultural affiliations shifted over time, but, at the time of first contact with Europeans, the Timucua occupied Cumberland Island. Later, a tribe named the Guale by the Spanish used Cumberland Island seasonally, harvesting fish and shellfish.

Soon after Europeans arrived, the Sea Islands of North America's southeast coast were drawn into the larger Atlantic trading economy. In the sixteenth century, the natural abundance of Cumberland and other coastal islands attracted European galleons, which stopped long enough to load game birds, pelts, and naval stores. The sailors on these ships were drawn from various European and African trading areas, and these visits witnessed some of the first encounters between Africans, Europeans, and American Indians.

The southeastern coast of North America, lying between Spanish Florida and the British settlements in Virginia, was contested ground from the early seventeenth to the late eighteenth centuries. Around 1600, Spanish priests and soldiers established a string of missions and related forts on the Georgia Sea Islands, including the missions of San Pedro de Mocama and San Pedro y San Pablo de Porturibo on Cumberland Island. The Spanish sought to Christianize the native peoples and guard their more valuable possessions to the south.

The settlement of Carolina in 1670 led to increasing conflict between the British and Spanish and their respective native allies. Raids instigated by the British pushed the Spanish farther and

farther south. During King George's War in the 1740s, General James Oglethorpe, founder of the Georgia colony, fortified Cumberland Island against the Spanish with Fort St. Andrews at the north end of the island and Fort Prince William at the south end. The Battle of Bloody Marsh on St. Simons Island in 1742 ended the impending threat of Spanish occupation in Georgia, but the fate of the Georgia Sea Islands continued to be disputed in the French and Indian War, the American Revolution, and the War of 1812.

The plantation system began to take root on Cumberland in the late eighteenth century. The primary engine of development in the South, the plantation, was based on African slavery and the production of staple crops for export. Although timber, citrus fruit, and olives were cultivated on Cumberland, long-staple cotton, commonly known as sea-island cotton, emerged as the most profitable crop, commanding as much as one dollar per pound in international markets. Revolutionary War hero Nathaniel Greene began the development of plantation agriculture on Cumberland in the 1780s, but his widow, Catherine, and their descendants were the initial key players. An 1802 map of the island shows a system of roads and cotton fields cleared by slave labor. By the 1840s, much of the island was under cultivation by some 200 to 400 enslaved African workers under the direction of two to three dozen whites. The substantial black majority in coastal South Carolina and Georgia and the area's relative isolation from outside influences produced a unique African-American cultural complex known as Gullah (in South Carolina) or Geechee (more commonly used in Georgia). Hallmarks of this culture are a distinctive Gullah language and artistic, culinary, and religious traditions strongly influenced by African heritage. Although little is known specifically about Geechee culture on Cumberland, it likely resembled the more intensively studied Gullah culture of South Carolina.

Agricultural production on Cumberland peaked during the two decades preceding the Civil War. It was at this time that planter Robert Stafford assembled holdings on the island totaling some 8,000 acres. Early in the war, most white plantation masters abandoned their lands and field slaves when it became apparent that Confederate forces could not defend the Sea Islands. Union troops occupied Cumberland and surrounding waters in March 1862, holding the area for the remainder of the war. Much of the African-American population of Cumberland sought refuge under Federal auspices on nearby Amelia Island, just across the sound in Florida. Following the war and short-lived efforts to redistribute confiscated land to freed people, the landholdings on Cumberland reverted to their pre-war owners.

In the 1870s, an expanding railroad and steamship network opened the coastal South to more intensive recreational use. By 1878, hotel operations at High Point on the northern end of Cumberland Island were served by steamers from Brunswick. They reached a peak in the 1890s and 1900s, when groups like the Georgia Teachers Association and the Georgia State Dental Society held their annual meetings there. Starting in 1890, the hotel owners sold small plots of land at the nearby Settlement (also known as Half Moon Bluff) to several African-American families in order to ensure a steady supply of labor. The hotel shut down in 1920 when the Cumberland Island Club, a private organization, purchased the property. Eight years later, the property was acquired by the Candler family, which had made its fortune through the Coca-Cola Company.

Wealthy northern industrialist families also saw the potential for winter homes on the Sea Islands. In 1881, Thomas Morrison Carnegie – brother of Andrew Carnegie – purchased the Greene-Miller plantation at Dungeness for his wife Lucy Coleman Carnegie and their growing family. Despite Thomas' death in 1886, Lucy went on to amass 90 percent of Cumberland Island and proceeded to turn it into a complex of family estates, which included homes with extensively landscaped grounds for four of her children. Lucy's home, Dungeness Mansion, was built on the ruins of Catherine Greene's original Dungeness plantation house. During Lucy's lifetime, Cumberland Island was a highly organized, largely self-sufficient, private preserve. It was staffed by some 200 employees, most of whom were African Americans, and, through their labor, the extended Carnegie family was supplied with produce and livestock, supplemented by provisions brought daily from Amelia Island on the family yacht.

Lucy Carnegie established a trust that kept the family's holdings intact until the death of her last child, which occurred in 1962. By this time, plans for exploiting and developing the island's natural and scenic resources threatened the island's future preservation. Wanting to maintain its character, Carnegie and Candler descendants who were interested in preserving the island banded together to seek alternative ways to protect Cumberland Island from development. They, along with environmental organizations and the Department of the Interior, succeeded in having Cumberland Island set aside in 1972 as a National Seashore for all Americans.

The appearance of Cumberland Island today is largely a result of the overlay of these successive waves of human habitation and development. Many individual sites, such as Dungeness and Plum Orchard, bear the imprint of American Indian settlements, followed by the plantation regime, with a final dominant overlay of Carnegie-era development. From the late 1700s, the bulk of the labor that developed and maintained human life on the island was supplied by African Americans, enslaved until the 1860s and as paid laborers thereafter. Although many of the prominent extant structures on the island represent the leisure activities of the island residents, the artifacts below ground – the ruins of slave villages, patterns of field and forest, gardens and outbuildings – represent the considerable contributions of American Indians and African Americans to the development of the island.

As important as individual historic structures, the cultural landscape or context in which the structures existed helps provide insight into the lives of plantation owners and slaves on CUIS. The cultural landscapes of CUIS are being preserved in entire historic districts rather than just individual buildings and structures.

Historic districts have been established around the historic structures and landscapes at Dungeness, Plum Orchard, Stafford, and High Point – Half Moon Bluff as part of the Cultural Resource Management Plan. Each of these historic districts has been included in the National Register of Historic Places. The privately owned Greyfield is also a federally listed historic district. Archaeological districts have been established at Rayfield and Table Point, and these districts have likewise been included in the National Register of Historic Places. In total, the park is responsible for 83 individual historic structures and 47 known archeological sites.

Table 4 lists and **Figure 13** shows the CUIS structures and sites listed in the National Register Information System (NRIS). The NRIS is a database about places listed on or determined eligible for the National Register of Historic Places.

Table 4: National Register Information System

Resource Name	Date Listed
Dungeness Historic District	1984-02-13
Plum Orchard Historic District	1984-11-23
Stafford Plantation Historic District	1984-11-23
High Point-Half Moon Bluff Historic District	1978-12-22
Greyfield Historic District (private)	2003-07-24
Table Point Archaeological District	1984-11-23
Rayfield Archaeological District	1984-02-13
Main Road	1984-02-13
Duck House	1984-02-13
Little Cumberland Island Lighthouse (private)	1989-08-28

Source: National Register Information System, 2007

Little Cumberland Island Lighthouse
Big Cypress Pond
Halls Swamp
Copeland Swamp
Cooper Swamp
Barren Swamp
The Settlement
First African Baptist Church
High Point-Half Moon Bluff Historic District
High Point Road
Brick Kiln Trail
Whitney Lake
Brickhill Bluff
South Cut Trail
Table Point Archaeological District
Kings Bottom Trail
Rayfield Archaeological Historic District
Sweetwater Lake
Plum Orchard
Plum Orchard Historic District
Road
Yankee Paradise
Duck House Ruins
Old River Trail
Main
Hickory Hill
Stafford Plantation Historic District
Stafford
Cemetery
Old House Road
Stafford Beach
Pratts Trail
Little Greyfield
Greyfield
Greyfield Historic District
Cannon Swamp
Sea Camp Ranger Station
Sea Camp Beach
Ice House Museum
Dungeness Historic District
Dungeness Ruins
Cemetery
South End Trail

Cumberland Island Environmental Assessment/ Transportation Management Plan

Historic, Archaeological & Cultural Resources July, 2008

N W E S

0 0.5 1 2 Miles

Historic Districts
Duck House
Little Cumberland Isl. Lighthouse
Ferry Routes
Primary Road
Secondary Road
Trail
Railroad
Major Rivers
Wilderness Area
Cumberland Island Nat'l Seashore
Lake or Pond
Swamp or Marsh
Stream or River
Canal or Ditch

NATIONAL PARK SERVICE

Figure 13

P:\07\07036\002\GIS\General_TAB_bws_071007.mxd **08/22/07**

4.0 ENVIRONMENTAL CONSEQUENCES

NEPA requires that before any Federal agency takes an action, it must discuss the environmental impacts of that action, feasible alternatives to that action, and any adverse environmental impacts that cannot be avoided if the proposed action is implemented. Accordingly, this section of the EA analyzes potential impacts associated with each alternative of the CUIS Transportation Management Plan. The discussion is organized by impact topics, which distill the issues and concerns into distinct subject areas for analysis. The analysis thus includes discussion of effects on natural resources (vegetation, water quality, floodplains, wetlands, and wildlife), physical resources (air quality, noise, soils), visitor use and experience, cultural, historic, and archeological resources, and CUIS operations. Information on the known existing characteristics of these resources was compiled and evaluated for each of the alternatives considered.

For each impact topic (e.g., air quality), the effects of alternatives 2 and 3 are compared to those of the no action/current program alternative (Alternative 1), as required by NEPA. The use of impact topics thus provides a focused presentation of environmental consequences by presenting a standardized comparison among alternatives based on the most relevant information. Consistent with NEPA, the analysis of each impact topic considers the context, intensity and duration of impacts, indirect impacts, cumulative effects, and measures to mitigate impacts. National Park Service policy also requires that "impairment" of resources be evaluated in all environmental documents.

4.1 General Evaluation Methodology

Generally, the methodology for resource impact assessments follows direction provided in the CEQ Regulations for Implementing Parts 1502 and 1508 of NEPA. The standard and baseline for assessing and measuring impacts is change relative to the conditions that existed prior to the passage of NEPA in 1969 and the establishment of Cumberland Island National Seashore in 1972.

The impact analysis and the conclusions in this section are based largely on a review of existing literature and park studies, information provided by experts within the NPS, the US Fish and Wildlife Service, the Georgia State Historic Preservation Office, other agencies and the observations and professional judgments of park staff. For each impact topic, the analysis includes an evaluation of potential effects using the following approach:

- Identify the area that could be affected.
- Compare the area of potential effect with the resources that are present.
- Identify the intensity (negligible, minor, moderate, or major), context (local, park wide, regional), duration (short- or long-term), and type of effect (direct, indirect, or cumulative effects).
- Identify whether effects would be beneficial, neutral, or adverse.

4.2 General Definitions

The following definitions were used to evaluate the context, intensity, and duration of effects in this environmental assessment:

Context. Context is the setting in which an impact is analyzed, such as local, park wide, or region. The CEQ requires that resource analyses include discussions of context.

Intensity of Effect. Intensity of effect refers to the relative degree of impact that an action will have on the environment. For this analysis, the intensity of impact is characterized as none or negligible, minor, moderate, or major:

- *"None" or negligible* impacts are so small that the impact, if any, is not noticeable or is insignificant.
- *Minor* impacts are perceptible, but localized at the proposed action site.
- *Moderate* impacts are clearly discernable and could lead to cumulative effects.
- *Major* impacts are highly noticeable and affect areas outside the proposed action site.

Duration. Duration of impacts is defined as follows:

Short-term Impacts -- Those that would occur within the next 2 years.

Long-term Impacts -- Those that would occur or continue to exist for 2 years or more.

4.3 Direct versus Indirect Effects

The following definitions of direct and indirect effects were used in this evaluation:

Direct. This is an effect that is caused by an action and occurs at the same time and place.

Indirect. This is an effect that is caused by an action, but is later in time, or farther removed in distance, but still reasonably foreseeable. These would be caused, for example, by growth that is induced by the project.

4.4 Impact Type

Both beneficial and adverse impacts are discussed. The CEQ regulations and the NPS's *Conservation Planning, Environmental Impact Analysis and Decision-making* (Director's Order #12) call for a discussion of the appropriateness of mitigation, as well as an analysis of how effective the mitigation would be in reducing the intensity of a potential impact, e.g. reducing the intensity of an impact from major to moderate or minor. The alternatives assume that park managers would apply mitigation measures to minimize or avoid impacts. Without appropriate mitigation measures, the potential for resource impacts would increase and the magnitude of those impacts would rise.

