

## **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 document analyzes potential impacts associated with each alternative of the TMP. 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 TMP, 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 TMP 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.

## **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.

#### ***Revised 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 Revised 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.

The visitor experience along roads could be affected by dust related to vehicle passage. The impact will be negligible to minor and confined to the road corridors and its immediate environs. Moisture, grain size, and low speeds help keep dust levels down, but it does occur during the summer and dry periods. Under those conditions vehicle traffic will cause fine particles to become airborne. Particles may rise 8-10 feet above the roadway and disperse outward to within approximately 10 feet on either side. The dust may linger in the air for a minute before settling back to the ground. The majority of the particles will settle back into the roadway with some settling onto vegetation along the right of way. With respect to hikers and bicyclists along the roads, they will at times encounter dust from passing vehicles but, the effects will be minor due to the low speed passes along the single-lane roads, the relatively low number of vehicles, and the short airborne duration of the material.

*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.

#### ***Revised Alternative 3 (Island Mobility) (Preferred Alternative)***

Revised Alternative 3 would have the same impacts as Revised Alternative 2 with regard to north end access. Revised 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 Revised 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. Revised 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. Revised 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' visitation ceiling. 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.

### ***Revised Alternative 2 (North End Access)***

The essential characteristics of wilderness, as outlined in *NPS Management Policies* (2006) Section 6.2.1.1, are as follows:

- The earth and its community of life are untrammeled by humans, where humans are visitors and do not remain.
- The area is undeveloped and retains its primeval character and influence without permanent improvements or human habitation.
- The area generally appears to have been affected primarily by the forces of nature, with the imprint of humans' work substantially unnoticeable.
- The area is protected and managed so as to preserve its natural conditions.
- The area offers outstanding opportunities for solitude or a primitive and unconfined type of recreation.

Of these characteristics, the two most relevant for present purposes are (a) “undeveloped ... primeval character and influence,” and (b) “outstanding opportunities for solitude.” In assessing impacts to wilderness character, NPS has looked to a protocol that it and other Federal land management agencies are developing for monitoring impacts to wilderness character. The current draft of the protocol would direct NPS to measure impacts such as the following:

- unauthorized (user-created) physical development in wilderness;
- amount of visitor use / number of trail contacts;
- area of wilderness affected by access or travel routes outside of, but adjacent to, the wilderness;

- extent and magnitude of intrusions on the natural soundscape from outside the wilderness;
- type and number of agency-provided recreation facilities; and
- type and extent of management restrictions on visitor behavior to protect resources.

For each of the foregoing impacts, the more instances detected by monitoring, the greater the degradation to wilderness character.

Under Revised Alternative 2, substantial impacts to wilderness character could occur as a result of increased motor vehicle traffic on the Main Road. The presence of multiple tour vehicle(s) traversing the Main Road would affect wilderness character by intruding on the natural soundscape from outside the wilderness, thereby altering natural conditions and diminishing opportunities for solitude. Such impacts would be limited to an extent because only five to eight 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 wilderness character could be moderate in intensity, since impacts would occur along a corridor extending the entire length of the wilderness from north to south.

Allowing day-use access to the wilderness from Plum Orchard and The Settlement will likely result in some adverse impacts to wilderness character and resources. These impacts are anticipated to be minor to moderate and long term. The most notable impacts would likely occur with respect to the “solitude and unconfined recreation quality” aspect of wilderness character. These impacts would be due to (a) the increased amount of wilderness use near Plum Orchard and the Settlement, and (b) the concentration of use near convenient wilderness access points. Additional impacts would likely occur to the “natural conditions” aspect of wilderness character. These would include the potential disturbance of wildlife, especially near wilderness access points. Granting that some adverse impacts will likely occur, the potential for adverse impacts will be offset somewhat by the fact that there will be a 240 person per day limit for the tours (8 trips maximum, at 30 persons per trip), and only a small portion of this number will likely use the wilderness on any given day. Moreover, the trips will not be used to transport overnight visitors or their equipment to wilderness, so the trips will not generate additional impacts from increased overnight use. Should day use of the wilderness be higher than expected and threaten to result in “unacceptable impacts” (as defined in *Management Policies* (2006) Section 1.4.7.1.), NPS has both the authority and the duty to regulate visitor use to protect the wilderness resource.

Taken together, the impacts to wilderness character 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.

