



## CHAPTER 2

Alternatives



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## CHAPTER 2: ALTERNATIVES

### INTRODUCTION

A general management plan focuses on what is most important about a park and prescribes the desired resource conditions and associated opportunities for visitor experiences. The plan then defines the kinds and levels of management, development, and access appropriate to achieving the desired resource conditions and visitor opportunities. As noted in chapter 1, many aspects of the desired conditions of Fort Raleigh National Historic Site are defined in the establishing legislation, the national historic site's purpose and significance statements, and the servicewide mandates and policies that apply to all units of the national park system. Within these parameters, the NPS planning team solicited input regarding desired conditions from the public, NPS staff, government agencies, and other organizations. Because there is a range of approaches to achieving desired conditions, this plan considers a range of alternatives. The alternatives are:

- Consistent with the park's purpose and significance;
- Focused on its fundamental and other important resources and values; and
- Reflective of the range of stakeholders' interests in the park and the desirability of providing for a variety of visitor experiences.

In accordance with requirements of the National Environmental Policy Act, one of the alternatives must be no-action / continue current management. The alternative of no-action / continue current management is the baseline against which the other alternatives, collectively called "the action alternatives," are compared. There are two action alternatives presented, Alternatives B and C.

#### In this chapter...

- Alternatives and Proposed Management Zones
- Mitigation Measures
- Future Plans Needed
- Dismissed Actions

The main focus of this chapter is the actions that would differ between the management alternatives. The management alternatives are intended to be specific enough to provide clear management direction for park staff, while still allowing flexibility to adapt to changing future conditions and situations. They outline alternate visions of the future that would guide management of the national historic site. Implementation of the NPS Preferred Alternative as described in this general management plan will depend on future funding, resource protection priorities, and fulfillment of environmental and cultural resource compliance requirements. Larger capital improvements may be phased in over several years, and full implementation of the general management plan could be many years into the future.

#### Three alternatives were analyzed...

- Alternative A: No-action Alternative
- Alternative B: Enhanced Visitor Experience
- Alternative C: Enhanced Focus on Research

This chapter describes the alternatives and how they were developed, including the definition of proposed management zones. Each alternative includes the concept of management zones and estimated costs. The NPS-preferred alternative and environmentally preferable alternative are identified and tables are presented

that highlight the differences between the alternatives and summarize their impacts. Indicators, standards, monitoring strategies, and potential management strategies for each management zone are described in terms of user capacity. This chapter also identifies mitigation measures that would be applied regardless of the alternative selected; future plans that would be needed; and alternatives or actions not included in either alternative with explanations of why they were dismissed.

## FORMULATION OF ALTERNATIVES

Sections 1502.14 and 1508.25 of the Council on Environmental Quality (1978) regulations for implementing the National Environmental Policy Act require that the alternative of no-action be included in all environmental evaluations. Accordingly, the NPS developed a no-action alternative, designated Alternative A, under which current management would continue. The no-action alternative is included as a baseline for comparing the consequences of implementing each action alternative. The two action alternatives present different ways to manage resources and visitor use, and to improve facilities and/or infrastructure at Fort Raleigh National Historic Site. A management concept was first developed for each action alternative. Consistent with its general concept, each action alternative was then designed to meet all NPS general management planning goals and objectives and would facilitate meeting servicewide mandates and policies.

Within this framework:

- Alternative B would emphasize a greater reliance on partnerships and on-site visitor facilities and services to accomplish the expanded interpretive mission of Fort Raleigh National Historic Site.
- Alternative C (the NPS Preferred Alternative) would coordinate and expand efforts with research

organizations and agencies and increase the national historic site's emphasis on research related to interpretive themes and legislative mandates.

Both general management plan action alternatives represent a different approach to managing the national historic site. To develop the draft alternatives, the general management plan team considered the following questions:

- Why did Congress establish the national historic site, and what is its purpose? What makes the national historic site significant? Why is it important when compared to other national park units?
- What are the hopes, interests, and concerns for the future of the national historic site that citizens shared during public meetings and through written comments?
- How can the national historic site be operated efficiently and effectively?
- How can the NPS best manage the national historic site to provide for visitor enjoyment while still meeting all requirements of laws and NPS policy?

Management zones identify desired conditions for national historic site resources and visitor experiences in different areas of the national historic site. Collectively, management zones include the complete range of potential, appropriate resource conditions, visitor experiences, and facilities within the scope of the national historic site's purpose, significance, and special mandates.

Each management zone employs a different approach for administering resources or uses in a specified area based on the desired outcomes for natural and cultural resource conditions and visitor

opportunities. To achieve these outcomes, management approaches include target goals or objectives for the resource conditions; visitor experiences; and appropriate kinds and levels of management, access, and development.

There are multiple ways to achieve the national historic site's purpose, maintain its significance, and preserve its fundamental resources and values. Within these boundaries, the action alternatives embody the range of what the public and the NPS want to see accomplished with regard to managing resources and addressing planning issues for natural and cultural resource conditions, visitor use and experience, and NPS management and operations.

Actions considered but not incorporated into either of the alternatives, are discussed later in this chapter under "Alternatives and Actions Considered but Dismissed from Further Consideration."

The following sections contributed to and were all part of the process for developing the alternatives for Fort Raleigh National Historic Site.

### MANAGEMENT ZONES USED IN THE ACTION ALTERNATIVES

Management zones are descriptions of desired conditions for the resources and visitor experiences in different areas of the national historic site. Management zones are determined for each national park system unit; however, management zones for one unit will likely not be exactly the same for any other national park system unit. Management zones identify the widest range of potential appropriate resource conditions, visitor experiences, and facilities for the national historic site that fall within the scope of the national historic site's purpose, significance, and special mandates. Placement, or mapping of management zones, depends on the concept expressed in each alternative.

- Management zones are applied to different areas in different alternatives.
- Management zoning is not part of the alternative of no-action / continue current management.

Four management zones were developed for Fort Raleigh National Historic Site. Each action alternative consists of a combination of the management zones described below. The management zones specify the cultural and natural resource conditions, visitor experiences, and kinds and levels of management, access, and development desired in the national historic site.

The four management zones used in the action alternatives are:

- Visitor Services;
- Administrative;
- Waterside Theatre; and
- Resource Preservation.

Table 2 summarizes the characteristics of each management zone. These include:

- Desired resource conditions;
- Desired visitor experience;
- Appropriate kinds and levels of development;
- Appropriate kinds and levels of management activities; and
- Appropriate kinds and levels of visitor activities.

A brief summary of each management zone is provided in the subsections that follow.

**Table 2: Management Zones for Fort Raleigh National Historic Site**

CATEGORY	VISITOR SERVICES ZONE	ADMINISTRATIVE ZONE	WATERSIDE THEATRE ZONE	RESOURCE PRESERVATION ZONE
<b>DESIRED RESOURCE CONDITIONS</b>	Necessary visitor facilities in this zone would be placed in an appropriate setting. The area would be modified for visitor access and park operations in a way that aesthetically blends with the natural and cultural environment. Minimizing the impacts of these facilities on the natural and cultural resources of the national historic site would be a high priority. An appropriate level of native, non-invasive landscape plantings such as grass, shrubs, small trees, flowers, and ground covers would be installed and maintained to improve the visual appeal of the structures to a higher standard than in the administrative zone.	Non-historical elements such as maintenance facilities, administrative offices, national historic site housing, cultural resources research, treatment and storage facilities, and potential partner offices and facilities would predominate in this type of zone. Minimizing the impacts of these facilities on the natural and cultural resources of the national historic site would be a high priority. A moderate level of native, non-invasive landscape plantings such as grass, shrubs, small trees, flowers, and ground covers could be introduced and maintained to improve the visual appeal of the structures.	The environment of the zone would be modified to accommodate <i>The Lost Colony</i> outdoor symphonic drama. The impacts of these modifications on the natural and cultural resources of the national historic site would be minimized.	Cultural and natural resources and discoveries will be preserved and protected.
<b>DESIRED VISITOR EXPERIENCE</b>	This area would provide for a high level of visitor activity and support operations. In this zone, visitors would enter the national historic site and they would have opportunities to receive orientation and information, personal safety guidance and instruction, interact with national historic site staff and other visitors, and experience and learn about the national historic site's resources, interpretive themes, and partner activities.	Visitors would not typically enter this zone. Should they enter, either unintentionally or to obtain information or assistance, they might encounter maintenance or administrative buildings, equipment, machinery in operation, loud sounds, national historic site staff, and partner organization staff. Minimizing adverse impacts on the visitor experience through facility design and location as well as through operational procedures would be a high priority.	Visitors would attend <i>The Lost Colony</i> symphonic drama and attend and participate in appropriate community and cultural events.	Observation, education, reflection, and learning would be the primary visitor experiences desired. Interpretive programs could occur in this zone. Visitors would also find the opportunity for solitary, individual exploration and discovery, quiet, and reflective experiences.



**Table 2: Management Zones for Fort Raleigh National Historic Site**

CATEGORY	VISITOR SERVICES ZONE	ADMINISTRATIVE ZONE	WATERSIDE THEATRE ZONE	RESOURCE PRESERVATION ZONE
<b>APPROPRIATE KINDS &amp; LEVELS OF DEVELOPMENT</b>	Visitor facilities with restrooms, auditoriums, bookstores, drinking water fountains, museums, fee-collection facilities, parking, and walkways are the types of facilities that could be found in this zone.	The facilities found in this zone could include maintenance buildings, vehicle storage structures, national historic site offices, national historic site housing, parking areas, utilities, cultural resources research, treatment and storage buildings, and partner offices, facilities, and housing. Standards of design to minimize negative impacts would be a high priority.	The development in this zone would include buildings and infrastructure to accommodate <i>The Lost Colony</i> outdoor symphonic drama and facilities for commemorating the history of the drama.	The minimum development necessary for visitor access, safety, resource protection, and interpretive purposes would occur in this zone. Such development could include signage, trails, pathways and benches or other seating, but would not include permanent enclosed structures, restrooms, or other types of buildings.
<b>APPROPRIATE KINDS &amp; LEVELS OF MANAGEMENT ACTIVITIES</b>	Management activities would include regular maintenance of both the structural and landscape elements in the zone, law enforcement, interpretive programs, fire response (wildland/urban interface, prescribed burns), and special events.	Moderate to intensive management in this zone by NPS and its partners would be directed toward maintenance of buildings and grounds, fire response (wildland/urban interface, prescribed burns), as well as staging and preparation for maintenance and resource research and protection activities in other zones. National historic site administrative activities would predominate in this zone.	Management in this zone would include ticket sales, maintenance of grounds and infrastructure, fire response (wildland/urban interface, prescribed burns), as well as activities associated with drama production and other events.	Management activities that could occur in this zone include general maintenance, preservation, restoration, stabilization, visitor protection and law enforcement, fire response (wildland/urban interface, prescribed burns), and archeological investigations.
<b>APPROPRIATE KINDS &amp; LEVELS OF VISITOR ACTIVITIES</b>	Visitor activities would include entering the national historic site grounds, receiving orientation to the resources and programs of the national historic site and partner facilities and activities, attending special events, and participating in interpretive and other programs.	Visitors would typically enter this zone to obtain information or assistance, obtain permits, conduct research, and attend special events.	Attend <i>The Lost Colony</i> outdoor symphonic drama and other community and cultural events, attend interpretive programs, and purchase souvenirs and refreshments.	Typical visitor activities would include walking, hiking, fishing, participating in interpretive programs, viewing resources and interpretive displays, photography, and similar pursuits.

## **VISITOR SERVICES ZONE**

### **Desired Resource Conditions**

Visitor Services Zone would blend the built environment in a setting in context with surrounding natural and cultural resources. Minimizing the impact of facilities on cultural and natural resources of the national historic site would be a high priority. An appropriate level of native, non-invasive plants such as ground covers, shrubs, wildflowers, and small trees would be installed to improve the visual appeal of structures and walkways where appropriate.

### **Desired Visitor Experience**

This management zone would be a busy area where much of the visitor activity and support operations occur. It may be noisy from the sounds of human activity and visitors entering the national historic site, walking paved walkways, and participating in interpretive activities. Visitors would use this area for orientation, interpretive programs, and special events. Visitors would have the opportunity to interact with NPS staff and other visitors, and experience and learn about the national historic site's resources through participation in interpretive activities and partner-led activities.

### **Appropriate Kinds and Levels of Development**

Facilities would include restrooms, auditoriums, bookstores, museums, drinking water fountains, fee-collection facilities, parking area, and walkways.

### **Appropriate Kinds and Levels of Management Activity**

Management efforts required to support visitor services would include maintenance of structural and landscape elements in the management zone. Facilities named above would be maintained in good condition. Other management efforts would include

law enforcement, interpretive programs, fire response (wildland/urban interface, prescribed burns), and conducting and supporting special events.

### **Appropriate Kinds and Levels of Visitor Activities**

This management zone includes areas where visitors are introduced to the national historic site. Visitors enter the national historic site in this management zone, may receive information about the national historic site and its resources, attend interpretive programs or learn where these programs are being held, and learn about what activities are possible in the national historic site. Information about partners' facilities and activities would be provided. Special events may be conducted in this management zone as well as other routine interpretive programs.

## **ADMINISTRATIVE ZONE**

### **Desired Resource Conditions**

Administrative facilities would be located in this management zone, such as maintenance facilities; administrative offices; national historic site staff housing; research, treatment, and storage facilities; and partner offices and facilities. (Research, treatment, and storage facilities house artifacts and other resources including ethnographic materials, oral histories, and archival materials associated with cultural sites/ cultural landscapes and other resources.) These areas would be intended primarily for use by official visitors, researchers, participants in special events, groups and individuals conducting business with the national historic site, as well as NPS staff.

Facilities such as buildings, parking lots, and storage areas would support national historic site and partner operations and management. They would be designed to complement surrounding topography and environmental conditions and would take advantage of energy efficiency and



sustainable design standards. Minimizing impacts to natural and cultural resources would be a high priority. A moderate level of native landscape plantings would be appropriate in this management zone, including ground covers to minimize erosion, and shrubs, wildflowers, and trees to improve the visual appeal of the structures.

### **Desired Visitor Experience**

The Administrative Zone would be a busy area for NPS staff where support operations occur. Visitors would typically be present in this management zone when they were conducting research, seeking assistance, information, permits, or attending special events. Should visitors enter this zone, they might encounter maintenance or administrative buildings, equipment, machinery in operation, national historic site staff, and partner organization staff conducting rehearsals or productions. It may be noisy from the sounds of human use associated with events or projects. The NPS would consider aspects of design; location, level, and time of activities; and buffers to minimize adverse effects that structures and activities might have on the visitor experience.

### **Appropriate Kinds and Levels of Development**

Facilities that could occur in this management zone would be those that support national historic site operations, including: maintenance buildings; vehicle and equipment storage structures; national historic site offices; national historic site housing; parking areas; utilities; research, treatment and storage buildings; and partner offices, facilities, and housing. Sustainable designs would be considered, along with other measures to minimize impacts associated with the built environment.