4.5 Cumulative Effects Analysis Method

The CEQ regulations for implementing NEPA require assessment of cumulative effects in the decision making process for Federal projects. Cumulative effects are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (40 CFR 1508.7). Cumulative effects are considered for both the no action and the action alternatives, and are presented at the end of each impact topic discussion analysis. Cumulative effects discussed in this EA have been determined by combining the predicted effects of an alternative with other past, present, and reasonably foreseeable future actions at the park.

4.6 Impairment Analysis Method

In addition to determining the environmental consequences of the Preferred and other alternatives, the NPS *Management Policies* (2006) and Director's Order #12 (NPS 2001) require analysis of potential effects to determine if actions would impair park resources.

The fundamental purpose of the NPS, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to promote and regulate so as to conserve park resources and values. National Park Service managers must always seek ways to avoid or minimize to the greatest degree practicable adverse effects on park resources and values. However, the laws do give the NPS management discretion to allow effects to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the NPS management discretion to allow certain effects within parks, that discretion is limited by statutory requirement that the NPS must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The development of this North End Access and Transportation Management Plan, a result of the passage of Public Law 108-447 by Congress, further serves as an example where the furtherance of public access and enjoyment requires planning to avoid impairment of resources and associated characteristics. The prohibited impairment is an effect that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including opportunities that otherwise would be present for the enjoyment of those resources or values. An impact would more likely constitute impairment to the extent it affects a resource or value whose conservation is:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;

- Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or

- Identified as a goal in the park's Master Plan or General Management Plan or other relevant NPS planning documents.

Impairment may result from NPS activities in managing the park, from visitor activities, or from activities undertaken by concessionaires, contractors, and others operating in the park. A determination of impairment is made for each resource topic within each "Conclusion" section of this environmental assessment under "Environmental Consequences." As required by NPS guidelines, an assessment of the potential for impairment is provided in situations where moderate or greater intensity of effects on natural or cultural resources are predicted.

Overall, the Transportation Management Plan would have both positive and negative, minor to moderate effects on the general environment of CUIS. A discussion and assessment of these effects is described in the following sections of the EA.

4.7 Social Environment

Visitor Use and Experience

Alternative 1 (No Action)

This alternative would have minor, long-term adverse impact on visitation patterns and visitor experience because the majority of the visitors would continue to be confined to the south end of the island. Visitors would continue to access the island by ferry and enjoy the beach, Sea Camp, island trails, and historic and ecological resources of CUIS.

Cumulative Impacts: This alternative does not imply, lead to, or require any additional or other actions that may affect visitation patterns or visitor experience. No other past, present, or future reasonable actions are anticipated as a result of this alternative that could lead to impacts cumulative or otherwise.

Alternative 2 (North End Access)

In the long term, the physical capacity restrictions of CUIS itself would continue to limit the number of visitors that would experience the park. Under Alternative 2, there would be minor, negative impacts and also positive benefits to visitation patterns, which are noted as follows:

Plum Orchard: Trips to the north end would likely include Plum Orchard either as a starting point or a stop as part of the tour; therefore, more visitors would have access to the Plum Orchard mansion and grounds, which would be a positive benefit to visitor experience.

Various interpretive sites: As part of the trip operations to the north end of the island, several cultural and environmental resource areas would be more readily available for viewing. The majority of these sites are currently accessed by trails; therefore, the sites can only be accessed on foot. Island visitors who come for a more primitive experience may incur a minor negative impact through the possible encounter with trip vehicles and/or the potential increase in encounters with other people. However, similar encounters already occur due to the presence of private residents who use their personal vehicles on the island. Also, the existing trail system

provides an opportunity for hikers to traverse the island without using the Main Road. This alternative would allow all visitors, including those with disabilities, an opportunity to gain easier access to several key sites on the island, thus providing moderate positive impacts to visitor experience.

Cumulative Impacts: The predicted cumulative impacts this alternative would have on visitation patterns and visitor experience would be minor. The Main Road has been a feature of the island since well before the island became a national seashore. Visitors who come to the island for the more primitive experience already encounter vehicles operated by private residents and NPS staff on the Main Road. Those visitors desiring a more primitive experience may use one of the many trails rather than the Main Road to avoid a possible conflict with trip operations.

Alternative 3 (Island Mobility) (Preferred Alternative)

Alternative 3 would have the same impacts as Alternative 2 with regard to north end access. Alternative 3 would also improve mobility between the Dungeness Dock, Sea Camp Dock, the main campground, and the beach. This alternative would allow visitors with disabilities the ability to access the beach and other interpretive sites located on the south end of the island including the Dungeness Ruins. It is anticipated that this alternative would have a moderate positive impact to visitation patterns at CUIS because it would improve mobility across the entire island.

Cumulative Impacts: The predicted cumulative impacts for this alternative would be similar to Alternative 2.

Conclusion

Alternative 1 will have a minor, long-term, adverse impact on visitor experience because visitors would continue to be mostly confined to the sites on the south end of the island. Alternatives 2 and 3 will have moderate to major long-term and beneficial impacts to visitor experience by providing access to the sites on the north end of the island. Alternatives 2 and 3 also have the potential for minor negative visitor experience due to an increased chance of those desiring a more primitive experience on the northern end to encounter one of the trips going to the north end. In the long term, visitation patterns on the island will not be affected because of CUIS' daily carrying capacity. However, there could be positive, moderate cumulative impacts on visitation patterns by providing access to the north end and offering access to multiple resource areas that have not been readily available to CUIS visitors in the past.

Wilderness

Alternative 1 (No Action)

Under Alternative 1, the NPS would not authorize or conduct regular motorized trips to the north end of the island. As a result, impacts to wilderness character and the wilderness experience of visitors would not change from what currently exists. Cumulative Impacts: This alternative does not imply, lead to, or require any additional or other actions that may affect visitation patterns or visitor experience. No other past, present, or future reasonable actions are anticipated as a result of this alternative that could lead to impacts cumulative or otherwise.

Impairment: Because there would be no major, adverse impacts to a resource or value the conservation of which is (1) necessary to fulfill specific purposes identified in the enabling legislation of CUIS; (2) key to the natural or cultural integrity of CUIS; or (3) identified as a goal in the CUIS General Management Plan or other relevant NPS planning documents, this alternative would result in no impairment of park resources or values.

Alternative 2 (North End Access)
Under Alternative 2, substantial impacts to wilderness experience and values could occur as a result of increased motor vehicle traffic on the Main Road. The sight of a vehicle(s) with a trip group traversing the Main Road could have adverse affects on persons seeking a wilderness experience on the north end of the island, especially those seeking opportunities for solitude. Trip-related noise (e.g., vehicular noise and human voices and movements) could also disrupt the wilderness experience of some visitors. Such impacts would be limited to an extent because only 5 to 8 round trips per day would be provided. In addition, CUIS has developed a trail system parallel to the Main Road and will encourage hikers to use this trail system in order to minimize encounters with vehicles. Nevertheless, the impacts to those wilderness visitors who encounter the trips could be moderate in intensity, since most will have reached the wilderness after hiking substantial distances from the south end of the island or by kayak from the north or west. For some visitors, encountering a trip after hiking a long distance into the wilderness would be enough to spoil their experience of CUIS altogether. Others would find the trips less objectionable, or would not be affected.

Taken together, the impacts to wilderness under this alternative would be minor to moderate in intensity, long-term and adverse. Impacts may diminish as the parallel trail system is used more frequently.

Cumulative Impacts: The roads to be used for the trips in this alternative are adjacent to wilderness or potential wilderness, and these roads have been driven for years by persons having rights to do so. NPS personnel also have driven these roads for operational activities and that volume has likely gone up since the legislative removal of these roads from wilderness in 2004. The motorized trips authorized under this alternative would increase the impacts caused by these combined activities by adding 5 to 8 trips per day, which would generate up to 48 vehicle trips per day. As a result, cumulative impacts to adjacent wilderness from this alternative and other actions at CUIS would be minor to moderate in intensity, long term and adverse.

Impairment: Because there would be no major, adverse impacts to a resource or value the conservation of which is (1) necessary to fulfill specific purposes identified in the enabling legislation of CUIS; (2) key to the natural or cultural integrity of CUIS; or (3) identified as a goal in the CUIS General Management Plan or other relevant NPS planning documents, this alternative would result in no impairment of CUIS resources or values.

Alternative 3 (Island Mobility) (Preferred Alternative)
Under Alternative 3, the trips offered in Alternative 2 would be complemented by a shuttle system for the south side of the island. Because there is no designated or potential wilderness on the south end of the island, the impacts of Alternative 3 on wilderness character and experience would be identical to those of Alternative 2.

Cumulative Impacts: Same as Alternative 2.

Impairment: Because there would be no major, adverse impacts to a resource or value the conservation of which is (1) necessary to fulfill specific purposes identified in the enabling legislation of CUIS; (2) key to the natural or cultural integrity of CUIS; or (3) identified as a goal in the CUIS General Management Plan or other relevant NPS planning documents, this alternative would result in no impairment of the CUIS resources or values.

Conclusion
Under Alternative 1, the amount of driving adjacent to the Cumberland Island Wilderness would not change from current levels. Impacts to wilderness would thus be negligible to minor in intensity, long term and adverse. Under Alternative 2, the number of trips adjacent to the wilderness would increase by 5 to 8 round trips per day. Impacts to wilderness character and experience would be minor to moderate in intensity, long-term and adverse. Given that the Cumberland Island Wilderness is already affected by roads, structures, and vehicular traffic, cumulative impacts would likewise be minor to moderate in intensity, long term and adverse. Impacts to wilderness under Alternative 3 would be the same as under Alternative 2.

Interpretation and Education

Alternative 1 (No Action)
Under the No Action alternative, there will be no impact to interpretation or educational programs.

Cumulative Impacts: This alternative does not imply, lead to, or require any additional or other actions that may affect interpretation or educational services. No other past, present, or future reasonable actions are anticipated as a result of this alternative that could lead to impacts cumulative or otherwise.

Alternative 2 (North End Access)
Alternative 2 would have a major positive impact for interpretation and educational services at the multiple cultural and environmental resource sites in the Plum Orchard area and north to the Settlement/Half Moon Bluff area. Currently, NPS offers interpretation and educational programming primarily on the southern end of the island with limited tours of the Plum Orchard site. The following is a brief list of the sites where interpretation could be offered as part of Alternative 2:

Plum Orchard: Trips to the north end would likely include Plum Orchard either as a starting point or a stop as part of the trip; therefore, more educational programming could be provided at the Plum Orchard mansion and grounds.

Rayfield Chimneys: Similar to the chimneys at Stafford Plantation, this area contains remnants of chimneys that were part of an enslaved African American community with houses once occupied by the many individuals who worked the plantations on Cumberland Island. This site, located adjacent to the Main Road just south of King's Bottom Trail, would provide an excellent site for educational opportunities.

Malkintooth Creek: This site is one of several locations near the Main Road that offer opportunities for education and interpretation of key ecological conditions on the island.

Cumberland Wharf: At this historically significant site, the ruins of the wharf are visible. A spectacular scenic view of St. Andrews Sound can also be seen at this location. In addition to these cultural and natural resources, the St. Andrews Fort, which is no longer evident, was located in this general vicinity and could also serve as an excellent interpretive and educational opportunity.

High Point Area: Although some of the area currently remains in reserved estates, there are several features of this district that would provide opportunities for personal interpretation (e.g., guided educational programs) and non-personal interpretation (e.g., wayside exhibits, brochures, audio links, etc.). Among these features are the historic hotel operations, the horse drawn tramway (on rails) between the dock and the beach, and the High Point Cemetery.

The Settlement: In the 1890s, The Settlement was established for African-American workers. One of the most prominent features of the Settlement is the First African Baptist Church, which was established in 1893 and then rebuilt in the 1930s. The Alberty House could provide space for exhibits and displays interpreting the history of the north end and the associated cultural and natural resources.

North Beach Area: This area contains undisturbed natural beaches, where natural coastal processes can be observed. Some typical features of this area include large dune systems, areas of overwash, and different vegetation communities, including maritime forest, shrub thicket, and freshwater wetlands.

Cumulative Impacts: The predicted cumulative impacts this alternative would have on visitor services, education, and interpretation would be positive and moderate. Currently interpretation and educational programming is offered mainly at the south end of the island with the Plum Orchard Mansion being the northern most interpretation site. Alternative 2 would more than double the opportunities for visitor services, education, and interpretation and open up multiple future interpretation sites at various locations on the island.

Alternative 3 (Island Mobility Alternative) (Preferred Alternative)
Alternative 3 would have the same impacts as Alternative 2 with respect to educational programming and interpretation on the north end of the island. In addition, Alternative 3 would have minor positive impacts on the services currently being offered on the southern end of the island because it would provide greater opportunities for individuals with accessibility issues or disabilities to experience the park.