### ***Revised Alternative 3 (Island Mobility) (Preferred Alternative)***

Under Revised Alternative 3, the trips offered in Revised 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 Revised Alternative 3 on wilderness character and experience would be identical to those of Revised Alternative 2.

*Cumulative Impacts:* Same as Revised 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 character would thus be negligible to minor in intensity, long term and adverse. Under Revised Alternative 2, the number of trips adjacent to the wilderness would increase by five to eight round trips per day. Impacts to wilderness character 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 character under Revised Alternative 3 would be the same as under Revised 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.

***Revised Alternative 2 (North End Access)***

Revised 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 Revised 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. Revised 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.

***Revised Alternative 3 (Island Mobility Alternative) (Preferred Alternative)***

Revised Alternative 3 would have the same impacts as Revised Alternative 2 with respect to educational programming and interpretation on the north end of the island. In addition, Revised 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 Revised Alternative 2.

***Conclusion***

Alternative 1 would have no impact on the educational programming or interpretative services on the island. Revised 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, Revised 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.

***Revised 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, Revised 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. However, routine housekeeping would be completed concurrently with the trips to the north end or combined with normal patrols on the island and thus would not create additional trips or impacts.

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 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 in some areas could actually be reduced due to increased foot traffic helping to self maintain the trails, particularly on trails near Plum Orchard and the Settlement. Revised Alternative 2 would increase the tasks required to complete CUIS operations.

***Revised Alternative 3 (Island Mobility) (Preferred Alternative)***

Similar to Revised 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 and maintain the proposed vehicle on the south end.

*Cumulative Impacts:* The predicted cumulative impacts for this alternative would be similar to Revised 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 day-hikers being able to leave trips at Plum Orchard and the Settlement 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.

### ***Revised Alternative 2 (North End Access)***

The additional accessibility to park resources provided by the TMP will likely be popular with visitors to Cumberland Island. The TMP 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 would be 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 TMP 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 Revised 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 potential 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.

### ***Revised Alternative 3 (Island Mobility) (Preferred Alternative)***

In addition to the north end access, Revised Alternative 3 incorporates a shuttle service for the island's south end. Similar to Revised 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 TMP, 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 preferred 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.

#### ***Revised Alternative 2 (North End Access)***

Revised 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, North Cut Road, and roads in the High Point – Half Moon Bluff district 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 would potentially be 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. This 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, these tracts are more isolated from the visitor use area than is the estate 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 Revised Alternative 2.

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

***Revised Alternative 3 (Island Mobility) (Preferred Alternative)***

The impacts to park neighbors defined in Revised Alternative 2 would also apply to Revised 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 an unscheduled 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 their guests. There would be no change in visitor patterns or volume on the south end and therefore, no additional effects on residents in that area. In fact, the volume may decrease as the north end trips draw visitors away from the south end.

*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 would be 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.

***Revised Alternative 2 (North End Access)***

Under Revised 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.

There is a segment of the Main Road (maximum length of approximately 150 feet) that temporarily collects water on a very infrequent basis and is reportedly habitat for Eastern spadefoot toads (*Scaphiopus holbrookii*) during these wet periods. The area does not meet the criteria to be defined as a wetland and the Eastern spadefoot is not federally or state listed. Currently, the park does not plan to conduct maintenance and repairs on this section of road. Potential future work may involve spanning the low area or elevating the road bed and inserting culverts for connection between the depressions on either side. Either method would improve potential habitat during the brief and infrequent periods the area contains water.

**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. Increased visitation in this area has the potential for negligible to minor negative impacts to wildlife.

Alberty House: The NPS has recently completed repair and rehabilitation of the Alberty House, and in conjunction with that project has adapted the house to potentially serve as a visitor contact station. The station would provide restrooms 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.

Vehicle traffic: The North End Access alternative would increase traffic along the Main Road, Plum Orchard Spur, North Cut Road, and the High Point – Half Moon Bluff roads 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 would be feasible given the low speeds ( $\leq 25$ mph) 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.