### **Appropriate Kinds and Levels of Management Activity**

Moderate to intensive management efforts would be required in the Administrative Zone by NPS and its partners. Efforts would be directed toward maintenance of buildings and grounds, fire response (wildland/urban interface, prescribed burns), as well as staging and preparation for maintenance and resource research and protection activities to be conducted throughout Fort Raleigh National Historic Site. Facilities would be maintained in good condition. Administrative activities would predominate in this management zone.

### **Appropriate Kinds and Levels of Visitor Activities**

This management zone would be primarily where NPS staff would be present. Visitors would typically enter this management zone when they were conducting research, seeking assistance, information, permits, or attending special events.

## **WATERSIDE THEATRE ZONE**

### **Desired Resource Conditions**

This zone would include the Waterside Theatre and other facilities that accommodate and support *The Lost Colony* outdoor symphonic drama. Visitors would use this area to attend *The Lost Colony* production and other community and cultural events. Noise levels and use of this management zone would vary with *The Lost Colony* production schedule, which varies seasonally.

### **Desired Visitor Experience**

The Waterside Theatre Zone would be where visitors would come expecting to attend *The Lost Colony* outdoor symphonic drama and other events. Sights and sounds of the dramatic production would be anticipated. Lighting would make the stage and actors visible and lighted pathways

would be expected. Visitors would expect to see other people and enjoy events held within this management zone.

#### **Appropriate Kinds and Levels of Development**

Facilities that could occur in this management zone would be buildings and infrastructure needed to support the Waterside Theatre and *The Lost Colony* outdoor symphonic drama and that help commemorate the history of the drama and its production at the national historic site.

#### **Appropriate Kinds and Levels of Management Activity**

Management efforts in this management zone would include ticket sales, maintenance of grounds and infrastructure, fire response (wildland/urban interface, prescribed burns), as well as activities associated with *The Lost Colony* outdoor symphonic drama.

#### **Appropriate Kinds and Levels of Visitor Activities**

The types of visitor activities in this management zone would primarily be attending *The Lost Colony* outdoor symphonic drama, other cultural or community events, or NPS interpretive programs. Visitors would be able to purchase souvenirs and refreshments.



**High summer visitation is primarily associated with *The Lost Colony* productions held at the national historic site's Waterside Theatre.**

### **RESOURCE PRESERVATION ZONE**

#### **Desired Resource Conditions**

The primary focus of this management zone would be the preservation and protection of cultural resources and artifacts discovered. Archeological research would provide additional insights into Fort Raleigh National Historic Site resources that would improve the overall body of knowledge and areas where protective measures would be necessary. Natural resources would continue to be protected in accordance with NPS policies and other mandates.

#### **Desired Visitor Experience**

Primary desired visitor experiences would entail observation, education, reflection, and learning. The types of activities that would be appropriate would be interpretive walks, talks, and programs. Visitors would find opportunities for solitary, individual exploration and discovery with quiet and reflective experiences.

#### **Appropriate Kinds and Levels of Development**

Minimal facilities would be appropriate in the Resource Preservation Zone. The types of facilities considered appropriate would be those that support visitor access, safety, resource protection, and interpretive activities. This would include outdoor signage, trails, walkways, benches, or other seating. Permanent enclosed structures, restrooms, or other types of buildings would not be considered appropriate in the Resource Preservation Zone.

#### **Appropriate Kinds and Levels of Management Activity**

Management activities in this management zone would include general maintenance, preservation, restoration, stabilization, visitor protection and law enforcement, and archeological investigations. Fire response

(wildland/urban interface, prescribed burns) activities may be necessary for safety reasons.

### **Appropriate Kinds and Levels of Visitor Activities**

Typical visitor activities that would be appropriate in the Resource Preservation Zone would include walking, hiking, fishing, bird watching, participating in interpretive programs, viewing cultural resources and interpretive displays, photography, and similar pursuits.

### **APPLYING MANAGEMENT ZONES**

Management concepts are different for each alternative. They broadly define the character of a park unit in terms of particular kinds of resource conditions and associated visitor experiences (the features of management zones). Different management concepts provide different approaches to addressing general management plan-level issues.

In formulating the alternatives, the management zones were placed in different locations or configurations on the map, according to the concept of each alternative. That is, the management alternatives represent different ways to apply the management zones to the national historic site.

In some cases, the assignment of management zones was guided by the locations of existing facilities. For example, the maintenance area and employee residences contain parking lots, buildings, and other features that already support administrative services. Therefore, these areas were assigned to the administrative zone in both of the action alternatives.

### **CONSIDERING RELATIVE COSTS**

The purpose of the cost estimate in a general management plan is to provide a sense of the relative costs to implement each alternative. The presentation of costs in this plan is based on the types and general intensities of development in each alternative, staffing levels that would be required to fully implement the alternative, and other projects and plans, including resource management activities.

The cost figures shown in the summary table at the end of this chapter were developed using NPS and industry cost estimating guidelines to the extent possible. The estimated annual and one-time costs are presented for each alternative and summarized at the end of this chapter. Project-specific costs will be determined in subsequent, more detailed planning and design exercises, and will consider the design of facilities, identification of detailed resource protection needs, and changing visitor experience goals. Actual costs to the NPS will vary, depending on if and when actions are implemented, and on contributions by partners and volunteers. Implementation of the approved plan would depend on future NPS funding levels and servicewide priorities, and on partnership funds, time, and effort.

The actual cost of implementing the approved general management plan will ultimately depend on future funding and servicewide priorities over the life of the plan, as well as the ability to partner with other agencies or groups. The approval of a general management plan does not guarantee that funding and staffing needed to implement the plan will be forthcoming. Funding for capital construction improvements is not currently shown in NPS construction programs. It is not likely that all capital improvements will be totally implemented during the life of the plan. Larger capital improvements may be phased over several years. Because of the generalized nature of these cost estimates,

costs in this general management plan are presented only in general categories. All costs were rounded to the nearest hundred dollars.

### **Annual Costs and Staffing**

Annual costs are the total outlay of funds for maintenance and operations associated with each alternative. These include, but may not be limited to, utilities, supplies, staff salaries and benefits, and materials. Cost and staffing estimates assumed each alternative was fully implemented as described in this plan. The cost estimates were developed using year 2011 dollars.

Full-time equivalent salaries and benefits were included in the annual costs. Total full-time equivalent employees are the number of staff required to maintain the assets of the national historic site at an effective level, provide acceptable visitor services, protect resources, and administer the national historic site. Fort Raleigh National Historic Site managers would also explore opportunities to work with partners, volunteers, and other federal agencies to address management needs in an effective and efficient manner.

### **One-Time Cost Estimates**

Facility costs in this category are rough estimates, and were developed based on the average cost of similar facilities. Actual costs may be higher or lower, depending on the final design, site conditions, and contracting agency. These cost estimates do not include all items that would be listed in more inclusive estimates to be developed in subsequent implementation planning efforts when more site specific project information is available. In Alternative A, the no-action alternative, one-time costs include only those costs already planned within existing programs and with an approved funding source.

One-time non-facility costs include actions for the preservation of cultural or natural

resources not related to facilities, the development of visitor use tools not related to facilities, and other national historic site management activities that would require substantial funding above national historic site annual operating costs.

## **PROPOSED ALTERNATIVES**

Alternative A, the No-action Alternative, and two action alternatives, Alternative B and the NPS Preferred Alternative, Alternative C, are presented in the subsections that follow. Certain actions considered common to all the alternatives are presented below to avoid redundancy, such as design and installation of exhibits at the Lindsay Warren Visitor Center and assessment of shoreline conditions.

### **ACTIONS COMMON TO ALL ALTERNATIVES**

Several actions would be proposed under all alternatives. These actions common to all alternatives are described in the paragraphs that follow and are not repeated under each alternative.

Under all alternatives, Fort Raleigh National Historic Site will continue to identify and inventory archeological sites in compliance with Section 110 of the National Historic Preservation Act and the research requirement of Public Law 101-603.

Under an approved and funded project, Fort Raleigh National Historic Site would design and install new exhibits for the recently repaired and renovated Lindsay Warren Visitor Center. Modern, interactive exhibits that meet current NPS and Americans with Disabilities Act standards for accessibility quality, scope, content, and design would be in accordance with recommendations of the *Fort Raleigh National Historic Site Long-Range Interpretive Plan*, which was approved in May 2010.

The Prince and Beehive houses are two residential structures on the north shore of



the national historic site that have been used for housing for *The Lost Colony* cast and crew (Figure 3). Both of these structures are threatened by shoreline erosion and are no longer viable for occupancy. The Prince and Beehive houses would be removed from the national historic site. Housing for *The Lost Colony* production cast and crew would be provided in another area of the national historic site or possibly located outside the national historic site.

The entire shoreline of Fort Raleigh National Historic Site on the northern and western ends of Roanoke Island is affected by currents, storms, tides, and winds associated with Roanoke, Albemarle, and Croatan Sounds in both easterly and westerly directions. Shoreline erosion is dramatically apparent in areas not hardened by rock revetment, groins, breakwaters, and/or offshore sills (these terms are each defined in chapter 3).

In 2010, the NPS commissioned a study to evaluate baseline shoreline conditions and develop emergency stabilization recommendations to control rapid, sound-side shoreline erosion that poses an immediate threat to culturally significant sites in the national historic site. Areas of concern include the Dough Cemetery and the Waterside Theatre (NPS 2011a). The study was not designed to be an implementation plan; recommendations resulting from the study indicate the need for additional evaluation of conditions and other contributing factors, and the need for public input. Accordingly, the national historic site has proposed to prepare a shoreline erosion management plan and environmental impact assessment to present alternatives for addressing shoreline conditions at the national historic site, including lands and facilities.

Catastrophic loss is defined by the NPS as loss of resources or facilities due to storms, floods, earthquakes, fires, or other disasters of natural or man-made origin. Ongoing shoreline erosion is not considered a

catastrophic event. Resource management decisions due to shoreline erosion would be deferred to the shoreline erosion management plan and environmental assessment that is an element of all alternatives.

Should shoreline erosion threaten the integrity of the Dough Cemetery, the NPS would relocate the cemetery with prior approval of the Dough family. Although the Dough Cemetery is currently protected by a rock revetment and the shoreline erosion management plan is planned, relocation of the Dough Cemetery may still be necessary.

## **ALTERNATIVE A: NO-ACTION / CONTINUE CURRENT MANAGEMENT**

### **Concept**

Sections 1502.14 and 1508.25 of the Council on Environmental Quality (1978) regulations for implementing the National Environmental Policy Act require that the alternative of no-action be included in all environmental evaluations. Accordingly, the NPS developed a no-action alternative, designated Alternative A. Alternative A is the continuation of current management actions and direction into the future; continuing with the present course of action until that action is changed. “No-action” does not mean the national historic site does nothing. Rather, Alternative A represents how the national historic site would continue to manage natural resources, cultural resources, and visitor use and experience if a new general management plan was not approved and implemented. Key visitor facilities presented in Figure 3 and Alternative A are represented in Figure 4.

The national historic site’s enabling legislation, PL 87-147, August 17, 1961, (expanded the boundary by 125 acres), PL 101-603, November 16, 1990 (expanded the authorized boundary by 335 acres and expanded the interpretive and research missions of the national historic site), and *NPS Management Policies 2006* would





Figure 3

### Visitor Center and Surrounding Facilities

#### Fort Raleigh National Historic Site

U.S. Department of the Interior - National Park Service

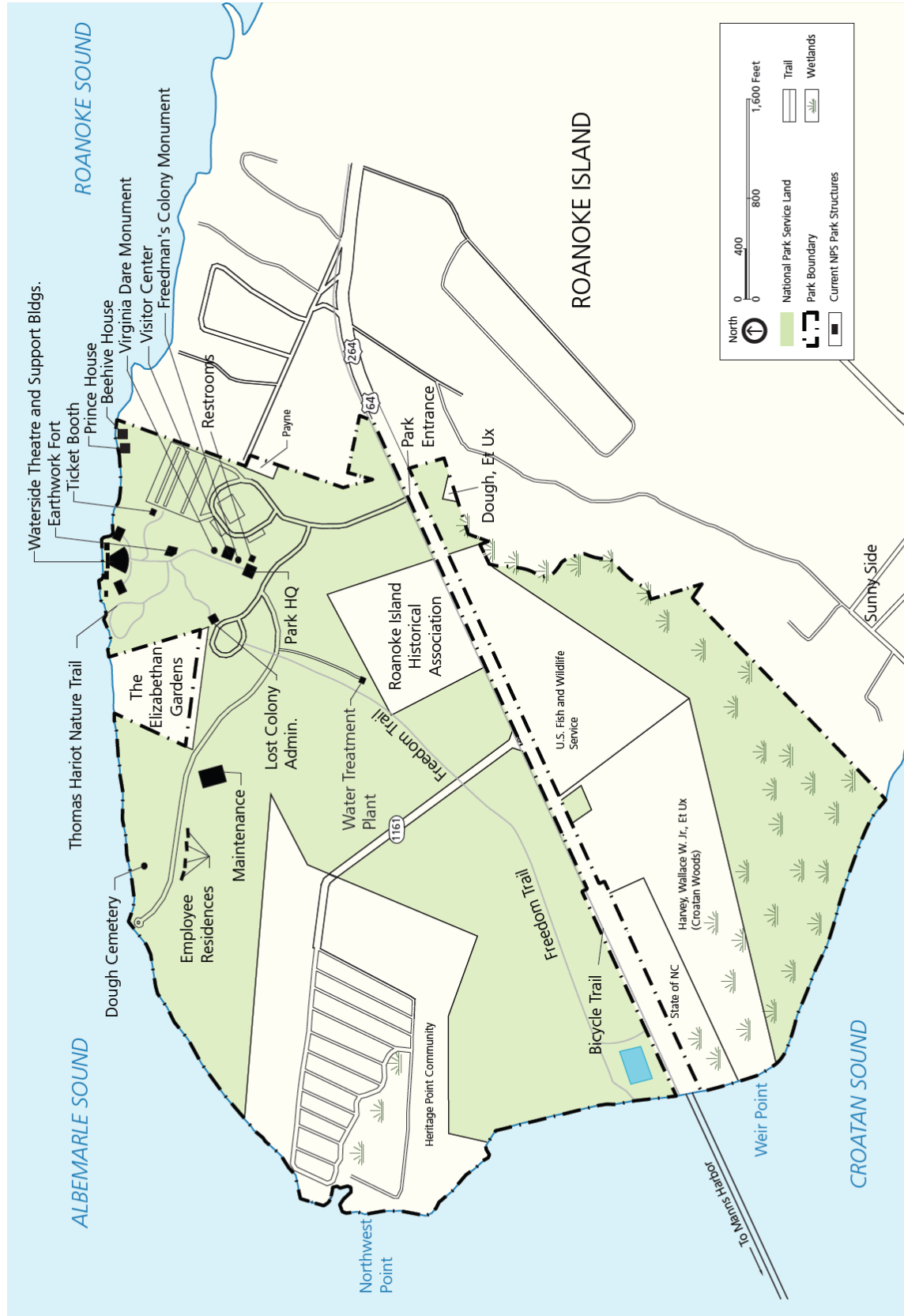


Figure 4

Alternative A  
Fort Raleigh National Historic Site  
U.S. Department of the Interior - National Park Service

continue to provide guidance for all alternatives. The national historic site would continue to be managed as it is today, with no major change in management direction.