Cumulative Impacts: The predicted cumulative impacts for this alternative would be similar to Alternative 2.

Conclusion
Alternative 1 would have no impact on the educational programming or interpretative services on the island. Alternatives 2 and 3 would both have a moderate to major, positive impact on the visitor service provided at numerous sites located on the island. Providing improved access on the island, as required by Public Law 108-447, would allow for more frequent trips to the cultural resources on the north end of the island, which would allow visitors to experience these resources first hand with an interpreter rather than be restricted to exhibits and other media or even less. In addition, Alternative 3 would have a minor positive impact on the interpretation currently being offered on the southern end of the island because it would permit individuals with accessibility issues or disabilities the opportunity to experience the island.

CUIS Operations

Alternative 1 (No Action)
The No Action alternative would not have an effect on CUIS operations. The operations and maintenance of the CUIS and its facilities would continue as they currently do.

Cumulative Impacts: This alternative does not imply, lead to, or require any additional or other actions that may affect CUIS operations. No other past, present, or future reasonable actions are anticipated as a result of this alternative that could lead to impacts cumulative or otherwise.

Alternative 2 (North End Access)
In the long term, the daily visitation ceiling at CUIS would continue to limit the number of visitors to the park and hence the overall impact on park operations. However, Alternative 2 contemplates sufficient changes in the way that current visitation levels are managed such that there would be moderate, negative impacts to CUIS operations, which are noted as follows:

Additional maintenance would be required across the island, which would either require additional NPS staff or a contractor's services. The following are the main areas where this maintenance would be required.

Road maintenance: It is assumed that the roads to the north end would continue to be unpaved; however, they are currently not maintained. As part of trips to the north end, it would be necessary to sustain minimal maintenance, which generally consists of limited clearing and

trimming of vegetation and deadfall, filling of low areas with dredge material as needed, and grading when and where necessary.

Trip vehicles: Additional personnel will be required to operate and maintain trip vehicles. Vehicles will also require storage and maintenance facilities, fuel for operation and typical maintenance items such as oil, filters, and various cleaning supplies. Operating procedures will be required to retrieve and service disabled vehicles.

Educational Programming, Visitor Services, and Interpretation: Several new educational programming and visitor service opportunities may be offered as part of the trips to the north end of the island. NPS staff or a contractor would be required to provide this service. The level and frequency of maintenance and protection of interpretive sites would increase at sites that are currently maintained, and would become a new task at sites not currently maintained.

Visitor contact station: As previously discussed, the historic Alberty House is being adapted for potential use as a visitor contact station in conjunction with current repair rehab work. It will have two restrooms in the back and four rooms in the front for museum displays and NPS offices. It is possible that this could not be routinely staffed. If staff is available and provides additional visitor services on the trip, they could also provide access to the station upon arrival. Facility maintenance and cleaning would increase and require routine service.

Besides additional maintenance and interpretation responsibilities, NPS staff would also be required to complete more frequent trips over the entire island to ensure visitor safety and resource protection. Visitor and Resource Protection staff would potentially be responsible for additional searches for overdue hikers or those who underestimated their abilities or time available. It would be necessary for resource management personnel to monitor and potentially attend to island resources that would be made more accessible to park visitors through the trips and the shuttle type operation to the north end.

Cumulative Impacts: The predicted cumulative impacts this alternative would have on CUIS operations would be negative and moderate. Currently there is insufficient staff to complete the required operations at CUIS. When considering other planned projects that would require additional NPS staff hours, such as trail maintenance, feral hog eradication, and invasive plant species eradication, it is anticipated that CUIS operations would be strained even further. On the other hand, trail maintenance activity could actually be reduced due to increased foot traffic helping to self maintain the trails. Alternative 2 would increase the tasks required to complete CUIS operations.

Alternative 3 (Island Mobility) (Preferred Alternative)

Similar to Alternative 2, this alternative would have moderate negative impacts to CUIS operations and would include the added responsibility of expanded operations on the south end of the island. Although existing facilities may be sufficient to accommodate the services associated with this alternative, it is likely that additional staff would be required to operate the

proposed vehicle on the south end, maintain additional staging and storage areas, and clean restrooms and facilities.

Cumulative Impacts: The predicted cumulative impacts for this alternative would be similar to Alternative 2, but would require even greater effort because the alternative would include additional operations at the south end of the island.

Conclusion

There is a potential for minor positive to moderate negative impacts to CUIS operations. Alternative 1 would have no impact on CUIS operations. All of the action alternatives have the potential to have moderate negative impacts on CUIS operations due to the increased requirements in multiple operational areas that would be associated with expanding the services and activities on the island. Additional staff, which may be provided by contractors as part of a concession contract or by NPS, would be required to operate and maintain trip vehicles as well as new or modified structures such as the visitor contact station. With a shuttle type operation to the north end of the island, the logistics of ensuring that all visitors have been picked up at the end of the day has the potential to create additional burdens upon NPS staff. Additional monitoring of the resource sites and the trip routes would be required to ensure safe conditions. This would be both a positive and negative impact on operations with the positive aspect being better care of the resources to ensure proper conservation for future generations and the negative aspect being the additional effort and resources that these tasks would require.

Socioeconomic Environment

Alternative 1 (No Action)

Alternative 1 would have no impact on the socioeconomic environment of St. Marys or Camden County.

Cumulative Impacts: This alternative does not imply, lead to, or require any additional or other actions that may affect visitation patterns or visitor experience. No other past, present, or future reasonable actions are anticipated as a result of this alternative that could lead to impacts cumulative or otherwise.

Alternative 2 (North End Access)

The additional accessibility to park resources provided by the Transportation Management Plan will likely be a popular activity for visitors on Cumberland Island. The plan will not increase the 300 visitor a day limit established in the General Management Plan. However, it may lead to the park reaching the daily limit on a more frequent basis, resulting in increased annual visitation, because more programs and options are provided to visitors. Currently, the average daily visitation is approximately 120.

The addition of a visitor transportation system and services, particularly to the north end, gives the visiting public more options on what it can experience during a visit to Cumberland Island. Such opportunities may motivate first-time visitors and encourage repeat visits for those already familiar with the island. The proposed new services may also bring visitors who had previously

discounted a visit to Cumberland Island because of health, accessibility, or mobility issues. The transportation plan provides increased opportunities for island visitors and may therefore increase visitation and tourism in the community of St. Marys and Camden County, Georgia. The effect of Alternative 2 would be negligible to minor and positive.

Cumulative Impacts:
In evaluating the North End Access alternative in conjunction with other park projects such as the restoration of Plum Orchard, the stabilization of the Dungeness ruins, and other proposed restoration projects, there is incentive for park visitation to increase on an annual basis. Such an increase would likely have a positive effect on the economic environment of St. Marys and Camden County.

Alternative 3 (Island Mobility) (Preferred Alternative)
In addition to the north end access, Alternative 3 incorporates a shuttle service for the island's south end. Similar to Alternative 2 this service may encourage visitation from those who dismissed Cumberland Island as an option (due to mobility concerns). Additional visitors (albeit within the 300 per day limit) would probably increase business from tourism in the gateway community of St. Marys and Camden County. The impact to the socioeconomic environment would be positive and negligible to minor in scope.

Cumulative Impacts:
In evaluating the Island Mobility alternative in conjunction with other park projects such as the restoration of Plum Orchard, the stabilization of the Dungeness ruins, and other proposed restoration projects, there is incentive for park visitation to increase on an annual basis. Such an increase would likely have a positive effect on the economic environment of St. Marys and Camden County.

Conclusion
Island Mobility, the preferred alternative of the Transportation Management Plan, has the potential to provide a minor positive impact to the local economic environment over the long term. The impact would be due to increased visitation. Even though there is a limit of 300 visitors per day to the CUIS the average daily visitation is approximately 120. There is room for growth and the proposed alternative may be the stimulus for new, extended, or repeat visits.

Community Character and Park Neighbors

Alternative 1 (No Action)
Alternative 1 would have no impact on park neighbors as there would be no changes to visitor access on the island and no additional vehicle traffic.

Cumulative Impacts: This alternative does not imply, lead to, or require any additional or other actions that may affect visitation patterns or visitor experience. No other past, present, or future reasonable actions are anticipated as a result of this alternative that could lead to impacts cumulative or otherwise.

Alternative 2 (North End Access)
Alternative 2 would have a negligible to moderate negative effect on park neighbors. With respect to the State and Federal entities that have property interests on Cumberland Island, there is nothing in the North End Access alternative that would affect those parcels. Private property interests would likely see effects through increased vehicle traffic and visitor use.

Vehicle traffic on the Main Road, Plum Orchard Spur, and North Cut Road may increase by as many as eight trips per day (maximum of three vehicles per trip). On days when trip demand is low or non-existent the traffic volume will consequently fall. Because all of the island roads are single lanes, any increase in volume would have an effect on flow and possibly safety. However, the increase posed by the North End Access is relatively small and thus the effect on park neighbors and their use of public/park roads would be negligible.

The increase in visitors adjacent to some inholdings would have an effect on those residents and/or their guests. The most notable case is in The Settlement area of the High Point – Half Moon Bluff district where a retained estate is located directly next to the First African Baptist Church and the Alberty House. The church would surely be a focal point of most trips to the north end, and the Alberty House is available as a visitor contact station under this proposal. Currently, daily visitation in this area is light as it is limited to backpackers and one or two tours (<10 people each) operated by the Greyfield Inn. The proposed alternative would increase that number; potentially by as many 240 people. Such an increase will have a moderate negative impact on the reserved estate neighbor living in The Settlement.

There is also a reserved estate north of the Plum Orchard mansion that could be affected by an increase in visitation. However, the tracts are more isolated from the visitor use area at Plum Orchard than in The Settlement area, and there is an established vegetation buffer between the properties. The park neighbor at Plum Orchard would probably experience a negligible to minor negative effect from Alternative 2.

Cumulative Impacts: The predicted cumulative impacts this alternative would have on park neighbors would be negligible to moderate and negative.

Alternative 3 (Island Mobility) (Preferred Alternative)
The impacts to park neighbors defined in Alternative 2 would also apply to Alternative 3. There may be some minimal effects created by the added south end shuttle component of the Island Mobility alternative. The shuttle would likely be a single vehicle on a scheduled route through the various points of interest on the south end. It would easily blend in with normal park and resident traffic on the south end and pose no to negligible negative effect on park residents or there guests. There will be no change in visitor patterns or volume on the south end and therefore, no additional effects on residents in that area.

Cumulative Impacts: The predicted cumulative impacts this alternative would have on park neighbors would be negligible to moderate and negative.

Conclusion
Island-wide, the preferred alternative would introduce more vehicle traffic on the main transportation corridors, which could affect the mobility of park residents and their guests and employees. However, the increase is small given the volume relative to the amount of roads and island involved. Any inconvenience would be negligible and short-lived. On the other hand, individual park neighbors would feel a minor to moderate negative effect due to an increase in visitor use adjacent to their properties. The reserved properties involved are under life estates and the effect of the preferred alternative would be long term.

4.8 Natural Resources

Vegetation & Wildlife

Alternative 1 (No Action)
There would be no impact to vegetation and wildlife under Alternative 1.

Cumulative Impacts: This alternative does not imply, lead to, or require any additional or other actions that may affect vegetation and wildlife. No other past, present, or future reasonable actions are anticipated as a result of this alternative that could lead to impacts cumulative or otherwise.

Impairment: Because there would be no major, adverse impacts to a resource or value the conservation of which is (1) necessary to fulfill specific purposes identified in the enabling legislation of CUIS; (2) key to the natural or cultural integrity of CUIS; or (3) identified as a goal in the CUIS General Management Plan or other relevant NPS planning documents**,** this alternative would result in no impairment of CUIS resources or values.

Alternative 2 (North End Access)
Under Alternative 2, there would be minor, negative impacts to vegetation and wildlife. The areas where vegetation and wildlife would be affected are noted as follows:

Vehicle storage/maintenance area: In order to operate motorized trips to the north end of the island, it would be necessary to provide an area to store and maintain the trip vehicles. One possible location to store and maintain vehicles would be behind the Sea Camp Ranger Station, where the NPS currently has a cleared parking area. In order to minimize the impacts to vegetation and wildlife, this area could be expanded as needed rather than locating the area in a totally vegetated area away from existing areas of human activity. Storage and maintenance of the vehicles is expected to have a minor negative impact to vegetation and wildlife.

Trip staging area: It is anticipated that the trip staging area, where passengers would board the trip vehicles, could be located either near the Sea Camp or Dungeness Dock or near the Plum Orchard Dock. Some minimal clearing of vegetation may be necessary at the Sea Camp area. In order to minimize the clearing needed for this area, the staging area could be combined with a portion of the vehicle storage area; if so, only a minor negative impact to vegetation and wildlife is anticipated from the trip staging area. A trip staging area at Plum Orchard or Dungeness Dock

would have less impact to vegetation and wildlife because of the presence of several existing large cleared areas that could be used as a trip staging area. Environmental and cultural compliance will be required to assess additional impacts on the resources and historic district.