***Revised Alternative 3 (Island Mobility) (Preferred Alternative)***

Revised Alternative 3 would have the same impacts as Revised 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 where a greater human presence 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 the south end shuttle of this alternative would serve more as a courtesy shuttle than an expanded trip operation, the improvements needed to implement this alternative over and above those of Revised Alternative 2 would be minimal. Impacts to vegetation and wildlife from this alternative would be considered minor. Negative effects to wildlife on the south end may very well decrease from current levels, particularly on the beach. This is because visitation, which is now largely concentrated on the south end of the island, would be dispersed over more of the island by the north end access component of the TMP.

**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, either from managed walks at North Cut Crossing or day-hikers from Plum Orchard or the Settlement, 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 TMP encompass increased vehicular activity on roads, and some increased visitor activity on trails and the beach from managed walks at North Cut Crossing as well as day-hikers from Plum Orchard or the Settlement. The following species are not expected to be affected by implementation of Alternative 1 or revised alternatives 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 TMP. 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 document.

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 revised alternatives 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 TMP/EA and attached as Appendix B to this document.

#### ***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.

#### ***Revised Alternative 2 (North End Access)***

Under Revised 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 effect 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 being considered, 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 recently completed repairing and rehabilitating the Alberty House, and in conjunction with that project has adapted 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 from day-hikers leaving the tours at Plum Orchard or the Settlement is expected to be minimal and constrained to those areas by time and distance, 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 for day-hikers leaving the tours at Plum Orchard or the Settlement may place more people on areas of the beach that presently experience minimal human disturbance. However, the number of people reaching the beach is expected to be small due to the distance the two locations are from the beach. Increased beach activity will also occur at the North Cut Crossing where select guided tours may stop west of the

primary dune. These walks out to the beach, encompassing up to 30 people, will be managed and of short duration.

This increased human presence on the beach 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 TMP/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.

### ***Revised Alternative 3 (Island Mobility) (Preferred Alternative)***

Revised Alternative 3 would have the same impacts as Revised 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. Effects to listed species and other wildlife on the south end may very well decrease as visitation, which is now largely concentrated on the south end of the island, will be dispersed over more of the island by the TMP. Only 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. These areas include the beaches along the northern half of the island as well as habitat adjacent to hiking trails. Although the increase in numbers will be small, 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.

*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 the preferred alternative (Revised Alternative 3) may affect, but is not likely to adversely affect, a total of five federally listed threatened or endangered species. This conclusion is based on site inspections of potentially impacted areas, professional knowledge of threatened and endangered species at CUIS, and informal consultation with the U.S. Fish and Wildlife Service (USFWS). (See the biological assessment attached to this TMP/EA as Appendix B.) The NPS submitted copies of the draft TMP/EA to both the USFWS and the Georgia Department of Natural Resources for review and comment. Comments were received from the USFWS and additional informal consultation was conducted with them. USFWS concerns have been addressed in this final TMP/EA, both in terms of revisions to the preferred alternative and identification of additional mitigation measures. By letter dated March 20, 2009, the USFWS has concurred with the NPS' determination that implementation of Revised Alternative 3 may affect, but is not likely to adversely affect, listed threatened or endangered species at CUIS.

## **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.

### ***Revised Alternative 2 (North End Access)***

Under Revised 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 has been adapted to serve as a potential visitor contact station that could be manned by a park ranger and would include restrooms. It has two restrooms in the back and four rooms in the front for possible 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.

Dust: Dust related to vehicle passage will be confined to the road corridors and its immediate environs. Moisture, grain size, and low speeds help keep dust levels down, but it does occur during the summer and dry periods. Under those conditions vehicle traffic will cause fine particles to become airborne. Particles may rise 8-10 feet above the roadway and disperse outward to within approximately 10 feet on either side. The dust may linger in the air for a minute before settling back to the ground. The majority of the particles will settle back into the roadway with some settling onto vegetation along the right of way. The material will have negligible to minor impacts on the roadside vegetation because, unlike clay or similar soils, the fine grain sands readily wash or fall off. The effect on island soils is negligible as the material used to maintain and repair the island's primary roads is taken from dredge spoil piles. Road material that has migrated to the edge of the tread is graded back into the bed.

*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.

***Revised Alternative 3 (Island Mobility) (Preferred Alternative)***

Revised Alternative 3 would have the same impacts as Revised 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.

***Revised Alternative 2 (North End Access)***

Under Revised Alternative 2, there would be negligible 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. Select guided tours may traverse North Cut Crossing (aka Candler Beach Crossing) and stop west of the primary dune line to allow managed walks out to the beach. However, vehicles will use the well established and approved beach crossing. 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 a negligible 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.