### **Visitor Experience**

The NPS would continue to centralize orientation to the national historic site at the Lindsay Warren Visitor Center. Interpretation of the Roanoke Voyages and modestly expanded interpretive themes would continue to occur through films and exhibits at the Lindsay Warren Visitor Center, the Freedmen's Colony and Underground Railroad exhibits, through wayside exhibits, and other methods.

### **Facilities and Associated Visitor Activities**

Under Alternative A, no new facilities would be constructed by Fort Raleigh National Historic Site or within the national historic site boundary.

**Trails.** Under Alternative A the national historic site would continue maintaining and operating the current trail system.

### **Expanded Interpretive Mission**

The national historic site would continue to interpret the Roanoke Voyages and there would be limited opportunities to address expanded interpretive themes through films and exhibits at the Lindsay Warren Visitor Center, the Freedmen's Colony and Underground Railroad exhibits, through wayside exhibits, and other methods. The small interpretive staff dedicated to Fort Raleigh National Historic Site would limit increased interpretive activities. There is currently one full-time permanent interpreter, supplemented by seasonal staff (NPS 2010a). Existing needs for interpretive activities include staffing the visitor center, presenting programs, conducting school tours, presenting education programs in local and area schools, roving the national historic site, developing interpretive products, and researching the history

and resources of the national historic site. Visitors have expressed the desire to see ranger-led programming expanded; however, this would not likely occur given existing staffing levels.

### **Partnerships**

The national historic site would maintain existing partnerships with the Roanoke Island Historical Association and the First Colony Foundation. Expansion of existing partnerships or development of new partnerships would not likely occur.

### **Resource Conditions**

- Under Alternative A, the national historic site would:
- Maintain existing landscaped areas or convert them to low maintenance plantings.
- Allow natural processes such as shoreline erosion to prevail in most areas, including the pond area. Excavate archeological resources that are threatened.
- Continue to protect the Waterside Theatre area and Dough Cemetery shorelines pending results of future shoreline studies and environmental analysis.
- Implement the *Outer Banks Group Fire Management Plan*.
- Continue current resource collections management efforts.
- Continue current exotic plant management practices.
- Continue to conduct archeological surveys in compliance with Section 110 of the National Historic Preservation Act and the research requirement of Public Law 101-603. The NPS would continue to coordinate with the First Colony



Foundation for on-going annual surveying.

- Continue natural resource monitoring activities.

### Response to Catastrophic Loss

Catastrophic loss is defined by the NPS as loss of resources or facilities due to storms, floods, earthquakes, fires, or other disasters of natural or man-made origin. Under Alternative A, the NPS would continue current management practices. Natural processes would take precedence. However, resource management decisions due to shoreline erosion would be deferred to the shoreline erosion management plan and environmental assessment that is an element of all alternatives.

**Catastrophic loss** is defined by the NPS as loss of resources or facilities due to storms, floods, earthquakes, fires, or other disasters of natural or man-made origin. Catastrophic events are relatively sudden in nature (e.g., hurricanes, earthquakes, superstorms).

Resource management decisions due to **shoreline erosion**, a slow, incremental natural process, would be deferred to the shoreline management plan and environmental assessment that is an element of all alternatives.

### Estimated Costs and Staffing

- Costs identified in this section are for comparative purposes. The costs to implement Alternative A would not differ from the current annual costs for Fort Raleigh National Historic Site, with adjustments for inflation. The estimates are presented in year 2011 dollars, rounded to the nearest hundred dollars, and include:
- \$871,900 annually for operations and maintenance; and

- \$176,500 for one-time facility costs (removal of Prince and Beehive houses).

The total number of full-time equivalent staff would remain relatively constant at 4.95. The national historic site would continue to share staff with Cape Hatteras National Seashore and the Wright Brothers National Memorial. Therefore, the number of staff is not a whole number. Staff would continue to include full-time and seasonal interpretive staff, maintenance staff, and law enforcement (see Table 5 at the end of this chapter). NPS volunteers would continue to provide important services at a negligible cost.

### ALTERNATIVE B

#### Concept

Fort Raleigh National Historic Site would greatly expand the scope of its partnerships through greater partner involvement in interpretation of the Roanoke Voyages. Use of a revised cooperative agreement or other appropriate contract or mechanism would permit the partner to take on this responsibility. NPS staff would interpret other national historic site stories. By coordinating and expanding efforts among The Elizabethan Gardens, Roanoke Island Historical Association, and the NPS, visitors would be inspired to spend more time in the national historic site. Under Alternative B, the national historic site would:

- Emphasize a greater reliance (than under current conditions) on partnerships, cooperative agreements, and on-site visitor facilities and services to accomplish interpretation of the Roanoke Voyages. NPS interpretive focus would be on the national historic site's other stories (Carolina Algonquians, Civil War, Freedmen's Colony, Fessenden experiments).

- Provide orientation to the national historic site.
- Evaluate the feasibility of an expanded campus (new Roanoke Island Historical Association [partner]-funded visitor center/ indoor theater could be built near the current NPS visitor center) for partner-funded interpretation of the Roanoke Voyages and *The Lost Colony* outdoor symphonic drama.
- Evaluate the feasibility of an expanded “Waterside Theatre campus” to possibly include a new visitor center annex. The feasibility study would be funded by partner(s) and would address compliance requirements (to include: archeological surveys, natural resource surveys, landscaping requirements, etc.).
- The NPS would also address compliance requirements for ground disturbing projects such as trails work, vegetation plantings, parking area, outdoor seating area, signage and waysides, and removal of the Prince and Beehive houses.
- Expand personal interpretive service program efforts.
- Inspire visitors to spend more time on-site through expanded interpretive efforts, facilities, partnering, marketing, and availability of food service (drinks and snacks) at the national historic site.
- Evaluate the feasibility of an expanded campus (new Roanoke Island Historical Association [partner]-funded visitor center/ indoor theater could be built near the current NPS visitor center) for partner-funded interpretation of the Roanoke Voyages and *The Lost Colony* outdoor symphonic drama.
- Provide more emphasis on theatrical skills classes through enhanced partnerships and partner-funded facilities.

### **Management Zoning, Facilities, and Associated Visitor Activities**

Management zoning for Alternative B is shown in Figure 5. Under Alternative B, the maintenance facility, employee residences, water treatment plant, *The Lost Colony* administration building, and national historic site headquarters would be designated as part of the Administrative Zone. The Waterside Theatre and support buildings, ticket booth, and theater parking would fall within the Waterside Theatre Zone. The picnic area, national historic site entrance, Freedmen’s Colony Monument, restrooms, Virginia Dare Monument, Earthwork Fort, Freedom Trail trailhead, and visitor center would all fall within the Visitor Services Zone. The remainder of the national historic site, including the Thomas Hariot Nature Trail, would fall within the Resource Preservation Zone.

Many of the features of Alternative B would be the same as those already described for Alternative A. To reduce redundancy, references will be made to features in Alternative A and detailed descriptions will be provided only for new or different elements proposed for Alternative B.

### **Visitor Experience**

All the studies and planning efforts to provide better access, safety, and visitor orientation on Roanoke Island would be the same as described in Alternative A. In addition, under Alternative B the national historic site would:



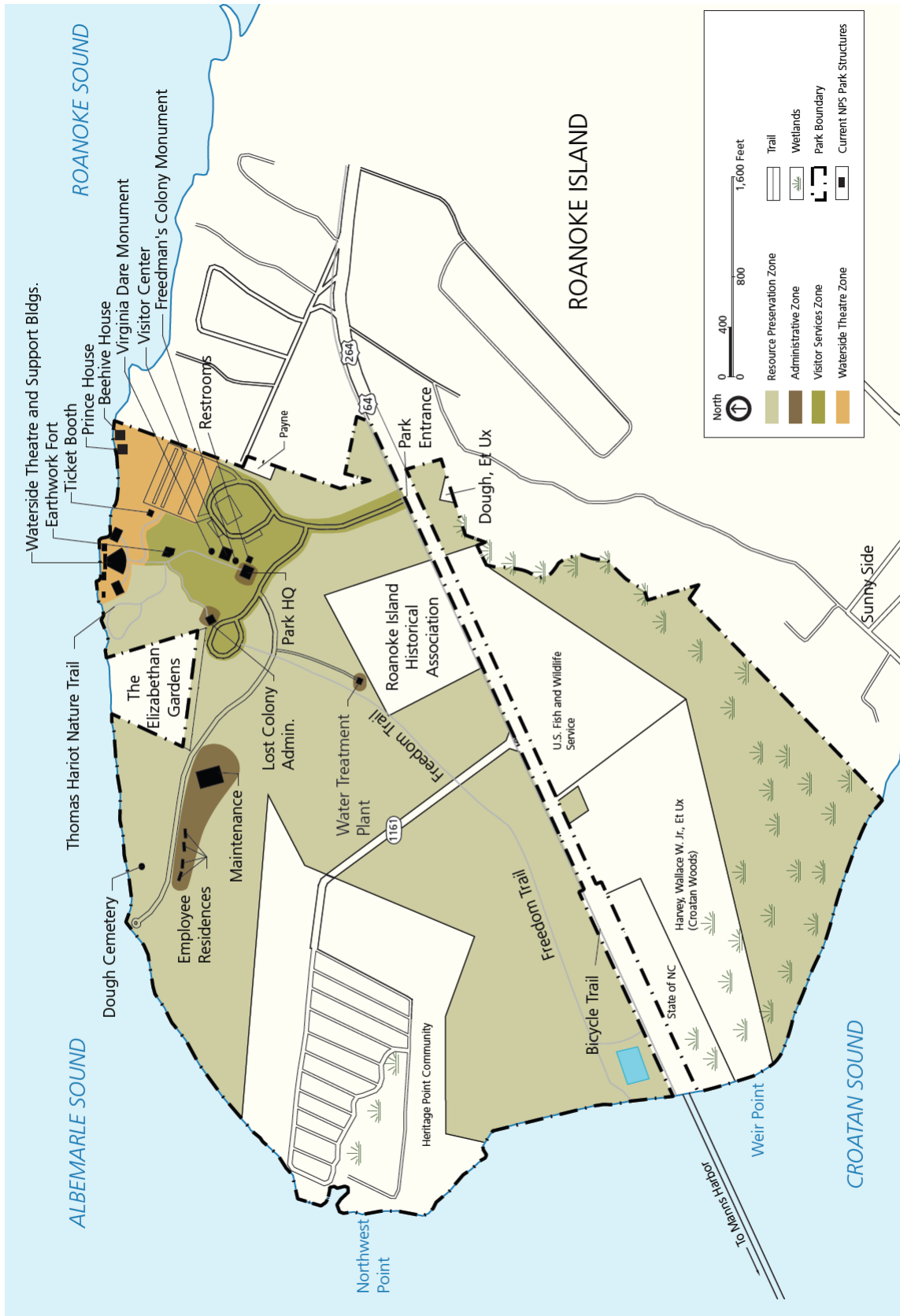


Figure 5

Alternative B

Fort Raleigh National Historic Site

U.S. Department of the Interior - National Park Service

Alternative B would include the following:

- Natural processes would take precedence; however, the NPS would take measures to protect sensitive resources such as the Dough Cemetery and Waterside Theatre.
- Establishment of a small outdoor seating area to provide interpretive programming near the reconstructed earthworks.
- An NPS partner would fund and conduct a feasibility study and assessment of a range of alternatives for the design and construction of a partner-funded and operated visitor center annex. This annex would be in proximity to the existing Fort Raleigh National Historic Site visitor center and would provide additional program space, including, for example, exhibit space, restrooms, offices, storage, multipurpose rooms, and an indoor theater.

**Trails.** Under Alternative B the national historic site would:

- Extend the Roanoke Island multi-use trail (“Bike Path”) into the national historic site all the way to The Elizabethan Gardens, the Lindsay Warren Visitor Center, and to the Waterside Theatre parking area.
- Establish a parallel trail to the Freedom Trail or establish a new trail along the entrance road that would complete the loop between the Freedom Trail and Highway 64.
- Improve interpretive signage and clarify circulation patterns on national historic site trails.

**Lindsay Warren Visitor Center.** Under Alternative B, the national historic site would continue to maintain and staff the

Lindsay Warren Visitor Center; however, the interpretive focus of that facility would change. Instead of interpreting the full array of the park’s themes, the NPS Lindsay Warren Visitor Center would interpret the Carolina Algonquians, Freedmen’s Colony, Civil War, and Fessenden radio experiments. The interpretation of the Roanoke Voyages themes would be done by a partner in a new partner-constructed and operated annex facility. The NPS partner would be required to fund and conduct a feasibility study for this new facility.

### **Expanded Interpretive Mission**

Under Alternative B the national historic site would:

- Rely more upon Roanoke Island Historical Association to tell the story of the Roanoke Voyages. The NPS would interpret other national historic site stories, including Carolina Algonquians, Freedmen’s Colony, Civil War, and Fessenden radio experiments.
- Provide self-guided interpretive opportunities using existing trails.
- Explore the use of the NPS Arts-in-Parks program. This program is offered in various parks across the country and invites visitors to experience the wonder of the park in combination with the wonder of the arts.

### **Partnerships**

Under Alternative B, the national historic site would maintain and enhance existing partnerships and expand partnerships for interpretive and theatrical education purposes.

## Resource Conditions

Many elements of resource conditions would be the same as those described in Alternative A. In addition to those described under Alternative A, Alternative B would include the following:

- Establish vegetative screening along the road to the Waterside Theatre in order to minimize or screen the view of vehicles from visitors as they experience the nearby earthworks.
- One additional archeological investigation and data recovery would be conducted between Pear Pad Road and the Heritage Point subdivision. This area has not been investigated to the extent that other areas of the national historic site have and it has the potential to yield information about island historical themes apart from the Roanoke voyages and the Lost Colony. These themes include the Native American culture, the Antebellum period, the Civil War, the Freedmen's Colony, and the Works Progress Administration camp. The NPS would continue to coordinate with the First Colony Foundation for on-going annual surveying.

## Response to Catastrophic Loss

Catastrophic loss is defined by the NPS as loss of resources or facilities due to storms, floods, earthquakes, fires, or other disasters of natural or man-made origin. Under Alternative B, the NPS would rebuild and protect existing facilities in place unless future extreme and/or successive catastrophic natural disasters warranted otherwise. However, resource management decisions due to shoreline erosion would be deferred to the shoreline erosion management plan and environmental assessment that is an element of all alternatives.