Main Road: Currently, the Main Road consists of a one lane dirt road ranging in width from 8 to 16 feet. Vegetation will periodically need to be trimmed or cut to provide a safe, single-lane travel corridor. Some minor cutting back of vegetation may be needed in isolated cases to allow safe passage of two vehicles. Potential hazards, site lines, and shoulder conditions will dictate if and where this type of work is needed for a vehicle to pull off and allow safe passing. Therefore, it is anticipated that the trimming of vegetation would have a minor negative impact on vegetation. It is expected that any negative impact to wildlife would be temporary only, and, once the trimming is complete, the impacts to wildlife would be minimal from the trip vehicles using the Main Road.

Plum Orchard Spur: Some minor clearing of vegetation would be required where the Plum Orchard Spur connects to the Main Road to accommodate the proposed trip vehicles. Impacts to vegetation and wildlife would be considered minor.

North Cut Road: Conditions are comparable to those of the Main Road. Some minor trimming of vegetation would be required along North Cut Road to accommodate the proposed trip vehicles. Impacts to vegetation and wildlife would be considered minor.

Plum Orchard: No new roads or clearing of vegetation is anticipated at Plum Orchard. All vehicles would continue to utilize the existing roads in the historic district. An additional proposal includes expanding the existing dock at Plum Orchard. Any anticipated negative impact to wildlife would be temporary only. Impact to vegetation and wildlife is anticipated to be negligible in the Plum Orchard area.

Various interpretive sites: As part of the trip operations to the north end of the island, several cultural and environmental resource areas would be available for viewing. The majority of these sites are currently accessed by trails; therefore, only minor trimming of vegetation to maintain access to these sites is anticipated. Increased visitation at these sites would also help to maintain the access to these areas.

Settlement area: No new roads or clearing of vegetation is anticipated in The Settlement area. All vehicles would continue to utilize the existing roads in the historic district. The sites of interest in The Settlement area are currently accessed by trails or dirt road; therefore, only minor trimming of vegetation to maintain access to these sites is anticipated.

Alberty House: The NPS is in the process of doing repair and rehabilitation of the Alberty House, and in conjunction with that project is adapting the house to potentially serve as a visitor contact station. The station would provide restrooms and drinking water and would contain interpretive information regarding the specific sites of interest on the north end of the island. The vegetation at the Alberty House consists of both native and non-native species typically

found in a maintained residential landscape. No new structures would be constructed at the north end of the island; therefore, no impact to vegetation is anticipated from the proposed project in this area. Increased visitation in this area also has the potential for minor negative impacts to wildlife.

Vehicle traffic: The North End Access alternative would increase traffic along the Main Road, Plum Orchard Spur, and North Cut Road by up to 24 additional vehicles daily. Round trips would project a maximum of 48 vehicles along these roads in addition to the current level of traffic from private residents and park personnel. Although the current volume of traffic is not known specifically, the addition of the trips would increase the potential for vehicle strikes to wildlife. However, avoiding collisions will be favorable given the low speeds (≤25mph) of the trips and trained drivers. Therefore, impacts to wildlife would be minor.

In addition to the specific areas noted above, there would be minor negative impacts to vegetation and wildlife throughout the road improvement time frame as a result of the staging of materials and equipment at all areas where work is proposed. Noise from equipment may also temporarily disturb wildlife. However, it is anticipated that this would only be a minor temporary negative impact.

Cumulative Impacts: The predicted cumulative impacts this alternative would have on vegetation and wildlife would be negligible to minor. When considering other planned projects such as trail maintenance (minor negative impact), feral hog eradication (moderate positive impact), and invasive plant species eradication (moderate positive impact) it is anticipated that the impacts to vegetation and wildlife would be negligible.

Impairment: Because there would be no major, adverse impacts to a resource or value the conservation of which is (1) necessary to fulfill specific purposes identified in the enabling legislation of CUIS; (2) key to the natural or cultural integrity of CUIS; or (3) identified as a goal in the CUIS General Management Plan or other relevant NPS planning documents**,** this alternative would result in no impairment of CUIS resources or values.

Alternative 3 (Island Mobility) (Preferred Alternative)

Alternative 3 would have the same impacts as Alternative 2 associated with the north end access. The added components of this alternative would take place only on the south end of the island where there are existing, more extensive cleared areas and the greater human presence on this end of the island influences wildlife activity. Also, it is anticipated that existing maintenance and storage structures on the south end of the island could be modified to accommodate additional vehicles. Because this alternative would serve more as a courtesy shuttle rather than an expanded trip operation, the improvements needed to implement this alternative would be minimal. Impacts to vegetation and wildlife from this alternative would be considered minor.

Southern Beach Crossings: Similar to the Main Road, some minor trimming of vegetation would be required along the edges of certain beach access roads to accommodate the proposed shuttle vehicles on the south end. Trimming would occur along the access roads to the beach areas at

Dungeness, Stafford, and Little Greyfield. Impacts would also be similar to those along the Main Road.

Cumulative Impacts: The predicted cumulative impacts this alternative would have on vegetation and wildlife would be negligible to minor. When considering other planned projects such as trail maintenance (minor negative impact), feral hog eradication (moderate positive impact), and invasive plant species eradication (moderate positive impact) it is anticipated that the impacts to vegetation and wildlife would be negligible.

Impairment: Because there would be no major, adverse impacts to a resource or value the conservation of which is (1) necessary to fulfill specific purposes identified in the enabling legislation of CUIS; (2) key to the natural or cultural integrity of CUIS; or (3) identified as a goal in the CUIS General Management Plan or other relevant NPS planning documents**,** this alternative would result in no impairment of CUIS resources or values.

Conclusion

The majority of Cumberland Island has been human-altered for a long period of history, including extensive agricultural activities associated with multiple plantations that were once active and the habitation of more than 500 people and the operation of a large hotel on the north end of the island. During this time, vegetation on the island was altered significantly by humans (mechanical removal, fire), domestic animals (grazing, browsing), and natural events (wildfires, tropical storms). The effect of the initial removal of shrubs, vines, tree limbs, and groundcover resulting from minor improvements and establishment of vehicle pull-off areas along the Main Road and development of trip vehicle storage sites is considered a minor negative impact on the overall vegetation of the island. Thereafter, subsequent activities directed at maintaining the road and vehicle pull-off areas on an annual basis would also be a minor negative impact on the island's vegetation. Cumulative impacts of the preferred alternative and other actions on CUIS vegetation composition and distribution would be minimal in the near-term and in the future.

The effects of the preferred alternative on island wildlife result from increased visitor access and associated activities, primarily on the north end where public access is currently minimal. Increased human presence will constitute a disturbance factor for some species of wildlife that currently are accustomed to infrequent interactions with people. Some species may acclimate to the increased human presence while others may seek more remote areas. Visitor use of the beach on the north end will require monitoring to prevent negative impacts to shorebirds, sea turtles, and other marine wildlife. Another effect on wildlife stems from a larger volume of vehicle traffic along the island's road system generated by the preferred alternative, which in turn increases the potential for vehicle strikes. However, the current 25 mph island-wide speed limit should keep the probability of strikes minimal. With proper mitigation, the effects of increased visitor access would present a minor negative impact on the park's wildlife species composition and distribution. Cumulative impacts of the preferred alternative and other actions on wildlife inhabiting CUIS would be minimal in the near-term and in the future.

Threatened and Endangered Species

Twenty-nine (29) Federal and State listed animal and plant species potentially occur within this region of Georgia (see Section 3 above). The activities described in the Cumberland Island Transportation Management Plan encompass increased vehicular activity on roads, and increased visitor activity on trails and the beach. The following species are not expected to be affected by implementation of Alternatives 1, 2, or 3: Humpback Whale, Right Whale, West Indian Manatee, Round-tailed Muskrat, Bachman's Warbler, Kirtland's Warbler, Red-cockaded woodpecker, Eastern Indigo Snake, Hawksbill Sea Turtle, Kemp's Ridley Sea Turtle, Shortnose Sturgeon, Climbing Buckthorn, Hartwrightia, Pondspice, and Wagner Spleenwort. The primary justification for a "no effect" determination for these species is based on the fact that while they are known to occur in the State of Georgia, Camden County area and/or the Atlantic coastal waters, they do not occur in the immediate project area identified in the CUIS transportation plan. This determination is set forth in the Biological Assessment attached to this document in the appendices. In light of this "no effect" determination, no discussion of impacts to these species is included in this EA.

The following Federal and State listed species are known to occur on the island as permanent residents, nesters, or migrants and may be affected by implementation of Alternative 2 or 3: piping plover, wood stork, loggerhead sea turtle, green sea turtle, leatherback sea turtle, gopher tortoise, bald eagle, peregrine falcon, gull-billed tern, Wilson's plover, least tern, American oystercatcher, black skimmer, and red knot. Specific effect determinations and justification for how each effect was determined are outlined in the Biological Assessment completed for this transportation plan and attached as Appendix B to this EA.

Alternative 1 (No Action)

There would be no impact to threatened and endangered species under Alternative 1.

Cumulative Impacts: This alternative does not imply, lead to, or require any additional or other actions that may affect threatened and endangered species. No other past, present, or future reasonable actions are anticipated as a result of this alternative that could lead to impacts cumulative or otherwise.

Impairment: Because there would be no major, adverse impacts to a resource or value the conservation of which is (1) necessary to fulfill specific purposes identified in the enabling legislation of CUIS; (2) key to the natural or cultural integrity of CUIS; or (3) identified as a goal in the CUIS General Management Plan or other relevant NPS planning documents**,** this alternative would result in no impairment of CUIS resources or values.

Alternative 2 (North End Access)

Under Alternative 2, there is the potential for minor, negative impacts to Threatened and Endangered Species. The areas where Threatened and Endangered Species or their habitats would be potentially affected are noted as follows:

Vehicle storage/maintenance area: One possible location for this facility would be behind the Sea Camp Ranger Station where the NPS currently has a cleared parking area. No protected species or their habitats have been identified adjacent to the Sea Camp Ranger Station. Construction and operation of the vehicle storage/maintenance area would likely have no affect on federally or State protected species or their habitats. Other alternatives will be thoroughly reviewed to comply with all law, policy, and directives.

Trip staging area: It is anticipated that the trip staging area could be completed either near the Dungeness Dock, Sea Camp Ranger Station, or near the Plum Orchard Dock. No protected species or their habitats were identified adjacent to the Dungeness Dock or Sea Camp Ranger Station. Establishment and operation of the trip staging area would likely have no effect on federally or State protected species or their habitats.

A trip staging area at Plum Orchard would also likely have no effect on federally or State protected species or their habitats because of the presence of several existing large open areas that could be used as a trip staging area. Although a wood stork roosting area was identified to the north of Plum Orchard, it is not anticipated that a trip staging area would have an adverse effect to this protected species as long as it is located away from this site.

Main Road: The Main Road bisects the known range of the gopher tortoise population on Cumberland, which extends from Stafford Field southward to the Greyfield Inn property. Sightings of gopher tortoises along this stretch are uncommon. The North End Access alternative would increase traffic along the Main Road by up to 24 additional vehicles daily. Round trips involved in trips would project a maximum of 48 trips along the road in addition to the current level of traffic from park personnel and private residents. Although the volume of traffic on the Main Road is not known specifically, the addition of the trips would increase the potential for vehicle strikes to tortoises. However, impacts would be negligible to minor given the historically infrequent observations of tortoise crossings and the mitigation measures identified in section 2.

Plum Orchard Spur: Actions under this alternative for Plum Orchard Spur entail an increase in vehicle traffic as well as minor modifications and periodic maintenance on the road. However, during surveys of the corridor, no protected species or habitats were identified. Therefore, development and operation of the trips to include the Plum Orchard Spur would likely have no effect on federally or State protected species or their habitats.

Plum Orchard: Under the North End Access alternative, effects at Plum Orchard would include an increase in visitor traffic and the possible need for facilities to support visitor services and trip operations. Such facilities would be incorporated into existing structures or footprints and no threat to protected species is anticipated.

The increase in visitor traffic could affect the wood stork roosting area that is located to the north of the Plum Orchard mansion. The roost is on the edge of a manmade pond that is part of the historic landscape. Currently, Plum Orchard tours are conducted by NPS two days each month

with visitation ranging from 10 to 120 people per trip. Private tours are also conducted regularly by Greyfield Inn and other entities. Under the proposed alternative the number of visitors in the area could increase to as many as 240 people per day. Such a change in human presence may cause storks and other birds to abandon this site. However, implementation of the mitigation measures identified in Section 2 for this area will reduce potential effects to negligible or minor.

Additionally at Plum Orchard, expansion of the existing dock is proposed, which would include a floating dock surface connected to pole supports driven into the river bottom. Potential habitat for the manatee is located in the area of the proposed dock expansion. However, it is expected that any negative impact to the manatee would be temporary only, and, once the work is complete, the impacts to this protected species would be minimal from the modified operations in the Plum Orchard area.