***Revised Alternative 3 (Island Mobility) (Preferred Alternative)***

In addition to the north end access component of Revised Alternative 2, this alternative incorporates a shuttle service on the south end. As with Revised 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.

### ***Revised Alternative 2 (North End Access)***

Under Revised 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.

### ***Revised Alternative 3 (Island Mobility Alternative)***

Revised Alternative 3 would have the same impacts as Revised 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 Revised 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.

### ***Revised Alternative 2 (North End Access)***

Under Revised Alternative 2, there may be a negligible, negative effect to wetlands where the existing North Cut Crossing traverses at grade through seasonal or intermittent wetland areas. This crossing may be used by vehicles associated with select guided tours that include managed walks out to the beach. 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 North Cut crossing occasionally becomes temporarily impassible due to flooding and other weather-related incidents. To avoid impacts to intermittent wetlands in this location tours will not traverse the area when the crossing is impassible.

*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.

### ***Revised Alternative 3 (Island Mobility) (Preferred Alternative)***

Revised Alternative 3 would have the same impacts as Revised Alternative 2 with respect to the north end access. 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 Revised 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 exempted 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 north end tours to avoid the North Cut Crossing in the event of high water in intermittent wetlands, and requiring the south end shuttle to use the less flood-prone crossings at Little Greyfield or Stafford to provide beach access in the event of high water 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.

### ***Revised Alternative 2 (North End Access)***

The effects of Revised 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.

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, NO<sub>x</sub>, SO<sub>2</sub>, 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. (Further assessments of dust effects can be found under **Visitor Use and Experience and Soils**).

*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.



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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.

### ***Revised Alternative 3 (Island Mobility Alternative)***

Revised Alternative 3 would have the same impacts as Revised 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 Revised 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**

<b>Site</b>	<b>dBA</b>
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





***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.

***Revised Alternative 2 (North End Access)***

The effects of Revised 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 Revised 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, roads in the High Point – Half Moon Bluff district, and 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.

***Revised Alternative 3 (Island Mobility) (Preferred Alternative)***

Revised Alternative 3 would have the same impacts as Revised 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 Revised Alternative 3, it is intended to use a shuttle to assist visitor access to significant locations on the south end of the island. 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 revised 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.

***Revised 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 northward. 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: 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 TMP, 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 State Historic Preservation Officer (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.

***Revised Alternative 3 (Island Mobility) (Preferred Alternative)***

Revised Alternative 3 would have the same impacts as Revised 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 Revised 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***

Revised 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. Through consultation and comment on the Draft TMP/EA, the Georgia SHPO has recommended that effects assessment review for historic properties “should be deferred to when planning and development of related projects for maintenance and protection of historic resources are addressed.”

### ***Section 106 Assessment***

After applying the Advisory Council on Historic Preservation’s criteria of adverse effects (36 CFR Part 800.5, *Assessment of Adverse Effects*), the National Park Service concludes that implementation of the concepts set forth in the preferred alternative would *not* have an adverse effect on any historic property, i.e., any area or object included in, or eligible for inclusion in, the National Register of Historic Places. However, implementation of the TMP may lead to future projects that have the potential to affect culturally significant structures or features. 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 Atteberry

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

Copies of this EA were made available for review on-line at <http://parkplanning.nps.gov/cuis> or [www.nps.gov/cuis](http://www.nps.gov/cuis), at the NPS visitor center at St. Marys, GA, and the regional NPS office in Atlanta, GA.

### **Agency Consultation List**

The following agencies and organizations were provided the opportunity to comment on this Plan:

#### *Federal Agencies*

U.S. Department of the Interior – Fish and Wildlife Service

#### *State Agencies*

Georgia Department of Natural Resources, Wildlife Resources Division

Georgia Department of Natural Resources, Office of State Historic Preservation Officer

#### *Recipients of the Environmental Assessment*

For a list of individuals and other agencies that received 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), 88<sup>th</sup>. Congress, S. 4, September 3, 1964.

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

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

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



***APPENDIX A: WILDERNESS BOUNDARY ADJUSTMENT ACT (2004)***

## ***APPENDIX B: BIOLOGICAL ASSESSMENT***

## ***APPENDIX C: CHOOSING BY ADVANTAGES REPORT***