## Estimated Costs and Staffing

The estimated costs to fully implement Alternative B provide a relative sense of the resources necessary to implement this alternative. The cost estimate is in year 2011 dollars and each item has been rounded to the nearest hundred dollars.

The estimated annual operating costs would be \$1,312,300. Staff costs would increase to address the salary of 3.35 additional full-time equivalent staff positions (for a total of 8.3 full-time equivalent staff positions). Because these positions would continue to be shared with Cape Hatteras National Seashore and the Wright Brothers National Memorial they represent a percentage of staff time at the national historic site and are therefore not a whole number. Additional staff would include interpretive and maintenance staff and law enforcement rangers (see Table 5 at the end of this chapter).

One-time NPS facility costs would be approximately \$931,300. This would include the following:

- New wayside exhibits in the vicinity of the visitor center;
- Native vegetation plantings to screen the maintenance area and headquarters area;
- Expansion of parking at headquarters (eight spaces);
- Extend the bike trail from Highway 64 to Waterside Theatre and The Elizabethan Gardens;
- Modify the existing trail system to make it accessible;
- Establish an outdoor seating area near the reconstructed earthworks;
- Add signs and waysides for the trail system north of Highway 64; and

- Remove the Prince and Beehive houses due to extreme shoreline erosion.

One-time non-facility costs would include:

- One additional archeological investigation and data recovery between Pear Pad Road and the Heritage Point subdivision.

### **ALTERNATIVE C (NPS PREFERRED ALTERNATIVE)**

#### **Concept**

Fort Raleigh National Historic Site would emphasize Section 3 of PL 101-603, November 16, 1990, which states that the “Secretary, in consultation with scholarly and other historic organizations, shall undertake research on the history and archeology of the historic site, and the associated peoples and events.” The national historic site would accomplish this by increasing emphasis on research related to interpretive themes and legislative mandates. By coordinating and expanding efforts with research organizations and agencies, visitors would benefit by gaining increased knowledge of the national historic site and its multiple themes, both cultural and natural. Under Alternative C, the national historic site would:

- Enhance its partnership with the First Colony Foundation, a North Carolina 501(c) (3) non-profit organization dedicated to conducting archeological and historical research, combined with public education and interpretation. The First Colony Foundation is focused on research and education relating to the story of North Carolina and America’s beginnings with the attempts by Sir Walter Raleigh to establish English colonies at Roanoke Island in the 1580s under his charter from Queen Elizabeth I (First Colony Foundation website 2011).

- Establish partnerships with organizations that focus on natural and cultural resource topics.
- Include archeology as a significant aspect of the research program at the national historic site.
- Maintain the current visitor center as the primary visitor orientation facility.
- Implement NPS researcher-in-the-park program.
- Promote increased research use of collections at the Museum Resource Center.
- Increase research efforts with regard to the effects of climate change on natural and cultural resources in the national historic site.

Many of the features of Alternative C would be the same as those already described for Alternative A or Alternative B. To reduce redundancy, references will be made to features in those alternatives and detailed descriptions will be provided only for new or different elements in Alternative C.

#### **Visitor Experience**

All the studies and planning efforts to provide better access, safety, and visitor orientation on Roanoke Island would be the same as described in Alternative A. In addition, under Alternative C, the national historic site would:

- Continue to centralize orientation and exposure to the national historic site’s expanded interpretive mission in the Lindsay Warren Visitor Center.
- Provide opportunities for visitors to interact in positive and meaningful ways with archeologists, historians, and researchers on-site.

- Encourage visitors to experience outlying resources of the site independently through more formal interpretive trails with themed areas.
- Enhance the visitor experience by participating in partner programs that offer interpretive programs at other off-site locations on Roanoke Island.

### **Management Zoning, Facilities, and Associated Visitor Activities**

Management zoning for Alternative C is shown in Figure 6. Under Alternative C, the maintenance facility, employee residences, water treatment plant, *The Lost Colony* outdoor symphonic production area, and national historic site headquarters would be designated in the Administrative Zone. The Waterside Theatre and support buildings, ticket booth, access roads, and theater parking would be designated within the Waterside Theatre Zone. The picnic area, national historic site entrance, Freedmen's Colony Monument, restrooms, Freedom Trail trailhead, and visitor center would all fall within the Visitor Services Zone. The remainder of the national historic site, including the Thomas Hariot Nature Trail, would be designated as part of the Resource Preservation Zone.

Measures proposed to address shoreline issues would be the same as described for Alternative B. A small outdoor seating area would be established to provide interpretive programming near the reconstructed earthworks as described in Alternative B.

**Trails.** Under Alternative C the national historic site would:

- Determine the design, route, and other features of an improved loop trail in subsequent implementation planning and analysis.
- As under Alternative B, establish a parallel trail to the Freedom Trail or establish a new trail along the entrance road that would complete the loop between the Freedom Trail and Highway 64.
- Improve interpretive signage and clarify circulation patterns on national historic site trails.

**Lindsay Warren Visitor Center.** Under Alternative C the national historic site would:

- Maintain the Lindsay Warren Visitor Center as the primary orientation and interpretation center of the national historic site.

### **Expanded Interpretive Mission**

The interpretive staff dedicated to Fort Raleigh National Historic Site would be increased by 0.9 full-time equivalent staff members that would allow for increased interpretive activities. In addition, a full-time historian would be hired to address research needs. Existing needs for interpretive activities include staffing the visitor center, presenting programs, conducting school tours, presenting education programs in local and area schools, roving the national historic site, developing interpretive products, and researching the history and resources of the national historic site. Visitors have expressed the desire to see ranger-led programming be expanded, and this would be possible with expanded staffing levels.

Under Alternative C the NPS would:

- Expand upon partnerships with other organizations and agencies (such as the First Colony Foundation, Roanoke Island Festival Park, and North Carolina Maritime Museum) to tell the various stories of the area.
- Use the results of expanded research to enhance interpretive programs



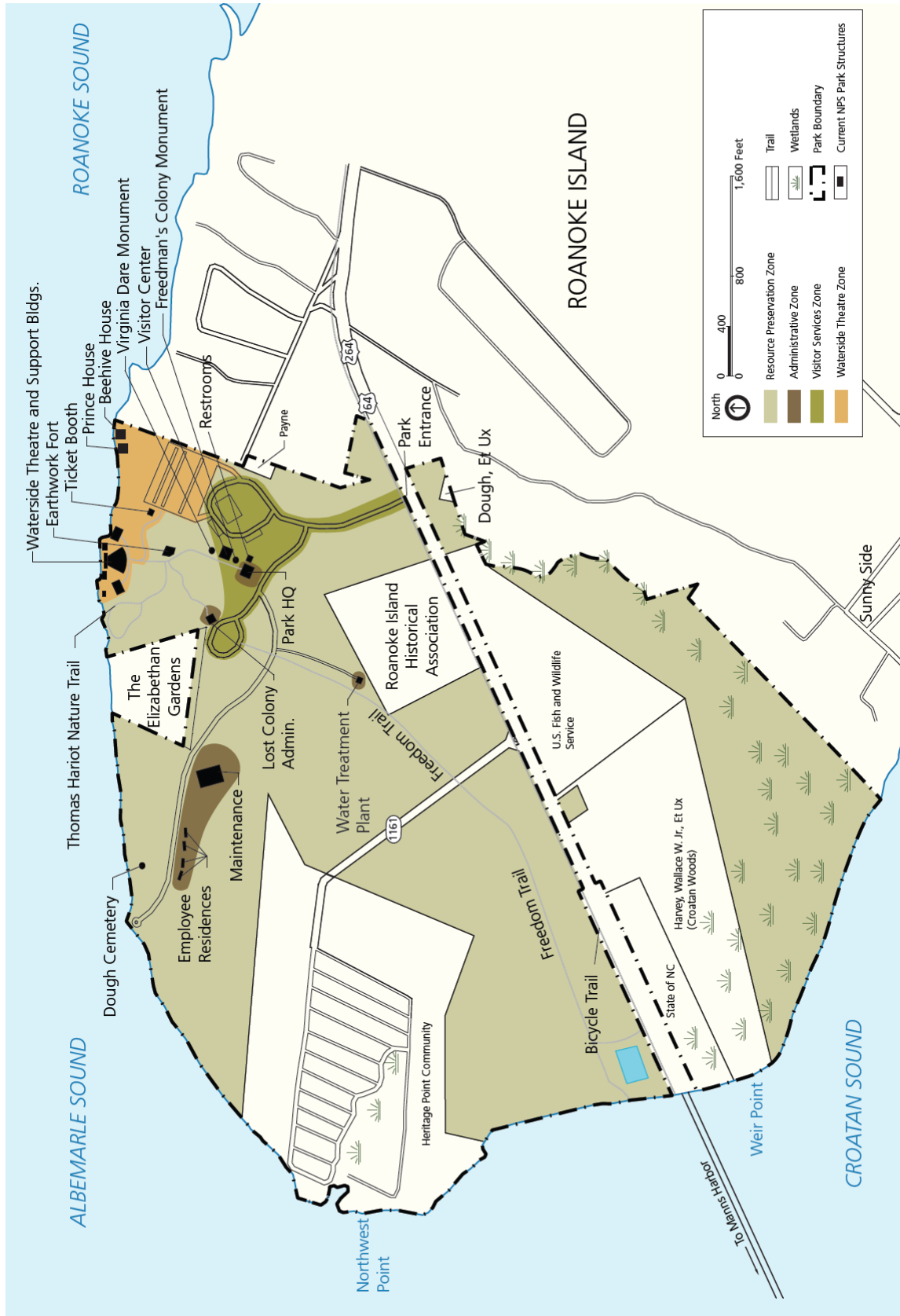


Figure 6

Alternative C  
Fort Raleigh National Historic Site  
U.S. Department of the Interior - National Park Service

and media on all national historic site interpretive themes, both natural and cultural.

- Implement the NPS researcher-in-the park program.
- Establish on-going archeological excavations with partner organizations.

### Partnerships

Under Alternative C the national historic site would:

- Implement recommendations of *Fort Raleigh National Historic Site Long-Range Interpretive Plan* (NPS 2010a), which includes, among other recommendations:
  - Improve partnership communication through regular communications meetings;
  - Work more closely with the Roanoke Island Historical Association to integrate interpretive programming throughout the site;
  - Work more closely with The Elizabethan Gardens to integrate interpretive programming and educational efforts on mutually suitable topics such as native plants and ecosystems;
  - Continue hosting the First Colony Foundation for archeological research within the national historic site and exploring safe and appropriate ways to interpret these activities for visitors; and
- Establish regular communication between Fort Raleigh National

Historic Site and Roanoke Island Festival Park in advance of their seasonal programming schedules to share ideas for improving the overall visitor experience on Roanoke Island.

- Expand partnerships with other historical and tourism-oriented organizations on Roanoke Island.
- Continue and enhance the partnership with the First Colony Foundation, and others, for interpretive, archival, and research purposes.
- Develop new partnerships with research organizations, such as the University of North Carolina Coastal Studies Institute, that could provide research efforts on other national historic site cultural and natural topics (beyond the Roanoke Voyages).

### Resource Conditions

Many elements of resource conditions would be the same as those described for Alternative A. In addition to those described under Alternative A, Alternative C would reduce heavily landscaped and maintained areas. The national historic site would restore these areas back to natural conditions or convert them to low maintenance plantings.

Additional annual archeological investigations and data recovery would be conducted in the following locations: between the Elizabethan Gardens and the Dough Cemetery; between the Thomas Hariot trail and the Elizabethan Gardens; and at the Works Progress Administration camp. These areas have been investigated the least over the years and have the potential to yield information about island historical themes apart from the Roanoke voyages and the Lost Colony. These themes include the Native American culture, the

Antebellum period, the Civil War, the Freedmen's Colony, and the Works Progress Administration camp. The historic site would partner with other organizations to increase investigations, treatment, and conservation of cultural resources.

Under Alternative C, the NPS would also address compliance requirements for ground disturbing projects such as trails work, vegetation plantings, parking area, outdoor seating area, signage and waysides, and removal of the Prince and Beehive houses.

### **Response to Catastrophic Loss**

Catastrophic loss is defined by the NPS as loss of resources or facilities due to storms, floods, earthquakes, fires, or other disasters of natural or man-made origin. Under Alternative C, the NPS would rebuild and protect existing facilities in place unless future extreme and/or successive catastrophic natural disasters warranted otherwise. However, resource management decisions due to shoreline erosion would be deferred to the shoreline erosion management plan and environmental assessment that is an element of all alternatives.

### **Estimated Costs and Staffing**

The estimated costs to fully implement Alternative C provide a relative sense of the resources necessary to implement this alternative. The cost estimate is in year 2011 dollars and each item has been rounded to the nearest hundred dollars.

Annual operating costs for Alternative C are estimated to be \$1,222,500. Operation and maintenance costs would increase compared to Alternative A because of the need to maintain new facilities. Annual staff costs would increase by the salary of 2.98 full-time equivalent staff positions. Because these positions would continue to be shared with Cape Hatteras National Seashore and the Wright Brothers National Memorial

they represent a percentage of staff time at the national historic site and are therefore not a whole number. Additional staff would include a new interpretive national historic site guide, maintenance supervisor, law enforcement ranger, and a historian (see Table 5 at the end of this chapter).

Other annual costs would include additional annual archeological survey in response to the legislative mandate of Public Law 101-603 to undertake research on the history and archeology of the national historic site. Over time, some of this research may be funded by various partner organizations. These additional annual archeological surveys will be focused on the following areas:

- Between the Elizabethan Garden and the Dough Cemetery
- Between the Thomas Hariot Trail and the Elizabethan Garden, and
- At the Works Progress Administration camp.

The NPS would continue to coordinate with the First Colony Foundation for on-going annual surveying. The NPS would seek other sources of funding including grants, partners, and other sources to help defray costs such as additional resource investigations, research, and outreach efforts.

One-time facility costs would include:

- New exhibits in the vicinity of the visitor center;
- Native plantings to screen the maintenance and headquarters areas;
- Expansion of parking at headquarters (eight spaces);
- Modify the existing trail system north of Highway 64 with a native surface;

- Establish an outdoor seating area near the reconstructed earthworks;
- Install additional signs and waysides for the trail system north of Highway 64; and
- Remove the Prince and Beehive houses due to extreme shoreline erosion.

At this time, there are no anticipated non-facility costs under Alternative C.

### CONSIDERATION OF BOUNDARY ADJUSTMENTS

As part of general management planning, the NPS is required to identify and evaluate boundary adjustments that may be necessary or desirable to carry out the purposes of the particular park unit. Boundary adjustments may be recommended to:

- Protect significant resources and values, or to enhance opportunities for public enjoyment related to park purposes;
- Address operational and management issues, such as the need for access or the need for boundaries to correspond to logical boundary delineations such as topographic or other natural features or roads; or
- Otherwise protect park resources critical to fulfilling park purposes.