Various interpretive sites: As part of the trip operations to the north end of the island, several cultural and environmental resource areas would be available for visitor use. The majority of these sites are currently accessed by trails. Suitable habitat for the protected species that may occur on the island was not identified at the potential interpretive sites located along the Main Road and other areas at the north end of the island. Therefore, it is expected that impacts to protected species would be none or negligible from the trips to the various interpretive sites.

Settlement area: All vehicle and pedestrian traffic would continue to use the established roads, paths, and historic landscape in The Settlement area. No protected species or their habitats have been identified within The Settlement area. Therefore, increased visitor services including trips and education in The Settlement area would likely have no effect on federally or State protected species or their habitats.

Alberty House: The NPS is in the process of repairing and rehabilitating the Alberty House, and in conjunction with that project is adapting the house to potentially serve as a visitor contact station. No protected species or their habitats were identified in the vicinity of the Alberty House. Therefore, operation of the trips to include the Alberty House would likely have no effect on federally or State protected species or their habitats.

North Cut Road: Vehicle traffic on North Cut Road would likely increase under this alternative, although to a lesser extent than that on the Main Road or Plum Orchard Spur. Routine maintenance would also increase. However, no protected species or habitats were identified during surveys of the corridor. Therefore, development and operation of the trips to include the North Cut Road would likely have no effect on federally or State protected species or their habitats.

Trails: Although the increase in visitor use of north end trails is expected to be minimal, probably 0-10 people per trail each day, it will have some effect. Current use of hiking trails north of Stafford campground is seasonal with some trails experiencing no foot traffic for multiple days. As the north end becomes more accessible there will be increased foot traffic on trails and potential minor effects on adjacent vegetation. Increased use of these trails may

constitute a minor disturbance factor for wildlife species which are currently accustomed to minimal human presence.

Beaches: Beach activities related to day visitors and campers are concentrated around the south end's Dungeness and Sea Camp areas. The remainder of the 17-mile long CUIS beach currently experiences minimal human presence in the form of private residents and backcountry campers. The increased use of trails resulting from greater accessibility of the north end will likely place more people on areas of the beach that presently experience minimal human disturbance. This increased human presence may cause minor negative impacts to certain wildlife species, especially shorebirds that rely on CUIS' beach habitat for nesting, feeding, resting, and winter/spring migration stopover. Proactive measures have been developed to mitigate potential impacts. These are identified in Section 2 and the Biological Assessment attached in the appendices of this EA.

Cumulative Impacts: The predicted cumulative impacts this alternative would have on threatened and endangered species would be negligible to minor. When considering other planned projects such as trail maintenance (minor negative impact), feral hog eradication (moderate positive impact), and invasive plant species eradication (moderate positive impact) it is anticipated that the impacts to threatened and endangered species would be negligible.

Impairment: Because there would be no major, adverse impacts to a resource or value the conservation of which is (1) necessary to fulfill specific purposes identified in the enabling legislation of CUIS; (2) key to the natural or cultural integrity of CUIS; or (3) identified as a goal in the CUIS General Management Plan or other relevant NPS planning documents**,** this alternative would result in no impairment of CUIS resources or values.

Alternative 3 (Island Mobility) (Preferred Alternative)

Alternative 3 would have the same impacts as Alternative 2 with respect to north end access. The added components of this alternative would take place only on the south end of the island where there are existing, more extensive disturbed areas and an established human presence already influences the activities of threatened and endangered species. In addition, the improvements needed to implement this component would be minimal as the south end service would serve more as a courtesy shuttle than an expanded tour operation. Minor negative impacts to threatened and endangered species from this alternative are, therefore, anticipated.

Cumulative Impacts: The predicted cumulative impacts this alternative would have on threatened and endangered species would be negligible to minor. When considering other planned projects such as trail maintenance (minor negative impact), feral hog eradication (moderate positive impact), and invasive plant species eradication (moderate positive impact) it is anticipated that the impacts to threatened and endangered species would be negligible.

Impairment: Because there would be no major, adverse impacts to a resource or value the conservation of which is (1) necessary to fulfill specific purposes identified in the enabling legislation of CUIS; (2) key to the natural or cultural integrity of CUIS; or (3) identified as a goal

in the CUIS General Management Plan or other relevant NPS planning documents**,** this alternative would result in no impairment of CUIS resources or values.

Conclusion
The Preferred Alternative has the potential to cause minor negative impacts to protected species. The effects on Federal and State listed species would largely be through the increased number of hikers passing through known or potential habitat. The areas include the beaches along the northern half of the island as well as habitat adjacent to hiking trails. Although the increase will be small in number these areas currently experience minimal disturbance. The increase in vehicle traffic along the three primary roads may also contribute to the minor negative impact, as the potential for vehicle and wildlife interactions increases. Monitoring, temporary closures as necessary, education, and reduced speeds will help to minimize or negate the potential impacts. A copy of this EA will be sent to the USFWS for review and comment.

Section 7 Statement on Preferred Alternative: After applying the criteria of adverse effect contained in Section 7 of the Federal Endangered Species Act (16 U.S.C. 1536; 50 CFR 402), the NPS concludes that implementation of Alternative 3 would have varying effects on federally listed threatened or endangered species, depending on the species in question. As described in the biological assessment attached to this EA as Appendix B, Alternative A would have no effect on 10 federally listed threatened or endangered species. On the other hand, Alternative 3 may affect, but would not likely adversely affect, a total of 5 federally listed threatened or endangered species. This conclusion is based on site inspections of potentially impacted areas and professional knowledge of threatened and endangered species at CUIS. Prior to making a final decision regarding any proposed action or implementation of any alternative, the NPS will continue informal consultation with the USFWS and the GA DNR regarding the proposed action and associated mitigation measures. Any additional comments on the project from the USFWS, GA DNR, and other interested parties will be addressed in the final compliance documents. Should the need arise, additional mitigation measures will be developed in consultation with the USFWS and GA DNR.

Soils

Alternative 1 (No Action)
This alternative would have no impact on soils.

Cumulative Impacts: This alternative does not imply, lead to, or require any additional or other actions that may affect soils. No other past, present, or future reasonable actions are anticipated as a result of this alternative that could lead to impacts cumulative or otherwise.

Impairment: Because there would be no major, adverse impacts to a resource or value the conservation of which is (1) necessary to fulfill specific purposes identified in the enabling legislation of CUIS; (2) key to the natural or cultural integrity of CUIS; or (3) identified as a goal in the CUIS General Management Plan or other relevant NPS planning documents**,** this alternative would result in no impairment of CUIS resources or values.

Alternative 2 (North End Access)
Under Alternative 2, there will be negligible to minor negative impacts to soils. The areas where soils would be affected are noted as follows:

Vehicle storage/maintenance area: In order to operate motorized trips to the north end of the island an expanded or new area to store and maintain trip vehicles may be needed. Minor clearing of vegetation may be required to accommodate the expanded or new facility. One possible location for this facility would be behind the Sea Camp Ranger Station, where the NPS currently has a cleared parking area. In order to minimize the impacts to soils, this area could be expanded rather than locating the facility in a totally vegetated area away from existing areas of human activity. Improvement, construction and/or operation of any vehicle storage and maintenance area is expected to have a minor negative impact to soils associated with additional disturbance and use. Fluids associated with operation and maintenance of vehicles will be properly contained and disposed of.

Trip staging area: It is anticipated that the trip staging area, which is where passengers would board vehicles, could be completed near the Sea Camp, Dungeness, and/or Plum Orchard docks. Staging operation for the trips is expected to have a negligible impact to soils in these already developed areas.

Main Road: Currently, the Main Road consists of a single lane dirt road ranging in width from 8 to 16 feet. The road requires periodic grading to maintain a relatively smooth driving surface. In addition, cyclic maintenance is also necessary to address more ingrained problems such as ruts, holes, and poor drainage. Whatever the case may be, maintenance work is confined to the established, developed footprint of the road. Beyond that it may be necessary to establish pullouts in isolated situations. Potential hazards, site lines, and shoulder conditions will dictate if and where this type of work is needed for a vehicle to pull off and allow safe passing. These pullouts would be established through the cutting and/or trimming of roadside vegetation, and no grading of soils is anticipated. Vehicle traffic may affect these roadside soils, but only in a relatively small area. As a whole, the activities associated with the Main Road under this alternative are expected to have a negligible to minor negative impact.

Plum Orchard Spur: Some minor clearing of vegetation and minor grading would be required where the Plum Orchard Spur connects to the Main Road to accommodate the proposed trip vehicles. Impacts to soils would be minor.

Plum Orchard: All vehicles would continue to utilize the existing roads in the area of Plum Orchard. A trip operations facility or new restrooms may be constructed at Plum Orchard. Construction and operation of these facilities is expected to have a minor negative impact to soils.

Various educational and interpretive sites: As part of the trip operations to the north end of the island, several cultural and environmental resource areas will be available for visitor use. The majority of these sites are currently accessed by trails; therefore, only minor trimming of

vegetation is anticipated for maintaining access. Impact to soils is not anticipated at the interpretive sites.

Settlement area: No new roads or clearing of vegetation is proposed in The Settlement area. All vehicles would continue to utilize the existing roads in this area. The sites of interest in The Settlement area are currently accessed by paths or dirt road; therefore, only maintenance clearing of vegetation to maintain access is anticipated. Impact to soils is not anticipated at The Settlement area.

Alberty House: The Alberty House is being adapted to serve as a visitor contact station that could be manned by a park ranger, and would include restrooms and drinking water. It will have two restrooms in the back and three rooms in the front for museum displays and NPS offices. Facility improvements include installation of a new septic system and a new well with service run to the house. The negative impact to soils due to these improvements is anticipated to be moderate and would be temporary only.

North Cut Road: Currently the North Cut Road consists of a single lane dirt road ranging in width from 8 to 10 feet. Trip operations and maintenance along North Cut are expected to be the same as what is described above for the Main Road. Likewise, the activities associated with the North Cut Road under this alternative are expected to have a negligible to minor negative impact.

In addition to the specific areas noted above, there will be minor negative impacts to soils at project start up as a result of the staging of materials and equipment at all areas where work is proposed.

Cumulative Impacts: The predicted cumulative impacts this alternative would have on soils would be negligible to minor. When considering other planned projects such as trail maintenance (negligible impact), various archaeological investigations (negligible impact), tidal creek and wetland restorations (minor positive impact) and routine road maintenance (minor negative impact) it is anticipated that the impacts to soils would be minor and negative.

Impairment: Because there would be no major, adverse impacts to a resource or value the conservation of which is (1) necessary to fulfill specific purposes identified in the enabling legislation of CUIS; (2) key to the natural or cultural integrity of CUIS; or (3) identified as a goal in the CUIS General Management Plan or other relevant NPS planning documents**,** this alternative would result in no impairment of CUIS resources or values.

Alternative 3 (Island Mobility) (Preferred Alternative)

Alternative 3 would have the same impacts as Alternative 2 with respect to north end access. The added components of this alternative would take place only on the south end of the island where there are existing, more extensive cleared areas and an increased human presence. Also, it is anticipated that existing maintenance and storage areas on the south end of the island may be modified to accommodate storage and maintenance for any additional vehicles. The

improvements needed to implement this alternative would be minimal. Impacts to soils from this alternative would be considered minor.

Cumulative Impacts: The predicted cumulative impacts this alternative would have on soils would be negligible to minor. When considering other planned projects such as trail maintenance (negligible impact), various archaeological investigations (negligible impact), tidal creek and wetland restorations (minor positive impact) and routine road maintenance (minor negative impact) it is anticipated that the impacts to soils would be minor and negative.

Impairment: Because there would be no major, adverse impacts to a resource or value the conservation of which is (1) necessary to fulfill specific purposes identified in the enabling legislation of CUIS; (2) key to the natural or cultural integrity of CUIS; or (3) identified as a goal in the CUIS General Management Plan or other relevant NPS planning documents**,** this alternative would result in no impairment of CUIS resources or values.

Conclusion

The majority of Cumberland Island has been human-altered for a long period of history, including extensive agricultural activities associated with multiple plantations and estates. Historic records indicate that the island has supported more than 500 permanent residents at times during the past. The effects of providing trips to the north end of the island and operation of motorized trips and support facilities would cause a negligible to minor negative impact to soils.

Geology and Topography

Alternative 1 (No Action)

This alternative would have no impact on geology and topography.

Cumulative Impacts: This alternative does not imply, lead to, or require any additional or other actions that may affect geology and topography. No other past, present, or future reasonable actions are anticipated as a result of this alternative that could lead to impacts cumulative or otherwise.

Impairment: Because there would be no major, adverse impacts to a resource or value the conservation of which is (1) necessary to fulfill specific purposes identified in the enabling legislation of CUIS; (2) key to the natural or cultural integrity of CUIS; or (3) identified as a goal in the CUIS General Management Plan or other relevant NPS planning documents**,** this alternative would result in no impairment of CUIS resources or values.