All recommendations for boundary changes must meet the following two criteria:

- The added lands will be feasible to administer considering their size, configuration, and ownership; costs; the views of and impacts on local communities and surrounding jurisdictions; and other factors such as the presence of hazardous substances or exotic species; and

- Other alternatives for management and resource protection are not adequate.

There are no proposed boundary adjustments at Fort Raleigh National Historic Site under this general management plan.

### USER CAPACITY

The foundations for making user capacity decisions in this general management plan are the purpose, significance, special mandates, and management zones associated with the national historic site. The purpose, significance, and special mandates define why the national historic site was established and identify the most important resources, values, and visitor opportunities that would be protected and provided. The management zones in each action alternative describe the desired resource conditions and visitor experiences, including appropriate types of activities and general use levels, for different locations throughout the national historic site. The zones, as applied in the alternatives, are consistent with, and help the NPS achieve, its specific purpose, significance, and special mandates. As part of the NPS's commitment to implement user capacity, the national historic site staff would abide by these directives for guiding the types and levels of visitor use that would be accommodated while sustaining the quality of national historic site resources and visitor experiences consistent with the purposes of the national historic site.

In addition to these important directives, this plan includes indicators and standards for Fort Raleigh National Historic Site. Indicators and standards are measureable variables that would be monitored to track changes in resource conditions and visitor experiences. The indicators and standards help the NPS ensure that desired conditions are being attained, supporting the fulfillment of the national historic site's legislative and policy mandates. The general management plan also identifies the types of management

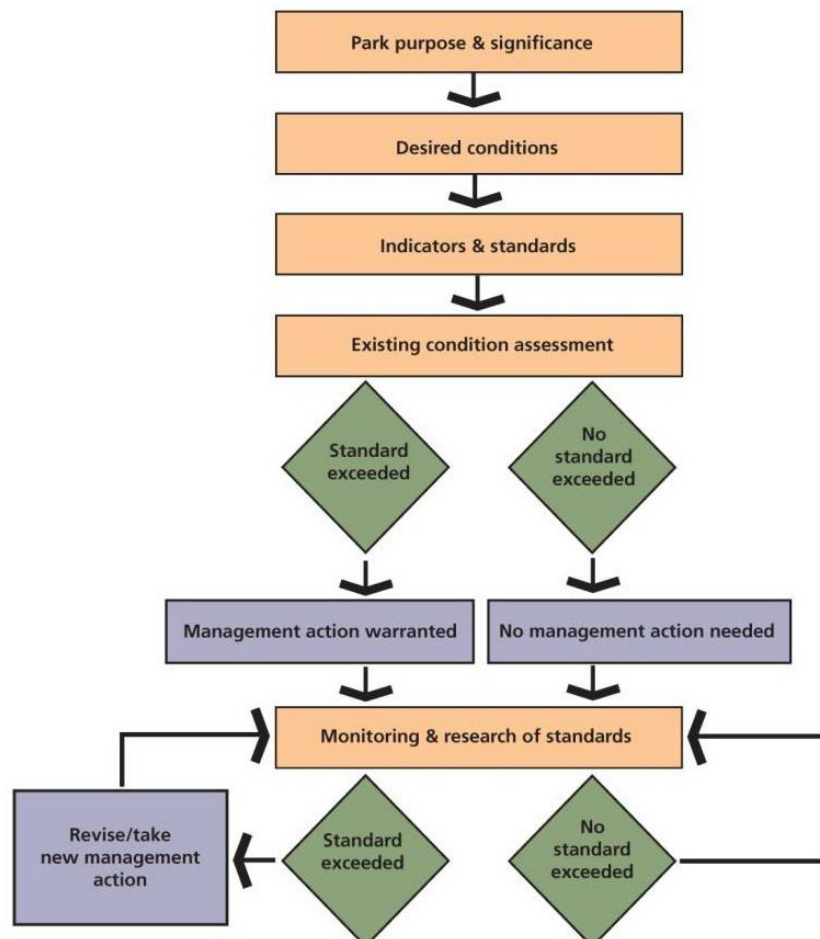
actions that would be taken to achieve desired conditions and related legislative and policy mandates.

Table 3 includes the indicators, standards, and potential future management strategies, allocated by management zones, that would be implemented as a result of this planning effort. The planning team considered many potential issues and related indicators that would identify impacts of concern, but those described below were considered the most significant, given the importance and vulnerability of the resource or visitor experience affected by visitor use. The planning team also reviewed the experiences of other parks with similar issues to help identify meaningful indicators. Standards that represent the minimum acceptable condition for each indicator were then assigned, taking into consideration the

qualitative descriptions of the desired conditions, data on existing conditions, relevant research studies, staff management experience, and scoping on public preferences.

User capacity decision making is a form of adaptive management (see Figure 7) in that it is an iterative process in which management decisions are continuously informed and improved. Indicators are monitored, and adjustments are made as appropriate. As monitoring of conditions continues, managers may decide to modify or add indicators if better ways are found to measure important changes in resource and social conditions. Information on the NPS monitoring efforts, related visitor use management actions, and any changes to the indicators and standards would be available to the public.

**Figure 7: User Capacity Framework**





**Table 3: Summary of User Capacity Indicators, Standards and Potential Management Strategies**

Indicator	Assigned Zone	Standard	Management Strategies
Number of incidents of bare (worn) ground on the earthen fort exceeding one square foot measured twice a year before and after peak season	Resource Preservation Zone	Zero incidents of bare (worn) ground exceeding one square foot measured twice per year	<ul style="list-style-type: none"> <li>-Education through interpretation</li> <li>-Repair (work order) damaged areas</li> <li>-Signage to prevent visitors from climbing on the fort</li> <li>-Restrict access – fencing, barricades</li> </ul>
Number of written complaints per year related to pets per year	Parkwide	No more than six written complaints related to pets per year	<ul style="list-style-type: none"> <li>-Education regarding pet related impacts</li> <li>-Website/social media educational campaign regarding pet related impacts</li> <li>-Community outreach</li> <li>-Increased signage</li> <li>-Additional enforcement of pet-related rules and regulations (pets on a leash)</li> <li>-Develop pet restriction in areas of concern (pet free zones, fines, for example)</li> </ul>
Number of written complaints per year related to visitor conflict on trails (excluding pet related complaints)	Parkwide	No more than six written complaints related to visitor conflict on trails per year	<ul style="list-style-type: none"> <li>-Education regarding trail use etiquette</li> <li>-Website/social media educational campaign</li> <li>-Community outreach</li> <li>-Increased signage</li> <li>-Additional enforcement of existing rules and regulations on the trails</li> <li>-Develop trail restriction in areas of concern (separating the different user groups)</li> <li>-Temporary and permanent closure of trails</li> </ul>
Number of times per year the visitor parking lots at the Waterside Theatre or National Park Drive loop exceed capacity	Waterside Theatre Zone  Visitor Services Zone	Visitor parking lots will not exceed capacity more than six times per year or two consecutive days at Waterside Theatre or National Park Drive loop	<ul style="list-style-type: none"> <li>-Work with program providers to avoid parking issues</li> <li>-Additional signage</li> <li>-Tour/charter bus management (to free up more parking)</li> <li>-Enhanced traffic management (directing traffic to available parking, barricades, temporary signs)</li> <li>-Shuttle service</li> <li>-Require special use permits for large events</li> </ul>
Number of new informal trails per year over baseline conditions	Resource Preservation Zone	No new informal trails over baseline conditions per year	<ul style="list-style-type: none"> <li>-Signage – closure and/or educational signs</li> <li>-Rehabilitate/re-vegetate informal trails</li> <li>-Evaluate informal trail for formal designation</li> <li>-Adapt/re-route trails</li> <li>-Eradicate informal trails</li> </ul>

## Indicators and Standards

- The priority indicators for Fort Raleigh National Historic Site are associated with the following issues:
- Impacts to the earthen fort
- Impact from pets on the visitor experience
- User conflict on trails
- Parking lot capacity
- Visitor created informal trails

Visitors to the national historic site have the opportunity to visit a reconstructed earthen fort, and experience how this structure served as a means of protection for the initial European settlers on Roanoke Island. The current earthen fort is located in the approximate location of the original from 1585 or 1587 and is on the National Register of Historic Places. The extensive history at this site means that the cultural resources need extra protection. Visitors currently are able to freely visit the earthen fort with very few restrictions. At times national historic site staff have observed visitors climbing on the earthen fort or saw evidence of such actions (bare ground on or around the mounds), which could have a negative effect on the integrity of the site. To protect the earthen fort from visitor impacts, the number of incidents of bare (worn) ground on the earthen fort exceeding one square foot was established as the indicator. The standard will be zero incidents of bare or worn ground on the earthen fort in recognition of the sensitivity and importance of the site. The national historic site currently monitors the earthen fort and will include a measurement of incidents of bare ground on the earthen fort before and after the peak visitor season (Memorial Day to Labor Day). If incidents of bare ground exceeding one square foot are found, the national historic site may consider increasing the educational and interpretive messages

the visitors receive about the earthen fort. If the educational efforts are not adequate to remain within standard, national historic site managers can increase the amount of signage around the earthen fort conveying the importance of not climbing on the fort. If the standard is repeatedly violated, restricted access may be needed (roping off areas of concern) or in extreme cases, temporary or permanent closure of the site.

The national historic site has a few trails where it is common to see pets with their owners. While pets are welcome in the national historic site, they are required to be under control of their owners at all times. Pet owners are also required to clean up after their pets and minimize any resource damage that may occur (digging, chasing wild life, over use of trails, for example). Regardless of these regulations, pets have the potential to cause problems in the national historic site. Pets off of their leash, pet waste, visitors with pets conflicting with visitors that do not have pets, and the chance that pets may cause resource damage, are all reasons to monitor pet-related impacts in the national historic site. To prevent impacts to the resources and visitor experiences available at the national historic site, an indicator was established to track the number of complaints per year related to pets. The standard was set at no more than six written complaints per year, at which point national historic site managers would need to take action to mitigate the impacts from pets. If the standard is close to being exceeded, educational programs focused on the impacts associated with pets may be needed. Many of the visitors are also community members who take their pets to the national historic site, and thus a community outreach program to stress the impacts of pets may help to further protect the resources of the national historic site. If the number of pet related complaints is exceeded on a regular basis the national historic site may need to employ additional enforcement of existing regulations or develop restrictions on pet use in areas of concern.

The trail system within the national historic site connects to several adjacent trails outside the national historic site and is also used by several different types of recreationists. The national historic site attracts people who want to hike, horseback ride, and bicycle and because of these very different types of recreation, there is the potential for conflict between the different user groups. For example, hikers may be disrupted by bikers or horseback riders may interfere with bike riders. For these reasons, an indicator measuring the number of written complaints related to visitor conflicts per year was developed (excluding pet related complaints). There will be no more than six written complaints a year related to visitor conflicts before management action is needed. If the number of complaints is more than six per year, national historic site managers may consider increasing their educational efforts by providing visitor orientation regarding the use of the trails or constructing informational kiosks along the trails. If the number of complaints consistently exceeds the standard, the separation of different user groups may be needed. National historic site managers may also consider temporary or permanent closure of trails to any or all types of use in order to preserve the visitor experience.

Visitors can generally expect to see few people or to not encounter full parking lots at the national historic site during regular hours. However, during busy times of the year and especially during special events, the national historic site can become busy and crowded, and thus provide a different experience than the casual visitor expected when they arrived. Special events are often important to the mission of the national historic site and interpreting the history of the site, but may need to be regulated to preserve the visitor experience. Associated with special events and times of peak use is the filling of the parking lots at the Waterside Theatre and National Park Drive loop. When these parking lots are full visitors may be turned away from the national historic site thus impacting their visitor experience.

In addition, resource damage occurs from visitors parking in the grass along the side of the road when the designated parking spots are full. When visitors begin to park along the sides of the road, visitor safety also becomes an issue. Visitors are often walking down the narrowed road while cars are searching for areas to park. By monitoring and tracking the use of the parking lots at the Waterside Theatre and National Park Drive loop, national historic site managers can document the impacts from special events and periods of peak use on visitor experience and the resources of the national historic site and thus gauge the appropriateness of certain events in the national historic site. Per the indicator and standard, visitor parking lots will not exceed capacity more than 6 times per year or two consecutive days at Waterside Theatre or National Park Drive loop. This standard was developed to protect the visitor experience and limit the potential impacts to national historic site resources. To ensure this standard is not exceeded, national historic site managers may consider providing detailed information on the national historic site website about when special events and times of peak use may occur and potentially adjusting the timing of the events (or visitors may adjust their time of visitation). Fort Raleigh National Historic Site managers may consider working with the program providers to free up additional parking (by limiting the number of tour buses parked in the lots at one time), and to enact enhanced traffic management practices (directing traffic to available parking, barricades, temporary signs, for example). If the standard is being violated on a regular basis, national historic site managers may require special use permits for all large events.

Informal trails within the national historic site are susceptible to erosion and compaction because they were not properly placed in the landscape or thoughtfully designed. These impacts degrade the area adjacent to the trail as well, and also lead to a diminished visitor experience. Informal trails can lead to areas of sensitive cultural

sites and/or vegetation and thus diminish the natural and cultural qualities of that area. For these reasons an informal trails indicator was developed with the standard being no new informal trails over baseline condition per year. The national historic site will need to inventory the existing informal trails, which will then serve as the baseline to which yearly measurements will be compared. National historic site managers can take actions to reduce the amount of impacts that informal trails may have when the standard is at or near the above threshold. Education about the impacts of informal trails, such as a visitor orientation regarding the trail system, may help reduce the incidents of informal trails. Providing visitors with trail maps and potentially place waysides or kiosks along the trails may also be considered. National historic site managers may need to relocate, re-vegetate or remove informal trails if the standard is at or over standard. If the standard is consistently being violated, formally designating some social trails and potentially closing troubled areas completely may be considered if impacts persist.

### **LONG-TERM MONITORING**

The staff would continue monitoring use levels and patterns throughout the national historic site. In addition, the national historic site staff would monitor these user capacity indicators. The rigor of monitoring the indicators (for example, frequency of monitoring cycles, amount of geographic area monitored) might vary considerably depending on how close existing conditions are to the standards. If the existing conditions are far from exceeding the standard, the rigor of monitoring might be less than if the existing conditions are close to or trending toward the standard.

Initial monitoring of the indicators would determine if the indicators are accurately measuring the conditions of concern and if the standards truly represent the minimally acceptable condition of the indicator. National historic site staff might decide

to modify the indicators or standards and revise the monitoring program if better ways are found to measure changes caused by visitor use. Most of these types of changes should be made within the first several years of initiating monitoring. After this initial testing period, adjustments would be less likely to occur. Finally, if use levels and patterns change appreciably, the national historic site staff might need to identify new indicators to ensure that desired conditions are achieved and maintained. This iterative learning and refining process, a form of adaptive management, is a strength of the NPS user capacity management program.

### **MITIGATION MEASURES**

Congress charged the NPS with managing the lands under its stewardship “in such manner and by such means as will leave them unimpaired for the enjoyment of future generations” (NPS Organic Act, 16 USC 1). As a result, the NPS routinely evaluates and implements mitigation whenever conditions occur that could adversely affect the sustainability of national park system resources.

To ensure that implementation of the action alternatives protects natural and cultural resources and the quality of the visitor experience, a consistent set of mitigation measures would be applied to actions proposed in this plan. The NPS would prepare appropriate environmental review (including those required by the National Environmental Policy Act, National Historic Preservation Act, and other relevant legislation) for these future actions. As part of the environmental review, the NPS would avoid, reduce, or minimize adverse impacts when practicable. The implementation of a compliance-monitoring program would be considered to stay within the parameters of National Environmental Policy Act and National Historic Preservation Act compliance documents, and U.S. Army Corps of Engineers Section 404 permits.

The compliance-monitoring program would oversee these mitigation measures and would include reporting protocols.

The following mitigation measures and best management practices would be applied to avoid or minimize potential impacts from implementation of the alternatives. These measures would apply to all alternatives.

### Cultural Resources

The NPS would preserve and protect, to the greatest extent possible, resources that reflect the history, events, and people associated with Fort Raleigh National Historic Site. Specific mitigation measures would include the following:

- Continue to develop inventories for and oversee research about archeological, historic, and ethnographic resources to better understand and manage the resources. Conduct any needed archeological or other resource specific surveys and national register evaluations, and identify recommended treatments. Incorporate the results of these efforts into site-specific planning and environmental analysis documents.
- Museum collections (prehistoric and historic objects, artifacts, works of art, archival material, and natural history specimens) would be acquired, accessioned and cataloged, preserved, protected, and made available for access and use according to NPS standards and guidelines.
- Subject projects to site-specific planning and compliance procedures. For archeological resources, locate projects and design facilities in previously disturbed or existing developed areas. Avoid adverse effects to cultural resources through use of the *Secretary of the*

### *Interior's Standards for Archeology and Historic Preservation.*

- Use screening and/or sensitive design compatible with historic resources and cultural landscapes and not adjacent to ethnographic resources. If adverse impacts could not be avoided, mitigate these impacts through a consultation process with all interested parties.
- Conduct archeological site monitoring and routine protection. Conduct data recovery excavations at archeological sites threatened with destruction, where protection or site avoidance during design and construction is infeasible. Strictly adhere to NPS standards and guidelines on the display and care of artifacts, archival and ethnographic materials. This would include items used in exhibits in the visitor center.
- Explicit research objectives will be established before any archeological undertakings occur. The NPS will comply with all relevant regulations and policies before beginning any excavations or digging activities.

### Natural Resources

#### *Natural Soundscape*

The NPS will restore to the natural condition wherever possible those national historic site soundscapes that have become degraded by unnatural sounds (noise), and will protect natural soundscapes from unacceptable impacts.

The NPS will implement standard noise abatement measures during construction and daily park operations. Standard noise abatement measures could include a schedule that minimizes impacts on adjacent noise-sensitive uses, the use of the best available noise control techniques wherever feasible, the use of hydraulically



or electrically powered impact tools when feasible, and the location of stationary noise sources as far from sensitive uses as possible.

Mitigation measures would be applied to protect the natural sounds in the national historic site. Specific actions could include, but would not be limited to, siting and designing facilities to minimize objectionable noise, and exploring opportunities to reduce the sounds of human-caused noise. Within interpretative programs, rangers could ask visitors to minimize sounds, and listen for natural sounds of the national historic site.

### ***Vegetation***

Mitigation actions would occur during normal park operations as well as before, during, and after construction to minimize immediate and long-term impacts on vegetation. These actions would vary by specific project and area of the national historic site affected, and additional mitigation measures would be added depending on site specific need. Mitigation would include the following actions.

- Monitor areas used by visitors, such as roads and trails, for signs of native vegetation disturbance, such as trampling of vegetation, creation of unauthorized trails, and widening of trails beyond the trail's intended width as constructed.
- Use public education, revegetation of disturbed areas with native plants, erosion control measures, and barriers to control potential impacts on plants from trail erosion or social trailing.
- Use barriers and closures when necessary to prevent trampling and loss of wetland vegetation.
- Develop revegetation plans for areas disturbed by construction or unauthorized visitor use and require the use of native species.

Revegetation plans should specify seed/plant source, seed/ plant mixes, soil preparation, etc. Salvaged vegetation from construction sites should be used to the extent possible.

- Implement fire management actions to manage the spread of invasive species.

### ***Exotic Plant Species***

An exotic plants control program would be implemented during construction activities. Standard measures could include the following elements.

- Ensure construction-related equipment arrives on-site free of mud or seed-bearing material.
- Certify all seeds and straw material as weed-free.
- Identify areas of noxious weeds preconstruction and treat them or noxious weed topsoil before construction.
- Revegetate disturbed area with appropriate native species.

### **Threatened and Endangered Species and Species of Concern**

Mitigation actions would occur during normal park operations as well as before, during, and after construction to minimize immediate and long-term impacts on rare, threatened, and endangered species. These actions would vary by specific project and area of the national historic site affected, and additional mitigations will be added depending on the specific action and location. Many of the measures listed below for vegetation and wildlife would also benefit rare, threatened, and endangered species by helping to preserve habitat. Mitigation actions specific to rare,

threatened, and endangered species would include the following:

- Conduct surveys for rare, threatened, and endangered species, as warranted.
- Locate and design facilities/actions to avoid adverse effects on rare, threatened, and endangered species. If avoidance is infeasible, minimize and compensate for adverse effects on rare, threatened, and endangered species as appropriate and in consultation with the appropriate resource agencies. Conduct work outside of critical periods for the specific species.
- Develop and implement restoration and/or monitoring plans, as warranted. Plans should include methods for implementation, performance standards, monitoring criteria, and adaptive management techniques.
- Implement measures to reduce adverse effects of nonnative plants and wildlife on rare, threatened, and endangered species.

### *Scenic Resources*

Mitigation measures are designed to minimize visual intrusions. These include the following:

- Design, site, and construct facilities to avoid or minimize visual intrusions on natural and cultural resources and landscapes.
- Provide vegetative screening where appropriate.
- Continue cooperative measures on a regional level to protect air quality, which affects scenic views.

### *Soil*

- Build new facilities on soil suitable for development.
- Locate development on disturbed sites where appropriate and combine development needs when possible.
- Locate trails on soil with low erosion hazards and small changes in slope, and develop proper signs to minimize unauthorized trails.
- Ensure proper stormwater drainage of facilities.
- Place construction equipment in previously disturbed areas.
- Minimize soil erosion by limiting the time soil is left exposed and by applying erosion control measures, such as erosion matting, silt fencing, and sedimentation basins in construction areas to reduce erosion, surface scouring, and discharge to water bodies.
- Once work is completed, revegetate construction areas with native plants in a timely period.
- Monitor for visitor impacts, particularly in sensitive or highly visited areas.
- Implement a spill prevention and pollution control program for hazardous materials, including fuels. Standard measures could include hazardous materials storage and handling procedures; spill containment, cleanup, and reporting procedures; and limitation of refueling and other activities to upland or non-sensitive sites.

### **Wetlands**

- Delineate wetlands before construction work and apply protection measures during construction. Delineation should be done by qualified NPS staff or certified wetland specialists and boundaries clearly marked.
- Perform construction activities using best practices to prevent damage caused by equipment, erosion, or siltation.
- Design new trails to minimize impacts on wetland vegetation.

### **Wildlife**

- Employ techniques to reduce impacts on wildlife, including visitor education programs, restrictions on visitor activities, and national historic site ranger patrols.
- Implement site specific natural resource protection plan for land disturbing activities. Standard measures could include construction scheduling outside sensitive periods such as nesting, biological monitoring, erosion and sediment control, the use of fencing or other means to protect sensitive resources adjacent to construction, the removal of all food-related items or rubbish, topsoil salvage, and revegetation. This could include specific construction monitoring by resource specialists as well as treatment and reporting procedures.
- Schedule activities in or near water sources to minimize disturbance to wildlife.
- To reduce the exposure of wildlife to human caused noise, possible mitigation measures might include signage for visitors to reduce

noise, avoiding major construction activities during biologically sensitive times of year, and working with partners (e.g. Federal Aviation Administration, Dare County Regional Airport) to reduce overflights in these areas.

### **Visitor Safety and Experiences**

While recognizing there are limitations on its capability to fully eliminate all hazards, Fort Raleigh National Historic Site and its contractors, and cooperators seek to provide a safe and healthful environment for visitors and employees. The national historic site works cooperatively with other federal, tribal, state, and local agencies, organizations, and individuals to carry out this responsibility. Fort Raleigh strives to identify and prevent injuries from recognizable threats to the safety and health of persons, and to the protection of property, by applying nationally accepted codes, standards, engineering principles, and the guidance contained in Director's Orders 50B (Occupational Safety and Health Program), 50C (Park Signs), 58 (Structural Fire Management), and 83 (Public Health) and their associated reference manuals. Mitigation actions specific to visitor safety and experience would include the following:

- Implement a traffic control plan during construction, as warranted. Include strategies to maintain safe and efficient traffic flow.
- Implement measures to reduce adverse effects of construction on visitor safety and experience.
- Incorporate safety into interpretation and education programs.
- Use interpretation and education programs to promote a sense of stewardship among national historic site visitors.

- Implement a strategy to provide the maximum level of accessibility for people with impaired mobility.

## NEEDED FUTURE STUDIES AND PLANS

Other more detailed studies and plans would be needed for implementation of specific actions once this general management plan is completed. These more detailed implementation plans would describe how the NPS would achieve desired conditions outlined in the general management plan. As required, additional environmental compliance would be conducted under current and/or future laws. Opportunities for public input would be provided during development of these implementation plans. The types of plans and studies would include, but would not be limited to, the following:

- Protection, research, and management of the national historic site's natural and cultural resources and processes are essential for achieving the national historic site's purpose and mission. A parkwide resource stewardship strategy would address these issues and other scientific and legal requirements to promote understanding and management of national historic site resources. This planning document would provide details on the strategies and actions necessary to address the historic site's most important resource management problems and research needs. Integral to this strategy would be the need to research the status of sensitive cultural resources and species. The resource stewardship strategy would integrate the best available science and would prescribe activities, including inventories, research, monitoring, restoration, rehabilitation, mitigation, protection, education, and management of resource uses.

Cultural resource studies and actions to be addressed include:

- Identifying specific components of the national historic site's resources to target for management during the next 15 to 20 years.
- Establishing methods to evaluate the status of these components, determine measurable targets for resources, and evaluate whether the resources are currently meeting targets.
- Review of the resource stewardship strategy documents by subject matter experts before finalization.
- Integrate the resource stewardship strategy with the shoreline erosion management plan.
- An ethnographic overview and assessment would be completed to formally identify and document the ethnographic resources associated with the national historic site.
- A fire management plan would be developed to guide the full range of fire management related activities in the national historic site. Required under Director's Order 18, every park area with burnable vegetation must have a fire management plan approved by the Superintendent. Directors Order 12 requires an annual review and update of the plan as well as a major review and revision every five years.
- A shoreline erosion management plan and appropriate analysis under the National Environmental Policy Act would be completed that evaluates effects of shoreline erosion on national historic site resources. This plan and environmental



impact assessment would develop alternatives for protecting the shoreline of the national historic site, including lands and facilities, from shoreline erosion and provide opportunities for public involvement. This plan would consider the following reports:

- “Shoreline Erosion at Culturally Significant Sites, Fort Raleigh National Historic Site”, February 2011, Report for 2010 Technical Assistance Report #119 (TAR).
- “Shoreline Changes at Fort Raleigh National Historic Site” report, September 2002 (PMIS #41081).
- The 1992 land protection plan would be updated to reflect current national historic site conditions.
- An update on the future projections for the Dare County Regional Airport (e.g., frequency of flights, etc.) is needed to provide baseline sound data and to mitigate potential future impacts of an expansion of Dare County Regional Airport.

## **THE ENVIRONMENTALLY PREFERABLE ALTERNATIVE**

According to the Council on Environmental Quality, regulations implementing the National Environmental Policy Act, and NPS guidelines (Director’s Order 12), an environmentally preferable alternative must be identified in environmental documents. The environmentally preferable alternative would cause the least damage to the biological and physical environment, and would best protect, preserve, and enhance historical, cultural, and natural resources. Section 101(b) of the National Environmental Policy Act identifies six criteria to help determine the

environmentally preferable alternative. Alternative C was determined to be the environmentally preferable alternative due to its ability to best meet Section 101(b) criteria as described below.

### *1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.*

Fort Raleigh National Historic Site is a unit of the national park system and as the trustee the NPS would continue to fulfill its obligation to protect the national historic site for future generations. Alternative A would provide less direction on important issues needed to successfully manage the historic site; consequently it was ranked lower than the action alternatives. Alternative B would provide additional opportunities for education and interpretation but would direct some of this responsibility outside of the NPS.

The planned increase in archeological research and visitor interaction opportunities in Alternative C would reflect commitments to connect science to the public and promote interaction among science, management, and community practice. These measures provide for greater education, communication, and outreach efforts, with the objective of increasing national historic site stewardship with current and future generations. Due to these factors, Alternative C would best fulfill this criterion.

### *2. Assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings.*

Each of the action alternatives would ensure safe, healthful, productive, and culturally pleasing surroundings for all Americans. Alternatives B and C would expand visitor access

to cultural interpretation through additional facilities and events or increased partnerships and research efforts. Therefore there are no major discernable differences between Alternatives B and C with regard to this criterion.

*3. Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences.*

Alternative C would attain the widest range of beneficial uses of the environment, without degradation, risk to health or safety, or other undesirable and unintended consequences. Of all the alternatives, Alternative C would do the most to minimize inadvertent or unintentional damage to national historic site resources by limiting construction of new facilities, providing more land within the Resource Preservation Zone, and reducing heavily landscape areas while maintaining the current Waterside Theatre campus size. Alternative C would provide opportunities for visitors to interact with archeologists, historians, and researchers on-site in addition to partner programs offered off-site. This would help reduce the potential for inadvertent or unintentional damage to resources, as compared to Alternatives A and B. The balance between both on-site and off-site education and interpretation would allow opportunities for recreational use of the national historic site's resources while still ensuring their future protection. Alternative C would best meet the objective of this criterion.

*4. Preserve important historic, cultural, and natural aspects of our national heritage, and maintain,*

*wherever possible, an environment that supports diversity and a variety of individual choices.*

Each of the alternatives preserves important historical, cultural, and natural aspects of the nation's heritage and maintains, wherever possible, an environment that supports diversity and a variety of choice. In terms of access to areas that may allow greater choice in the fulfillment of national historic site experiences, Alternatives B and C provide more opportunities. However, Alternative C would provide more opportunities for data collection and research at the national historic site. The additional information and understanding of the historic resources could lead to greater protection of these resources. As a result of this, Alternative C meets this objective to a greater degree than Alternatives A and B.