Alternative 2 (North End Access)

Under Alternative 2, there would be no impact on the island's geology and topography. The trips and operations associated with north end access would use existing roads and no improvements or modifications are proposed that would influence geologic or topographic resources. Any modifications or construction for support facilities would utilize previously disturbed areas and have no further effects.

Cumulative Impacts: The predicted cumulative impacts this alternative would have on geology and topography would be no impact. When considering other planned projects such as trail maintenance (no impact), various archaeological investigations (no impact), tidal creek and wetland restorations (no impact) and routine road maintenance (no impact) it is anticipated that there would be no impact to geology and topography.

Impairment: Because there would be no major, adverse impacts to a resource or value the conservation of which is (1) necessary to fulfill specific purposes identified in the enabling legislation of CUIS; (2) key to the natural or cultural integrity of CUIS; or (3) identified as a goal in the CUIS General Management Plan or other relevant NPS planning documents**,** this alternative would result in no impairment of CUIS resources or values.

Alternative 3 (Island Mobility) (Preferred Alternative)

In addition to the north end access component of Alternative 2, this alternative incorporates a shuttle service on the south end. As with Alternative 2 the shuttle would use existing roads. The shuttle would also access the beach at Dungeness Crossing to drop off and pickup passengers, with Little Greyfield and Stafford Crossings used as alternates. The shuttle will not travel up and down the beach. In accessing the beach, the shuttle would cross the island dune system, which is a key geologic feature. However, vehicles will use the well established and approved beach crossings. Therefore, any negative impacts on individual dunes or the entire system from the additional vehicle traffic will be negligible.

Cumulative Impacts: The predicted cumulative impacts this alternative would have on geology and topography would be negligible. When considering other planned projects such as trail maintenance (no impact), various archaeological investigations (no impact), tidal creek and wetland restorations (no impact) and routine road maintenance (no impact) it is anticipated that there would be negligible negative impacts to geology and topography.

Conclusions

The majority of Cumberland Island has been human-altered for a long period of history, including extensive agricultural and other activities associated with multiple plantations and estates. Historic records indicate that the island has supported more than 500 permanent residents at times during the past. The effects of providing trips to the north end of the island, potential construction of minor support facilities, and shuttle service on the south end would create negligible impacts to island geology and topography. Cumulative impacts of the Preferred Alternative and other actions at CUIS would be negligible.

Water Quality

Alternative 1 (No Action)

This alternative would have no impact to water quality.

Cumulative Impacts: This alternative does not imply, lead to, or require any additional or other actions that may affect water quality. No other past, present, or future reasonable actions are anticipated as a result of this alternative that could lead to impacts cumulative or otherwise.

Impairment: Because there would be no major, adverse impacts to a resource or value the conservation of which is (1) necessary to fulfill specific purposes identified in the enabling legislation of CUIS; (2) key to the natural or cultural integrity of CUIS; or (3) identified as a goal in the CUIS General Management Plan or other relevant NPS planning documents**,** this alternative would result in no impairment of CUIS resources or values.

Alternative 2 (North End Access)
Under Alternative 2, there will be minor negative impacts to water quality. The areas where water quality would be impacted are noted as follows:

Vehicle storage/maintenance area: In order to operate motorized trips to the north end of the island, it may be necessary to provide an area to store and maintain vehicles. Minor clearing of vegetation may be necessary to provide such a support area. One possible location for this area would be behind the Sea Camp Ranger Station, where the NPS currently has a cleared parking area. In order to minimize the impacts to water quality, this area could be expanded rather than locating the facility in a totally vegetated location away from existing areas of human activity. Operation of the vehicle storage/maintenance area is expected to have a negligible to minor negative impact to water quality due to additional use and disturbance. Fluids associated with service, operation, and maintenance of vehicles will be properly stored and disposed of.

Roads: The proposed North End Access would use existing roads, which are single lane dirt roads ranging in width from 8 to 16 feet. The Main Road has bridges spanning four tidal creeks and there are an unknown number of culverts associated with small streams and swales on the assorted roads. Periodic grading and cyclic maintenance will continue to be done on the roads, but no new construction or improvements are proposed. The roads will remain unpaved and there are no new impervious areas proposed to be added to Cumberland Island. Therefore no additional stormwater runoff is anticipated. Overall, activity associated with the roads under this alternative will have negligible to minor additional effects on water quality.

Cumulative Impacts: The predicted cumulative impacts this alternative would have on water quality would be negligible to minor. When considering other planned projects such as trail maintenance (negligible impact), various archaeological investigations (negligible impact), tidal creek and wetland restorations (minor positive impact) and routine road maintenance (minor negative impact) it is anticipated that the impacts to water quality would be minor and negative.

Impairment: Because there would be no major, adverse impacts to a resource or value the conservation of which is (1) necessary to fulfill specific purposes identified in the enabling legislation of CUIS; (2) key to the natural or cultural integrity of CUIS; or (3) identified as a goal in the CUIS General Management Plan or other relevant NPS planning documents**,** this alternative would result in no impairment of CUIS resources or values.

Alternative 3 (Island Mobility Alternative)
Alternative 3 would have the same impacts as Alternative 2 with respect to north end access. The added components of this alternative would take place only on the south end of the island using

existing roads and facilities. It is anticipated that existing maintenance and storage areas on the south end of the island may be adequate for any additional shuttle vehicles. The improvements needed to implement this alternative would be minimal. Impacts to water quality from this alternative would be similar to Alternative 2.

Cumulative Impacts: The predicted cumulative impacts this alternative would have on water quality would be negligible to minor. When considering other planned projects such as trail maintenance (negligible impact), various archaeological investigations (negligible impact), tidal creek and wetland restorations (minor positive impact) and routine road maintenance (minor negative impact) it is anticipated that the impacts to water quality would be minor and negative.

Impairment: Because there would be no major, adverse impacts to a resource or value the conservation of which is (1) necessary to fulfill specific purposes identified in the enabling legislation of CUIS; (2) key to the natural or cultural integrity of CUIS; or (3) identified as a goal in the CUIS General Management Plan or other relevant NPS planning documents**,** this alternative would result in no impairment of CUIS resources or values.

Conclusion

The majority of Cumberland Island has been human-altered for a long period of history, including extensive agricultural activities associated with multiple plantations and estates. Historic records indicate that the island has supported more than 500 permanent residents at times during the past. The effects of providing trips to the north end of the island, potential construction of minor support facilities, and shuttle service on the south end would cause a negligible to minor negative impact to water quality. Cumulative impacts of the Preferred Alternative and other actions at CUIS would be minimal in the short term and would be mainly due to the potential of soil erosion. While there will be no paving, the amount of impervious surface may increase slightly with the operation of a storage and maintenance area. At the same time, existing sandy soils on the island will easily accept the minimal amount of increased run off before it is discharged to any of the island water bodies.

Wetlands

Alternative 1 (No Action)

This alternative would have no impact on wetlands.

Cumulative Impacts: This alternative does not imply, lead to, or require any additional or other actions that may affect wetlands. No other past, present, or future reasonable actions are anticipated as a result of this alternative that could lead to impacts cumulative or otherwise.

Impairment: Because there would be no major, adverse impacts to a resource or value the conservation of which is (1) necessary to fulfill specific purposes identified in the enabling legislation of CUIS; (2) key to the natural or cultural integrity of CUIS; or (3) identified as a goal in the CUIS General Management Plan or other relevant NPS planning documents**,** this alternative would result in no impairment of CUIS resources or values.

Alternative 2 (North End Access)
Under Alternative 2, there will be no impacts to wetlands.

Cumulative Impacts: This alternative does not imply, lead to, or require any additional or other actions that may affect wetlands. No other past, present, or future reasonable actions are anticipated as a result of this alternative that could lead to impacts cumulative or otherwise.

Impairment: Because there would be no major, adverse impacts to a resource or value the conservation of which is (1) necessary to fulfill specific purposes identified in the enabling legislation of CUIS; (2) key to the natural or cultural integrity of CUIS; or (3) identified as a goal in the CUIS General Management Plan or other relevant NPS planning documents**,** this alternative would result in no impairment of CUIS resources or values.

Alternative 3 (Island Mobility) (Preferred Alternative)
Alternative 3 would have the same impacts as Alternative 2 with respect to the north end access (i.e., no impacts to wetlands). The added components of this alternative would take place only on the south end of the island. Here there are some locations where the existing south end roads cross at grade through seasonal or intermittent wetland areas to provide beach access. The established beach crossings at Dungeness, Little Greyfield, and Stafford are the primary situations. These three areas are likely to experience a negligible negative effect under this alternative due to an increase in vehicle traffic. The wetland crossing will be restricted to the existing road corridor and the corridor itself will not be widened. It should be noted that the Dungeness crossing, which would serve as the principal beach access point under Alternative 3, occasionally becomes temporarily impassible due to flooding and other weather-related incidents. To avoid impacts to intermittent wetlands in this location, Little Greyfield and Stafford beach access points are identified as alternative pick-up/drop-off sites for the south-end shuttle when the Dungeness crossing becomes temporarily impassible. Additional shuttle related traffic on the two alternate beach crossings is expected to be minimal on an annual basis.

Cumulative Impacts: The predicted cumulative impacts this alternative would have on wetlands would be negligible to minor. When considering other planned projects such as trail maintenance (negligible impact), tidal creek and wetland restorations (minor positive impact) and routine road maintenance (minor negative impact) it is anticipated that the impacts to wetlands would be minor and negative.

Impairment: Because there would be no major, adverse impacts to a resource or value the conservation of which is (1) necessary to fulfill specific purposes identified in the enabling legislation of CUIS; (2) key to the natural or cultural integrity of CUIS; or (3) identified as a goal in the CUIS General Management Plan or other relevant NPS planning documents**,** this alternative would result in no impairment of CUIS resources or values.

Conclusion
The majority of Cumberland Island has been human-altered for a long period of history, including the extensive activities associated with multiple plantations and estates situated island

wide. Historic records indicate that the island has supported more than 500 permanent residents at times during the past. The effects of providing trips to the north end of the island and operation of potential support facilities for these trips would cause no impacts to wetlands. Providing a pick-up/drop-off service at the beach on the south end would result in negligible negative impact to wetlands, primarily at Dungeness Crossing, the principal access point. Any effect would be generated via additional vehicle traffic using at-grade crossings through seasonal or intermittent wetland areas. Because impacts would be negligible and would be analogous to those from backcountry stream crossings, the proposed action is excepted from the requirement to prepare a Wetland Statement of Findings (see Executive Order 11990; NPS Procedural Manual #77-1: Wetland Protection, Section 4.2.1(c)). Impacts will be further avoided by requiring the shuttle to use the less flood-prone crossings at Little Greyfield or Stafford to provide beach access in the event of high water in intermittent wetlands at the Dungeness Crossing (see NPS Procedural Manual #77-1: Wetland Protection, Sections 5.2.1 and 5.2.2). Cumulative impacts of the Preferred Alternative and other actions at CUIS would be negligible to minor. See **Figure 14** for a Wetlands Map.

Air Quality

Alternative 1 (No Action)

This alternative would have no impact to air quality.

Cumulative Impacts: This alternative does not imply, lead to, or require any additional or other actions that may affect air quality. No other past, present, or future reasonable actions are anticipated as a result of this alternative that could lead to impacts cumulative or otherwise.

Impairment: Because there would be no major, adverse impacts to a resource or value the conservation of which is (1) necessary to fulfill specific purposes identified in the enabling legislation of CUIS; (2) key to the natural or cultural integrity of CUIS; or (3) identified as a goal in the CUIS General Management Plan or other relevant NPS planning documents**,** this alternative would result in no impairment of CUIS resources or values.

Alternative 2 (North End Access)

The effects of Alternative 2 on ambient air quality would include both temporary impacts from initial operation set up activities and long term impacts from the trip vehicles and the increased human activities associated with the trip operations.