*5. Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities.*

Alternative B provides greater opportunity for commercial services to operate in the national historic site in the future. Food and beverages would be offered within the national historic site under this alternative, in addition to increased interpretation and theatrical education. Additionally, the potential for a new partner-funded facility would provide opportunities for sharing of resources and would offer expanded services to the public in the form of theatrical presentations and classes. Therefore Alternative B would best meet the objective of this criterion.

*6. Enhance the quality of renewable resources and approach the*

*maximum attainable recycling of depletable resources.*

Alternative C proposes to reduce the amount of maintained landscape in the national historic site and allow more of a natural landscape to be restored, whereas Alternatives A and B would maintain the national historic site much along existing conditions. Alternative C has a greater potential for consumption of depletable resources through a greater emphasis on archeological excavation. This potential will be mitigated by defining explicit research objectives prior to initiating any excavations that could destroy part of the archeological record. There is relatively little discernable difference between the alternatives for this criterion.

Some specific actions under Alternative C may achieve similar, or in some cases greater levels of protection for cultural and natural resources than under Alternatives A or B. Based on the opportunity for additional research and potential resource and visitor impacts to natural and cultural resources, Alternative C best meets the six criteria.

## THE NPS PREFERRED ALTERNATIVE

Development of a preferred alternative involved evaluating the alternatives with the use of a rational analysis process called "Choosing by Advantages." Choosing by Advantages is an evaluation tool based on determining the advantages of different alternatives for a variety of factors or goals. Through this process, the planning team identified and compared the relative benefits or advantages of each alternative according to the following four factors:

- Protect Cultural and Natural Resources
  - Expanded Research and Resource Knowledge

- Zoning – Extent of Visitor Services Zone and Waterside Theatre Zone
- Improve Visitor Experience, Awareness, and Understanding through Better Service and Educational Opportunities
  - Interpretive Opportunities
  - Availability of Facilities for Visitor Services
- Improve Effectiveness, Reliability, and Sustainability of Park Operations
  - Facility Improvements
  - Partnership Responsibilities
- Provides Other Advantages to Fort Raleigh National Historic Site, Partners, and/or Stakeholders
  - Partnerships, including Access to Theatrical Events
  - Public Perceptions, Community Relations, Economic Impacts

**Choosing by Advantages** is a system of concepts and methods to structure decision-making. Choosing by Advantages quantifies the relative importance of non-monetary advantages or benefits for a set of alternatives and allows subsequent benefit and cost consideration during decision-making. (NPS Director's Order 90)

Cost estimates for each alternative were considered in this process. The team discussed each factor and reached a consensus regarding how the factors should be characterized for each of the three alternatives. The advantages are scored in relation to their satisfaction of each factor and summed to help identify the NPS Preferred Alternative. This process is a systematic way to perform a complicated task, provides a way to engage participants,

and assists in the consensus building process. It also leads to documented and consistent evaluation.

Adjustments were made to the NPS Preferred Alternative to incorporate features that would increase that alternative's advantages. The NPS Preferred Alternative, identified as Alternative C (described earlier in this section), reflects the results of the Choosing by Advantages workshop.

## **ACTIONS CONSIDERED BUT DISMISSED**

Scoping, including public involvement conducted in association with preparing this general management plan, is described in "Chapter 5: Consultation and Coordination." Some of the alternatives or actions suggested during scoping, both by the public and the NPS interdisciplinary team, were not incorporated into this general management plan. Consistent with Section 1502.14 of the Council on Environmental Quality (1978) regulations for implementing the National Environmental Policy Act, this section identifies those alternatives or actions and briefly discusses the reasons why each was eliminated.

As described in chapter 5, the identification of issues and development of alternatives provided opportunities for public and agency input through responses to newsletters, at meetings, and via the Internet. However, some actions or alternatives received through these avenues were eliminated from further consideration.

This section briefly describes each of these suggestions and the basis for excluding each from this general management plan.

- During early scoping and development of alternatives, there was a proposal to attempt to acquire the abandoned Highway 64 Welcome Center from the state and convert it to a Freedmen's Colony Museum.

Contacts with the North Carolina Department of Administration resulted in the conclusion that this was not an achievable goal. The site is now proposed for both underground and tower-based water storage tanks, thereby making this proposal technically infeasible. This consideration was therefore dropped from further analysis.

- While developing the alternatives, the NPS planning team proposed recommending acquisition of the property on the southwest side of Highway 64 that was included in the 1990 boundary expansion under PL 101-603. This property has since been subdivided and established as the Croatan Woods subdivision. As a result, this proposal is technically infeasible and was therefore dismissed from further consideration.
- Water-based access to Fort Raleigh National Historic Site was considered via a dock on the north shore near the Waterside Theatre, but the water in the sound is too shallow for large tour boats or passenger ferries to navigate safely. These site conditions precluded this proposal from further consideration due to economic infeasibility and too great of an environmental impact.
- Early in the planning process, the planning team proposed to combine the Outer Banks Group Headquarters with a planned U.S. Fish and Wildlife Service administrative/visitor center on the southwest side of Highway 64. Initial contacts indicated some receptivity to this idea. However, before the concept was further developed, a variety of problems, including mold, mildew, and leaks in both the headquarters building and the



Lindsay Warren Visitor Center, were discovered. These conditions resulted in a project to completely remove and renovate the interior of the headquarters and visitor center, and partially renovate the interior of *The Lost Colony* administration building. All repairs and renovations have been made and the U.S. Fish and Wildlife Service had begun construction on its facility as well. This proposal was therefore dismissed from further consideration because it was technically infeasible.

- During the planning stages of the general management plan, a third action alternative was developed for consideration. This alternative focused on providing self-guided information to visitors instead of NPS led tours or interpretive programs. The national historic site would develop and rely on partnerships to expand interpretation both on- and off-site. No changes would have been made to the visitor center except for upgrades to existing exhibits. During the Choosing by Advantages workshop previously discussed, the interdisciplinary team determined that this alternative provided less advantage than the No-action

Alternative because of a lower quality visitor experience and uncertainty regarding the reliance on partners this alternative defined for providing visitor services. Due to economic uncertainties involved with this alternative, the possibility that the community would perceive the NPS as falling short of its responsibilities, reliance on self-guided visitor experiences and other factors, the NPS planning team dropped this alternative from further analysis. This alternative would not have met planning objectives or resolved NPS and visitor needs.

## ALTERNATIVE COMPARISON TABLES

The important differences among the alternatives are summarized in Table 4. Detailed descriptions of the features of each alternative were provided earlier in this section. Table 5 provides a comparison of the full-time equivalent staff proposed under each alternative and the estimated costs of each alternative are presented in Table 6.

A summary of environmental consequences is provided in Table 7. The summary shows each alternative's potential effects by impact topic. Detailed descriptions of the context, intensity, and duration of impacts--called thresholds--are provided in chapter 4.

Table 4: Summary Comparison of the Alternatives

Alternative Element		Alternative A No-action / Continue Current Management		Alternative B Enhanced Visitor Experience		Alternative C Enhanced Focus on Research (NPS Preferred Alternative)		Discussion of Differences	
Concept	Continues current management practices. No new facilities would be proposed under Alternative A.	Fort Raleigh National Historic Site would greatly expand the scope of its partnerships through greater partner involvement in interpretation of the Roanoke Voyages. Use of a revised cooperative agreement or other appropriate contract or mechanism would permit the partner to take on this responsibility. NPS staff would interpret other national historic site stories. By coordinating and expanding efforts among The Elizabethan Gardens, Roanoke Island Historical Association, and the NPS, visitors would spend more time in the national historic site. Under Alternative B, the national historic site would:		<ul style="list-style-type: none"><li>• Emphasize a greater reliance (than under current conditions) on partnerships, cooperative agreements, and on-site visitor facilities and services to accomplish interpretation of the Roanoke Voyages. NPS interpretive focus would be on the national historic site's other stories (Carolina Algonquians, Civil War, Freedmen's Colony, Fessenden experiments).</li><li>• Evaluate the feasibility of an expanded Waterside Theatre campus (new partner-funded visitor center/indoor theater could be built near the current NPS visitor center) for interpretation and theatrical education.</li></ul>		Fort Raleigh National Historic Site would implement Section 3 of PL 101-603, November 16, 1990, by increasing emphasis on research related to parkwide interpretive themes and legislative mandates. By coordinating and expanding efforts with research organizations and agencies, national historic site visitors would benefit by gaining increased knowledge of the national historic site's multiple themes, both cultural and natural. Other general features of the alternative:		Alternative B expands the role of partnerships involvement in interpretation of Roanoke Voyages; NPS staff would interpret other national historic site stories.	
Visitor Experience	The NPS would continue to centralize orientation to the historic site at the Lindsay Warren Visitor Center. Interpretation of the Roanoke Voyages and modestly expanded interpretive themes would continue to occur through films and exhibits at the Lindsay Warren Visitor Center, the Freedmen's Colony and Underground Railroad exhibits, through wayside exhibits, and other methods.	Under Alternative B, the national historic site would:		<ul style="list-style-type: none"><li>• Expand personal interpretive service program efforts.</li><li>• Inspire visitors to spend more time on-site through expanded interpretive efforts, facilities, partnering, marketing, and availability of food service (drinks and snacks) at the national historic site.</li><li>• Evaluate the feasibility of an expanded campus (new Roanoke Island Historical Association [partner]-funded visitor center/indoor theater could be built near the current NPS visitor center) for interpretation of the Roanoke Voyages and <i>The Lost Colony</i> outdoor symphonic drama.</li><li>• Provide more emphasis on theatrical skills classes through enhanced partnerships and partner-funded facilities.</li></ul>		Under Alternative C, the national historic site would:		Alternative C expands the role of research in the national historic site to allow visitors to gain increased knowledge of the national historic site's multiple themes, both cultural and natural.	
		Under Alternative C, the national historic site would:		<ul style="list-style-type: none"><li>• Continue to centralize orientation and exposure to the national historic site's expanded interpretive mission in the Lindsay Warren Visitor Center.</li><li>• Provide opportunities for visitors to interact in positive and meaningful ways with archeologists, historians, and researchers on-site.</li><li>• Encourage visitors to experience outlying resources of the site independently through more formal interpretive trails with themed areas.</li><li>• Enhance the visitor experience by participating in partner programs that offer interpretive programs at other off-site locations on Roanoke Island.</li></ul>		Alternative B encourages more on-site experiences through partnerships with Roanoke Island Historical Association and The Elizabethan Gardens and through additional expanded interpretive efforts, marketing, and facilities. Roanoke Island Historical Association would take on interpretive responsibilities in this alternative.		Alternative C adds the element of enhanced historical, archeological, and scientific research to support the interpretive programs, both cultural and natural, at the national historic site.	

Table 4: Summary Comparison of the Alternatives

Alternative Element	Alternative A No-action / Continue Current Management		Alternative B Enhanced Visitor Experience	Alternative C Enhanced Focus on Research (NPS Preferred Alternative)		Discussion of Differences
<b>Facilities and Associated Visitor Activities</b>	No change from current conditions. No new facilities would be proposed.		Under Alternative B, the national historic site would: <ul style="list-style-type: none"><li>• Natural processes would take precedence; however, the NPS would take measures to protect sensitive resources such as the Dough Cemetery and Waterside Theatre.</li><li>• Establish a small outdoor seating area to provide interpretive programming near the reconstructed earthworks.</li><li>• A NPS partner would fund and conduct a feasibility study and assessment of a range of alternatives for the design and construction of a partner-operated visitor center annex. This annex would be in proximity to the existing Fort Raleigh National Historic Site visitor center and would provide additional program space, including, for example, exhibit space, restrooms, offices, storage, multipurpose rooms, and an indoor theater.</li><li>• Expanded parking at headquarters (8 spaces).</li></ul>	Under Alternative C, the national historic site would: <ul style="list-style-type: none"><li>• Continue to protect the Waterside Theatre and Dough Cemetery shorelines as described in Alternative B.</li><li>• Continue to centralize orientation and exposure to the national historic site’s expanded interpretive mission in the Lindsay Warren Visitor Center.</li><li>• Establish a small outdoor seating area to provide interpretive programming near the reconstructed earthworks as described in Alternative B.</li><li>• Expanded parking area at headquarters (8 spaces).</li></ul>		Action alternatives would be similar. Alternative C would continue to centralize visitor activities at the Lindsay Warren Visitor Center.
<b>Trails</b>	The national historic site would continue to maintain and operate the current trail system.		Under Alternative B, the national historic site would: <ul style="list-style-type: none"><li>• Extend the Roanoke Island multi-use trail into the national historic site all the way to The Elizabethan Gardens, visitor center, and Waterside Theatre parking.</li><li>• Establish a parallel trail to the Freedom Trail or establish a new trail along the entrance road that would complete the loop between the Freedom Trail and Highway 64.</li><li>• Improve interpretive signage; clarify circulation patterns.</li></ul>	Under Alternative C, the national historic site would: <ul style="list-style-type: none"><li>• Determine design, route, and other features of an improved loop trail in subsequent implementation planning and analysis.</li><li>• Establish a parallel trail to the Freedom Trail or establish a new trail along the entrance road that would complete the loop between the Freedom Trail and Highway 64.</li><li>• Improve interpretive signage; clarify circulation patterns.</li></ul>		Alternative B provides for an extension of the multi-use trail into the national historic site.  Action alternatives seek to improve trail system by redesigning and improving signage to clarify confusing circulation patterns and by improving interpretive signage.
<b>Lindsay Warren Visitor Center</b>	Under an approved and funded project, Fort Raleigh National Historic Site would design and install new exhibits that expand the scope of the interpretive themes to include not only the Roanoke Voyages but also exhibits on the Carolina Algonquians, the Freedmen’s Colony, the Civil War, and Fessenden for the recently repaired and renovated Lindsay Warren Visitor Center. The modern exhibits would be interactive and would meet current NPS and Americans with Disabilities Act standards for quality, scope, content, and design. The exhibits would also be designed in accordance with the recommendations of the <i>Fort Raleigh National Historic Site Long-Range Interpretive Plan</i> (NPS 2010a).		Under Alternative B the national historic site would: <ul style="list-style-type: none"><li>• Continue to maintain the Lindsay Warren Visitor Center; however, the interpretive focus would change.</li><li>• The Lindsay Warren Visitor Center would interpret the Carolina Algonquians, Freedmen’s Colony, Civil War, and Fessenden radio experiments.</li><li>• Interpretation of the Roanoke Voyages themes would be done by a partner in a partner-constructed and operated annex facility. The NPS partner would be required to fund and conduct a feasibility study for this new facility.</li></ul>	Under Alternative C, the national historic site would: <ul style="list-style-type: none"><li>• Maintain the Lindsay Warren Visitor Center as the primary orientation and interpretation center of the national historic site.</li></ul>		All alternatives take into account the recently completed rehabilitation and repair of the Lindsay Warren Visitor Center at Fort Raleigh National Historic Site.  All alternatives would upgrade or replace exhibits and films to accommodate additional interpretive themes. The primary difference between Alternatives B and C is that Alternative B includes the potential for a partner-funded visitor center annex in which the primary interpretation of the Roanoke voyages would occur while under Alternative C, all exhibits and interpretive program themes would be housed under the existing Lindsay Warren Visitor Center.
<b>Expanded Interpretive Mission</b>	The NPS would continue to centralize orientation to the historic site at the Lindsay Warren Visitor Center. Interpretation of the Roanoke Voyages and modestly expanded interpretive themes would continue to occur through films and exhibits at the Lindsay Warren Visitor Center, the Freedmen’s Colony and Underground Railroad exhibits, through wayside exhibits, and other methods.		Under Alternative B, the national historic site would: <ul style="list-style-type: none"><li>• Rely more upon Roanoke Island Historical Association to tell the story of the Roanoke Voyages. The NPS would interpret other national historic site stories, including Carolina Algonquians, Freedmen’s Colony, Civil War, and Fessenden radio experiments.</li><li>• Provide self-guided interpretive opportunities using existing trails.</li><li>• Explore the use of the NPS Arts-in-Parks program.</li></ul>	Under Alternative C, the national historic site would: <ul style="list-style-type: none"><li>• Expand and rely on partnerships with other organizations and agencies (such as the First Colony Foundation, Roanoke Island Festival Park, North Carolina Maritime Museum) to tell the various stories.</li><li>• Use results of expanded research to enhance interpretive programs and media on all national historic site interpretive themes, both natural and cultural.</li><li>• Implement NPS researcher-in-the park program.</li><li>• Establish on-going archeological excavations with partner organizations.</li></ul>		Alternative B relies more on self-guided information and partnerships to implement the national historic site’s expanded interpretive mission.  Alternative C relies more on partnerships and expanded research on site to tell various national historic site stories.