ST. ANDREW SOUND
SATILLA RIVER
CUMBERLAND RIVER
CROOKED RIVER
CUMBERLAND SOUND
ATLANTIC OCEAN
ST. MARYS RIVER
Little Cumberland Island
Stafford Island
Amelia Island
CAMDEN COUNTY GEORGIA
FLORIDA
Big Cypress Pond
Hall Swamp
Copeland Swamp
Cooper Swamp
Barren Swamp
Cannon Swamp
St. Mary's
The Settlement
First African Baptist Church
High Point Road
North Cut Road
Wilderness Area Boundary
Bunkley Trail
Whitney Lake
Brickhill Bluff
South Cut Trail
Table Point Trail
Kings Bottom Trail
Roller Coaster Trail
Sweetwater Lake
Tar Kiln Trail
Plum Orchard
Yankee Paradise
Old River Trail
Yankee Paradise Trail
Hickory Hill
Stafford
Cemetery
Stafford Beach
Old House Road
Pratts Trail
Little Greyfield
Greyfield
Main Road
Sea Camp Ranger Station
Sea Camp Beach
Ice House Museum
Dungeness Ruins
Cemetery
South End Trail
Passenger Ferry
40

Cumberland Island Environmental Assessment/ Transportation Management Plan

Natural Resources: Wetlands July, 2008

N W E S

0 0.5 1 2 Miles

Ferry Routes
Primary Road
Secondary Road
Trail
Railroad
Major Rivers
Wilderness Area
Cumberland Island Nat'l Seashore
Lake or Pond
Swamp or Marsh
Stream or River
Canal or Ditch
Wetlands

NATIONAL PARK SERVICE

Figure 14

P:\07\07036\002\GIS\natresources_TAB_bws_071007.mxd **07/17/08**

The short term temporary impacts to air quality would include the activities required to modify or build the potential facilities previously described. These temporary impacts would require additional vehicle and boat trips, creating additional engine emissions and dust from travel on the dirt roads, which would be considered minor negative impacts.

There would also be long term minor impacts as a result of additional vehicle trips to the north end of the island. The areas where potential impacts to air quality would occur are those associated with the trip operations on the island including: the trip staging area, vehicle maintenance/storage, Main Road, Plum Orchard Spur, Plum Orchard, the Settlement, Alberty House, North Cut Road, and other interpretive sites. These locations would all experience increased engine emission levels from the trip vehicles. The amount of increase would stem from as many as 48 additional vehicle runs per day above the current level of traffic from private residents and park personnel. Although the current volume of operation is not known specifically, the addition of the trips would obviously increase the level of automotive emissions. However, continued use and implementation of new engine technologies and reduced emission fuels will improve the efficiency of the fleet utilized in the trip/shuttle service. The park will review alternative fuel vehicle options and other technologies to reduce emissions and improve air quality. Regardless, emissions of hydrocarbons, NOx, SO_2, and airborne particulates would be rapidly dissipated by ambient air dispersion. Moreover, the total amount of daily traffic on the Main Road would remain small. Thus, the proposed action would result in negligible degradation of local air quality. Any effects would be temporary, lasting only as long as vehicles were in operation.

Cumulative Impacts: The predicted cumulative impacts this alternative would have on air quality would be minor and negative. Existing vehicles on the island, including NPS operations and those being operated by private landowners, currently generate an insignificant amount of engine emissions. Other sources of engine emissions include private motor boats and the ferry operations.

When considering other planned projects such as trail maintenance (negligible impact), various archaeological investigations (negligible impact), tidal creek and wetland restorations (negligible impact) and routine road maintenance (minor negative impact) it is anticipated that the impacts to air quality would be minor and negative.

Impairment: Because there would be no major, adverse impacts to a resource or value the conservation of which is (1) necessary to fulfill specific purposes identified in the enabling legislation of CUIS; (2) key to the natural or cultural integrity of CUIS; or (3) identified as a goal in the CUIS General Management Plan or other relevant NPS planning documents**,** this alternative would result in no impairment of CUIS resources or values.

Alternative 3 (Island Mobility Alternative)
Alternative 3 would have the same impacts as Alternative 2 with respect to north end access. The added components of this alternative would take place only on the south end of the island. Under Alternative 3, the shuttle will provide visitor access to key locations on the south end of the island via a shuttle circuit. It is not anticipated that these limited short trips would create any additional adverse effect to air quality.

Cumulative Impacts: The predicted cumulative impacts this alternative would have on air quality would be minor and negative. Existing vehicles on the island, including NPS operations and those being operated by private landowners, currently generate an insignificant amount of engine emissions. Other sources of engine emissions include private motor boats and the ferry operations.

When considering other planned projects such as trail maintenance (negligible impact), various archaeological investigations (negligible impact), tidal creek and wetland restorations (negligible impact) and routine road maintenance (minor negative impact) it is anticipated that the impacts to air quality would be minor and negative.

Impairment: Because there would be no major, adverse impacts to a resource or value the conservation of which is (1) necessary to fulfill specific purposes identified in the enabling legislation of CUIS; (2) key to the natural or cultural integrity of CUIS; or (3) identified as a goal in the CUIS General Management Plan or other relevant NPS planning documents**,** this alternative would result in no impairment of CUIS resources or values.

Conclusion
The majority of Cumberland Island has been human-altered for a long period of history, including the extensive activities associated with multiple plantations and estates situated island wide. Historic records indicate that the island has supported more than 500 permanent residents at times during the past. The effects of providing trips to the north end of the island and operation of potential support facilities would cause a minor negative impact to air quality from additional motorized vehicle trips on the island. In the long term, as existing reserved estates expire and full title for these lands vests in NPS ownership, there will be fewer motorized vehicles on the island, which would reduce emissions slightly compared to existing levels. Cumulative impacts of the Preferred Alternative and other actions at CUIS would be minimal in the short term and improve in the long term as engine technology continues to improve, and fewer private vehicles operate on the island, thus reducing overall emissions.

Human-Caused Sound and Soundscapes

Human Noise Response Relationship –The decibel is the measuring unit that describes to the receiver the amount of energy given off by the noise source as it moves. For this project, it is anticipated that the long term noise would come from two sources - the trip vehicles and the increased human activity associated with the trips.

Sound is measured using a sound level meter with a microphone designed to respond accurately to all audible frequencies within range of human hearing. The most commonly used measure of noise is the A-weighted sound level expressed in decibels (dBA). The A-weighted sound level is a single-number measure of sound intensity with weighted frequency characteristics that correspond to human subjective response to noise, and is widely accepted by acousticians as a proper unit for describing environmental noise. Community noise is usually characterized in terms of the A-weighted sound level. Table 5 illustrates the A-weighted levels of common sounds.

Table 5: Typical Noise Levels

Noise Source	dBA
Grand Canyon at Night (no roads, birds, wind)	10
Refrigerator	40-43
Quiet urban area daytime	50-60
Normal Conversation	55-65
Alarm Clock	60-80
Dishwasher	63-66
Passenger vehicle, 50 mph at 100 feet	65-70
Inside Car, Windows Closed, 30 MPH	68-73
Inside Car, Windows Open, 30 MPH	72-76
Lawn Mower	88-94

The range of human hearing extends from about 0 dBA for young healthy ears that have not been exposed to loud noise sources to about 140 dBA. When sounds exceed 110 dBA, there is a potential for hearing damage even with relatively short exposures. In quiet suburban areas far from major freeways, the noise levels during the late night hours will drop to about 30 dBA. Outdoor noise levels lower than this only occur in isolated areas where there is a minimum of natural noises, such as leaves blowing in the wind, crickets, or flowing water.

In order to assess the potential noise impacts associated with trips to the north end of the island, the existing background noise levels were first determined. The existing daytime noise levels across the island range from 35-70 dBA depending upon exact location on the island and time of day. Table 6 reports some of the typical noise levels observed on the island. **Figure 15** identifies these locations on the island.

Table 6: CUIS Noise Readings

Site	dBA
Settlement Area	37-47
Brickhill Bluff Campsite	38-50
Sea Camp Ranger Station	51-58
North End Beach	58-68
South End Beach	66-69
Plum Orchard	47-52

ST. ANDREW SOUND
SATILLA RIVER
CUMBERLAND RIVER
CROOKED RIVER
CUMBERLAND SOUND
ATLANTIC OCEAN
ST. MARYS RIVER
CAMDEN COUNTY
GEORGIA
FLORIDA
Little Cumberland Island
Stafford Island
Amelia Island
Big Cypress Pond
Halls Swamp
Copeland Swamp
Cooper Swamp
Barren Swamp
Cannon Swamp
St. Mary's
The Settlement
North Cut Road
Wilderness Area Boundary
Bunkley Trail
Whitney Lake
Brickhill Bluff
South Cut Trail
Table Point Trail
Kings Bottom Trail
Main Road
Roller Coaster Trail
Tar Kiln Trail
Sweetwater Lake
Plum Orchard
Yankee Paradise
Hickory Hill
Old River Trail
Stafford
Stafford Cemetery
Stafford Beach
Old House Road
Pratt's Trail
Little Greyfield
Greyfield
Greyfield Beach Road
Goats Way Road
Sea Camp Ranger Station
Sea Camp Beach
River Trail
Ice House Museum
Dungeness Beach
Dungeness Ruins
Cemetery
South End Trail
Passenger Ferry
40

Cumberland Island Environmental Assessment/ Transportation Management Plan

Noise Monitoring Locations July, 2008

N W E S

0 0.5 1 2 Miles

Noise Monitoring Locations
Ferry Routes
Primary Road
Secondary Road
Trail
Railroad
Major Rivers
Wilderness Area
Cumberland Island Nat'l Seashore
Lake or Pond
Swamp or Marsh
Stream or River
Canal or Ditch

NATIONAL PARK SERVICE

Figure 15

P:\07\07036\002\GIS\Noise_TAB_bws_071007.mxd **07/17/08**

Alternative 1 (No Action)
This alternative would have no impact to sound quality.

Cumulative Impacts: This alternative does not imply, lead to, or require any additional or other actions that may affect sound quality. No other past, present, or future reasonable actions are anticipated as a result of this alternative that could lead to impacts cumulative or otherwise.

Impairment: Because there would be no major, adverse impacts to a resource or value the conservation of which is (1) necessary to fulfill specific purposes identified in the enabling legislation of CUIS; (2) key to the natural or cultural integrity of CUIS; or (3) identified as a goal in the CUIS General Management Plan or other relevant NPS planning documents**,** this alternative would result in no impairment of CUIS resources or values.

Alternative 2 (North End Access)
The effects of Alternative 2 on ambient noise levels would include temporary impacts from potential project start up activities as well as long term impacts from the trip vehicles and the increased human activities at various island locations associated with the trip operations. The short term temporary impacts to noise quality would include the activities required to modify or build potential support facilities. These temporary impacts would be considered minor negative impacts.

There would also be long term minor impacts as a result of human induced noise under Alternative 2. The areas where human induced noise impacts would occur are noted as follows:

Roads: Use of trip vehicles would be confined to the Plum Orchard Spur, Main Road, North Cut Road, and other minor roads on the south end. A van or other typical motorized vehicle being considered for the proposed trips would have an approximate noise emission level of 50-60 dBA at 50 feet. Under current conditions an estimated 10 trips per day travel to and from the north end of the island. Under the proposed alternative, an additional 5-8 trips per day would be completed with three vehicles being the peak number in a single trip. In addition to the sound generated by the vehicle and passengers it is anticipated that oral interpretation could be provided by the vehicle driver or an NPS ranger as part of the trips.

Vehicle storage/maintenance area: There would be some increased noise from maintenance of trip vehicles. Typical maintenance would consist of vehicle cleaning, oil changes, and other minor routine maintenance; therefore, noise level increases are anticipated to be minimal. The maintenance area would also be located in an area where existing human activity is common; therefore, the minor noise level increase would hardly be perceptible.

Various support and interpretive areas: Areas associated with trip operations on the island including the trip staging area, Plum Orchard, The Settlement, Alberty House, and other interpretive sites would all experience increased noise levels from the trip vehicles and the people who will be accessing the sites. Upon full implementation of this alternative, it is assumed that an additional 5-8 trips to the north end of the island would be completed on a daily

basis with as many as three vehicles and 30 people per trip. The effects will vary depending on location. In areas that currently have regular activity, such as Sea Camp and Dungeness Dock, the effects would be negligible. The increase in noise level will likely be more perceptible in other areas with less activity, such as The Settlement.

Cumulative Impacts: The predicted cumulative impacts this alternative would have on sound quality would be moderate and negative. Existing vehicles on the island, including NPS operations and those being operated by private landowners, currently generate an insignificant amount of noise. Other sources of noise include private motor boats, ferry operations, normal park operations including activities required for the maintenance of CUIS facilities, existing visitor activities, large commercial airplanes traveling to and from Jacksonville International airport, light aircraft, vessel traffic, and activity associated with military and industrial facilities in the area. It is important to note that this project would not increase the number of visitors coming to CUIS; however, it would shift the location that these visitors frequent on the island. When considering other planned projects such as trail maintenance (negligible impact), various archaeological investigations (negligible impact), tidal creek and wetland restorations (negligible impact) and routine road maintenance (minor negative impact), it is anticipated that the impacts to sound quality would be moderate and negative.

Impairment: Because there would be no major, adverse impacts to a resource or value the conservation of which is (1) necessary to fulfill specific purposes identified in the enabling legislation of CUIS; (2) key to the natural or cultural integrity of CUIS; or (3) identified as a goal in the CUIS General Management Plan or other relevant NPS planning documents**,** this alternative would result in no impairment of CUIS resources or values.

Alternative 3 (Island Mobility) (Preferred Alternative)

Alternative 3 would have the same impacts as Alternative 2 with respect to north end access. The added components of this alternative would take place only on the south end of the island. Under Alternative 3, it is intended to use a shuttle to provide visitor access to significant locations on the south end of the island via a shuttle circuit. It is not anticipated that these limited short trips would create any additional adverse effect to sound quality on the south end. Noise generated by the additional activity will easily merge with existing visitor, operational, and broad area sounds.

Cumulative Impacts: The predicted cumulative impacts this alternative would have on sound quality would be moderate and negative. Existing vehicles on the island, including NPS operations and those being operated by private landowners, currently generate an insignificant amount of noise. Other sources of noise include private motor boats, ferry operations, normal park operations including activities required for the maintenance of CUIS facilities, existing visitor activities, large commercial airplanes traveling to and from Jacksonville International airport, light aircraft, vessel traffic, and activity associated with military and industrial facilities in the area. It is important to note that this project would not increase the number of visitors coming to CUIS; however, it would shift the location that these visitors frequent on the island. When considering other planned projects such as trail maintenance (negligible impact), various

archaeological investigations (negligible impact), tidal creek and wetland restorations (negligible impact) and routine road maintenance (minor negative impact), it is anticipated that the impacts to sound quality would be moderate and negative.

Impairment: Because there would be no major, adverse impacts to a resource or value the conservation of which is (1) necessary to fulfill specific purposes identified in the enabling legislation of CUIS; (2) key to the natural or cultural integrity of CUIS; or (3) identified as a goal in the CUIS General Management Plan or other relevant NPS planning documents**,** this alternative would result in no impairment of CUIS resources or values.

Conclusion
Based on the general assumptions noted above, overall noise levels from trip operations would be expected to have negligible to moderate adverse impacts. In most areas, the existing trails are far enough away from the Main Road that the trip vehicle will barely be loud enough for human hearing to perceive its presence. In some cases, such as where trails cross the island roads, the trip vehicles may encounter hikers who will hear the vehicles. However, the noise level will not be excessive, and the noise will be of very short duration since the vehicle will likely be traveling to a specific site on the north end of the island. During times of the year when attendance at the park is lower, it is likely that the trips would also carry a much smaller number of visitors. During these times, negligible noise impacts would occur. Moderate impacts would occur when the trip operations conflict with other recreational uses of the park such as hiking and bird watching.

The historic and natural resources of CUIS are a major attraction for island visitors. The effect of the temporary noise associated with operation start up and the motorized trips to the north end of the island would have a minor to moderate adverse effect on the existing soundscape of CUIS. Given that there is existing human–caused sound across the entire island, the cumulative impacts of alternatives 2 and 3 would be minor.

4.9 Cultural Resources

Historic and Archeological Resources

Alternative 1 (No Action)
This alternative would have no impact to historic and archaeological resources.

Cumulative Impacts: This alternative does not imply, lead to, or require any additional or other actions that may affect historic and archaeological resources. No other past, present, or future reasonable actions are anticipated as a result of this alternative that could lead to impacts cumulative or otherwise.

Impairment: Because there would be no major, adverse impacts to a resource or value the conservation of which is (1) necessary to fulfill specific purposes identified in the enabling legislation of CUIS; (2) key to the natural or cultural integrity of CUIS; or (3) identified as a goal

in the CUIS General Management Plan or other relevant NPS planning documents**,** this alternative would result in no impairment of CUIS resources or values.

Alternative 2 (North End Access)

This alternative would have impacts ranging from minor negative to positive at the multiple cultural resource sites from Plum Orchard and north. An increase in the number of visitors to these sites may produce a minor negative impact due to increased use. However, because of the increased activity, monitoring and maintenance of the historic resources would be facilitated, which would be considered a minor positive impact. In association with north end trips and operations, some modifications that may affect cultural resources are also being considered as part of this transportation management plan. These modifications are discussed below:

Plum Orchard: Maintenance, stabilization, and monitoring of this historic mansion and plantation are ongoing, with a major interior rehabilitation project recently completed. Increased visitation to the site would allow for more frequent site monitoring and encourage the appropriate maintenance to continue at this site, a minor positive impact. It has also been suggested that the Plum Orchard carriage house ruins could be reconstructed, or a new facility could be constructed at that site to serve as a staging area. Because the mansion, support buildings, and surrounding landscape are part of a National Register of Historic Places (NRHP) listed historic district, preparation of an Assessment of Effects document would be necessary once a concept plan is prepared to determine if any modifications or construction would cause an adverse effect on the district.

Rayfield Archaeological District: Similar to the chimneys at Stafford Plantation, this area contains remnants of chimneys that were part of cabins once occupied by the enslaved African Americans who worked the plantations on Cumberland Island. This site, which is directly west of the Main Road, is part of a NRHP listed archeological district. Although this site may be one of the resources that becomes part of a tour on the trip to the north end of the island, no changes to the site are proposed. Archaeological investigations have been completed at this site. Increased visitation to the site would allow for more frequent monitoring and encourage appropriate maintenance when necessary. However, visitation will also increase the potential for disturbance of the site and the lone standing chimney, which is unstable. With proper mitigation measures, impacts to the Rayfield site will be minor positive to minor negative effects.

High Point-Half Moon Bluff Historic District: There are several historic and archaeologically significant resources in this district including the site of Fort St. Andrews, the Cumberland Wharf, High Point Cemetery, and The Settlement, which includes the First African Baptist Church. Maintenance and rehabilitation of the church is cyclic and some archeological investigations have been completed at the fort. However, as a whole, the sites are monitored and addressed on an irregular basis. Increased visitation to these sites would allow for more frequent site monitoring and encourage the appropriate maintenance to continue and/or be implemented. Therefore, it is anticipated that this alternative would not have an adverse effect on these historic features of CUIS.

Alberty House: Located in The Settlement, this structure is a contributing historic resource to the High Point-Half Moon Bluff district and was recently repaired and rehabilitated. As described above in Section 2 in the Support Facilities portion of this EA, the Alberty House is a good location on the north end for visitor contact and restrooms. During the repair/rehab, the facility was adapted to serve in this capacity if needed. The house is now ADA (Americans with Disabilities Act) compliant and accessible for the mobility impaired. It has two restrooms in the back and four rooms in the front for museum displays and interpretation. Reconstruction of the interior was coordinated with the SHPO to ensure that the modifications would not adversely affect the integrity of the historic resource. Similar to Plum Orchard, an Assessment of Effects document was prepared to determine whether the proposed building modifications would cause an adverse effect. A finding of No Adverse Effect was determined for the repair/rehab and adaptive use of the Alberty House.

Main Road: The Main Road is listed on the NRHP. Under current NPS operations, that section of the Main Road from Dungeness to the bridge south of the Plum Orchard Spur is graded as necessary, which typically occurs 6 to 8 times annually. The road is currently not maintained on a regular basis north of Plum Orchard. Under the proposed alternative, the Main Road north of Plum Orchard would be maintained on a more regular basis including grading, minor trimming of vegetation, the establishment of limited pullouts, and cyclic maintenance. This maintenance would not affect the historic use or change the character of the site as a road. As with the above projects an Assessment of Effects was completed for such work and resulted in a No Adverse Effect determination.

Cumulative Impacts: The predicted cumulative impacts this alternative would have on historic and archaeological resources would be negligible to minor. When considering other projects such as various archaeological investigations (negligible impact), repair and rehabilitation to Plum Orchard and the Alberty House, and routine road maintenance (none to negligible impact), it is anticipated that the impacts to historic and archaeological resources would be negligible to minor and negative.

Impairment: Because there would be no major, adverse impacts to a resource or value the conservation of which is (1) necessary to fulfill specific purposes identified in the enabling legislation of CUIS; (2) key to the natural or cultural integrity of CUIS; or (3) identified as a goal in the CUIS General Management Plan or other relevant NPS planning documents**,** this alternative would result in no impairment of CUIS resources or values.

Alternative 3 (Island Mobility) (Preferred Alternative)

Alternative 3 would have the same impacts as Alternative 2 with respect to north end access. The added components of this alternative would take place only on the south end of the island. Under Alternative 3, it is intended to use a shuttle service to provide visitor access to significant locations on the south end of the island via a shuttle circuit. It is not anticipated that these limited short trips would create any additional adverse effect to historic or archaeological resources.

Cumulative Impacts: The predicted cumulative impacts this alternative would have on historic and archaeological resources would be negligible to minor. When considering other projects such as various archaeological investigations (negligible impact), repair and rehabilitation to Plum Orchard and the Alberty House, and routine road maintenance (negligible impact), it is anticipated that the impacts to historic and archaeological resources would be negligible to minor and negative.

Impairment: Because there would be no major, adverse impacts to a resource or value the conservation of which is (1) necessary to fulfill specific purposes identified in the enabling legislation of CUIS; (2) key to the natural or cultural integrity of CUIS; or (3) identified as a goal in the CUIS General Management Plan or other relevant NPS planning documents**,** this alternative would result in no impairment of CUIS resources or values.

Conclusion

Alternatives 2 and 3 would have minor positive as well as minor negative cumulative impacts on historic and archeological resources. Since monitoring and maintenance of resources would be facilitated, these alternatives would have a minor positive impact. Negligible to minor effects may occur due to the increased visitation and the associated potential for disturbance and deterioration. There is also the potential for minor to moderate negative impacts depending upon potential changes to some of the existing NRHP listed resources including Plum Orchard and the High Point-Half Moon Bluff Historic District. Potential effects to these resources cannot be determined until additional plan details are developed, at which time an Assessment of Effects document can be completed. Although consultation with the Georgia SHPO has not been completed, the EA will be sent to the agency for review and comment.

Section 106 Assessment

Projects that have the potential to affect culturally significant structures or features may develop from this Transportation Management Plan. However, before any such projects are implemented, specific plans and details will be coordinated with the Georgia SHPO. Project specific assessments and Section 106 compliance procedures will be completed prior to any activities related to historic features, structures, landscapes, archeological sites, or ground disturbance.

5.0 LIST OF PREPARERS

Hartrampf, Inc.		
Deborah Harvey	Senior Planner	Project Manager
Jordan, Jones & Goulding		
Katherine A. Lewis	Environmental Planner	NEPA Specialist
GT Hill Planners		
G. Todd Hill, P.P., AICP	NEPA Specialist	NEPA Specialist
National Park Service		
John Fry Resource Manager, CUIS	NEPA/NHPA Coordinator	IDT Leader
Mark Kinzer Environmental Protection Specialist, SERO	NEPA Specialist	NEPA

6.0 CONSULTATION AND COORDINATION

Public Review
Per Director's Order #12, the NPS is required to make a diligent effort to involve the interested and affected public when undertaking an EA. The public review process requirements include:

- Scoping - gathering input from relevant Federal, State, and local agencies before the EA is started (public scoping report)
- Approval by the Regional Director before public review begins
- Public notice of the review period
- 30 days of public review
- Incorporating public comments into a revised EA report
- If a FONSI is made, public notice that the EA is complete
- If an EIS is required, public notice that an EIS will be undertaken

The public review period must last a minimum of 30 days and must be started with issuing public notice. Public notice consists of posting notice in a local newspaper, on the NPS website, and other means of publicity as deemed necessary. Copies of the EA should be available by request, as well as available for review at a nearby library or NPS office.

Copies of this EA will be available for review on-line at http://parkplanning.nps.gov/cuis or www.nps.gov/cuis, at the NPS visitor center at St. Marys, GA, and the regional NPS office in Atlanta, GA.

Agency Consultation List
Agencies and organizations that will review and comment upon this environmental assessment include:

Federal Agencies
U.S. Department of the Interior – Fish and Wildlife Service
Advisory Council on Historic Preservation

State Agencies
Georgia Department of Natural Resources, Wildlife Resources Division
Georgia Department of Natural Resources, Office of State Historic Preservation Officer
In accordance with 36 CFR 800, and the 1995 programmatic agreement among the National Park Service, the National Conference of State Historic Preservation Officers, and the Advisory Council on Historic Preservation, the National Park Service will consider and address comments of the SHPO pertaining to project impacts on historic properties.

Local Governments
Camden County Commission
City of St. Marys, Georgia
Fernandina Beach, Florida

Recipients of the Environmental Assessment

For a list of individuals and other agencies receiving this environmental assessment, please contact Cumberland Island National Seashore.

7.0 REFERENCES

National Park Service, 1980. Final Environmental Impact Statement, General Management Plan, Wilderness Recommendation.

National Park Service, 1984. General Management Plan, Cumberland Island National Seashore.

Public Law 88-577 (Wilderness Act), 88th. Congress, S. 4, September 3, 1964.

Public Law 92-536 (Cumberland Island National Seashore Establishment), 92nd. Congress, S. 241, October 23, 1972.

Public Law 97-250 (Corrections regarding Cumberland Island National Seashore), 97th. Congress, S. 119, September 8, 1982.

Public Law 108-738 (Cumberland Island Wilderness Boundary Adjustment Act), 108th. Congress, S. 2d, October 6, 2004