Table 4: Summary Comparison of the Alternatives

Alternative Element		Alternative A No-action / Continue Current Management	Alternative B Enhanced Visitor Experience	Alternative C Enhanced Focus on Research (NPS Preferred Alternative)	Discussion of Differences
Partnerships		The national historic site would maintain existing partnerships with the Roanoke Island Historical Association and the First Colony Foundation. Expansion of existing partnerships or development of new partnerships would not likely occur.	Under Alternative B, the national historic site would: <ul style="list-style-type: none"><li>• Maintain and enhance existing partnerships and expand partnerships for interpretive and theatrical education purposes.</li></ul>	Under Alternative C, the national historic site would: <ul style="list-style-type: none"><li>• Implement recommendations of <i>Fort Raleigh National Historic Site Long-Range Interpretive Plan</i> (NPS 2010a)</li><li>• Expand partnerships with other historical and tourism-oriented organizations on Roanoke Island.</li><li>• Continue and enhance partnership with the First Colony Foundation, and others, for interpretive, archival, and research purposes.</li><li>• Develop new partnerships with research organizations, such as the University of North Carolina Coastal Studies Institute, that could provide research efforts on other national historic site cultural and natural topics (beyond Roanoke Voyages).</li></ul>	Alternative B would maintain and expand partnerships for interpretive and theatrical education purposes. Alternative C would expand partnerships with local historical and tourism-oriented organizations on Roanoke Island as well as develop new partnerships with research organizations.
Resource Conditions – (Includes Archeological and Museum Collections)		Under Alternative A, the national historic site would: <ul style="list-style-type: none"><li>• Maintain existing landscaped areas or convert them to low maintenance plantings.</li><li>• Allow natural processes such as shoreline erosion to prevail in most areas, including the pond area. Excavate archeological resources that are threatened.</li><li>• Continue to protect the Waterside Theatre area and Dough Cemetery shorelines pending results of future shoreline studies and environmental analysis.</li><li>• Implement the national historic site’s fire management plan.</li><li>• Continue current resource collections management efforts.</li><li>• Continue current exotic plant management practices.</li><li>• Continue to conduct archeological surveys in compliance with Section 110 of the National Historic Preservation Act and the research requirement of Public Law 101-603. The NPS would continue to coordinate with the First Colony Foundation for on-going annual surveying.</li><li>• Continue natural resource monitoring activities.</li></ul>	Under Alternative B, the national historic site would: <ul style="list-style-type: none"><li>• Establish vegetative screening along the road to the Waterside Theatre in order to minimize or screen the view of automobile vehicles from visitors as they experience the nearby earthworks.</li><li>• Conduct one additional archeological investigation and data recovery between Pear Pad Road and the Heritage Point subdivision. This area has not been investigated to the extent that other areas of the national historic site have and it has the potential to yield information about island historical themes apart from the Roanoke voyages and the lost Colony. These themes include the Native American culture, the Antebellum period, the Civil War, the Freedmen’s Colony, and the Works Progress Administration camp. The NPS would continue to coordinate with the First Colony Foundation for on-going annual surveying.</li><li>• Evaluate the feasibility of an expanded “Waterside Theatre campus” to possibly include a new visitor center annex. The feasibility study would be partner(s) funded and would address compliance requirements (to include: archeological surveys, natural resource surveys, landscaping requirements, etc.).</li></ul>	Under Alternative C, the national historic site would: <ul style="list-style-type: none"><li>• Reduce heavily landscaped and maintained areas. The national historic site would restore these areas back to natural conditions or convert them to low maintenance plantings.</li><li>• Conduct additional annual archeological investigations and data recovery between the Elizabethan Gardens and the Dough Cemetery, between the Thomas Harriot trail and the Elizabethan Gardens; and at the Works Progress Administration camp. These areas have been investigated the least over the years and have the potential to yield information about island historical themes apart from the Roanoke voyages and the lost Colony. These themes include the Native American culture, the Antebellum period, the Civil War, the Freedmen’s Colony, and the Works Progress Administration camp. The NPS would continue to coordinate with the First Colony Foundation for on-going annual surveying.</li><li>• Partner with other organizations to increase investigations, treatment, and conservation of cultural resources.</li></ul>	All alternatives recommend further study, analysis, and planning to protect cultural and natural resources from shoreline erosion. Under Alternative C, an additional archeological survey would be conducted annually (funding permitting), whereas under Alternative B, one additional archeological survey would be conducted. Alternative C would provide research results and knowledge for protecting and preserving museum collections to a greater degree. This alternative enhances partnerships with research and archeological partners that may be able to provide treatments and conservation for museum collection objects that the national historic site would not have the capacity (funding or expertise) to do alone.
Response to Catastrophic Loss and Ongoing Shoreline Erosion		The NPS would continue current management practices. Natural processes would take precedence; however, resource management decisions due to shoreline erosion would be deferred to the shoreline erosion management plan and environmental assessment that is an element of all alternatives.	Under Alternative B, the national historic site would: <ul style="list-style-type: none"><li>• Develop and implement a plan for protecting the shoreline of the national historic site as described under Alternative A.</li><li>• The NPS would rebuild and protect existing facilities in place unless future extreme and/or successive catastrophic natural disasters warranted otherwise. However, resource management decisions due to shoreline erosion would be deferred to the shoreline erosion management plan and environmental assessment that is an element of all alternatives.</li></ul>	Under Alternative C, the national historic site would: <ul style="list-style-type: none"><li>• Develop and implement a plan for protecting the shoreline of the national historic site would be the same as described under Alternative A.</li><li>• The NPS would rebuild and protect existing facilities in place unless future extreme and/or successive catastrophic natural disasters warranted otherwise. However, resource management decisions due to shoreline erosion would be deferred to the shoreline erosion management plan and environmental assessment that is an element of all alternatives.</li></ul>	All alternatives recommend further study, analysis, and planning to protect cultural and natural resources from shoreline erosion (i.e. shoreline erosion management plan). Under Alternatives B and C, the NPS would build and protect existing facilities in place unless future extreme and/or successive catastrophic natural disasters warranted otherwise.
Staffing		The national historic site would maintain existing staffing levels (at 4.95 full-time equivalents) and would continue to share staff with Cape Hatteras National Seashore and Wright Brothers National Memorial.	Under Alternative B, staff levels would increase by 3.35 full-time equivalent staff positions.	Under Alternative C, staff levels would increase by 2.98 full-time equivalent staff positions, including a staff historian.	Alternative B would require more additional staff than Alternative C. Alternative C would require less additional staff than Alternative B but would require the addition of an NPS historian that is specific to Alternative C.



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Table 5: Comparison of Staffing Levels by Alternative <sup>1</sup> (Presented as Full-time Equivalents)

Position	Alternative A FTEs	Rationale	Alternative B FTEs	Rationale	Alternative C FTEs	Rationale
<b>Interpreter</b>	1	Current staff	1	Same as Alternative A.	1	Same as Alternative A.
<b>Interpretation Seasonal Employees</b>	0.7	Current staff	0.9	Same as Alternative A, plus 0.2 full-time employees— Expanded interpretive service program efforts. Inspire visitors to spend more time on site than currently.	0.7	Same as Alternative A.
<b>Interpretation Park Guide</b>	0		0.9	New position – Expanded interpretive service program efforts.	0.9	New position – Provide opportunities for visitors to interact with archeologists, historians, and researchers on site in meaningful ways. Enhanced interpretive programs due to expanded research efforts.
<b>Interpretation Supervisor</b>	0.5	Current staff	0.5	Same as Alternative A.	0.5	Same as Alternative A.
<b>Maintenance Supervisor</b>	0.25	Current staff	0.5	Alternative A, plus 0.25 full-time employees – More landscaped areas to maintain due to potential partner-funded facility. New trails (Roanoke Island multi-use trail in the national historic site plus parallel trail to Freedom Trail).	0.333	Alternative A, plus 0.083 full-time employees – One new trail parallel to Freedom Trail. Establish small outdoor seating area near reconstructed earthworks.
<b>WG-4 Maintenance Worker</b>	0.5	Current staff	1.5	Same as Alternative A, plus new position – More landscaped areas to maintain due to potential partner-funded facility. New trails (Roanoke Island multi-use trail in the national historic site plus parallel trail to Freedom Trail).	0.5	Same as Alternative A.
<b>WG-5 Maintenance Worker</b>	1	Current staff	1	Same as Alternative A.	1	Same as Alternative A.

**Table 5: Comparison of Staffing Levels by Alternative <sup>1</sup> (Presented as Full-time Equivalents)**

Position	Alternative A FTEs	Rationale	Alternative B FTEs	Rationale	Alternative C FTEs	Rationale
<b>Law Enforcement</b>	1	Current staff	2	Same as Alternative A, plus 1 full-time employee – Extension of Roanoke Island multi-use trail into the national historic site potentially results in more visitor conflicts. Also additional trails and more visitors because of more interpretive programming could increase density of visitors at peak times and therefore more potential for incidents.	2	Same as Alternative A, plus 1 full-time employee – More onsite archeological research plus increased opportunities for visitors to interact with archeologists, historians, and other researchers on sites create potential for more incidents.
<b>Historian</b>	0		0		1	More onsite research creates need for a person to initiate, schedule, and manage these activities.

<sup>1</sup> New staff positions would be shared with Cape Hatteras National Seashore and Wright Brothers National Memorial.

**Table 6. Summary Comparison of the Costs of the Alternatives**

	<b>Alternative A</b>	<b>Alternative B</b>	<b>Alternative C (NPS Preferred Alternative)</b>
Annual Operating Costs <sup>1</sup>	\$871,900	\$1,312,300	\$1,222,500
Other Annual Costs <sup>2</sup>			\$30,000
Staffing (FTE) <sup>3</sup>	4.95	8.30	7.93
Total One-Time Costs <sup>4</sup> :			
Facility Costs	\$176,500	\$931,300	\$641,100
Non-Facility Costs		\$30,000	

<sup>1</sup>Annual operating costs are the total costs per year for maintenance and operations associated with each alternative, including utilities, supplies, staff salaries and benefits, leasing, and other materials. Cost and staffing estimates assume the alternative is fully implemented as described in the narrative. The national historic site shares staff with Cape Hatteras National Seashore and the Wright Brothers National Memorial. Because the staff split their time between the parks, and due to some seasonal employment, this value can be a fraction of a full-time equivalent employee.

<sup>2</sup>Alternative C includes an additional annual archeological survey in response to the legislative mandate of Public Law 101-603 to undertake research on the history and archeology of the national historic site. Over time some of this research may be funded by various partner organizations.

<sup>3</sup>The total number of staff (FTE = Full Time Equivalent) is the number of person-years of staff required to maintain the assets of the national historic site at a good level, provide acceptable visitor services, protect resources, and generally support the national historic site's operations. The number of staff indicates NPS-funded staff only, not volunteer positions or positions funded by partners. Salaries and benefits are included in the annual operating costs. For Alternative B there would be 3.35 additional FTE staff consisting of a park guide and a seasonal interpreter for expanded interpretation programs, additional maintenance staff due to more landscaped areas associated with a potential partner funded facility, and a law enforcement ranger related to expanded trail opportunities. For Alternative C there would be 2.98 additional FTE staff consisting of an interpretive park guide to assist visitors in interacting with on-site archeologists, historians and other researchers in meaningful ways, a law enforcement ranger related to more onsite archeological research, and a cultural historian to initiate, schedule, and manage onsite research activities.

<sup>4</sup>One-time facility costs for both alternatives include expansion of the headquarters parking area by 8 spaces of which 2 would be accessible spaces, new exhibits in the Visitor Center vicinity, modification of the trail system north of Highway 64, and demolition of the Prince and Beehive houses due to extreme shoreline erosion.

One-time non-facility costs for Alternative B would include archeological investigations between Pear Pad Road and the Heritage Point community and a feasibility study and assessment of a range of alternatives for the design and construction of a partner-funded and operated visitor center annex. One-time non-facility costs for Alternative C would include annual archeological investigations and artifact recovery covering most park lands that have not been previously investigated and the feasibility study listed in Alternative B.

The following applies to costs presented throughout this GMP:

- The costs are presented as estimates and are not appropriate for budgeting purposes.
- The costs presented have been developed using NPS and industry standards to the extent available.
- Specific costs will be determined at a later date, considering the design of facilities, identification of detailed resource protection needs and changing visitor expectations.
- Actual costs to the NPS will vary depending on if and when the actions are implemented, and on contributions by partners and volunteers.
- Approval of the general management plan does not guarantee that funding or staffing for proposed actions will be available.
- The implementation of the approved plan, no matter which alternative, will depend on future NPS funding levels and servicewide priorities, and on partnership funds, time, and effort.
- The NPS will seek grants and other sources of funding to address the need for archeological surveying.

**Table 7. Summary of Impacts of the Alternatives**

Impact Category	Alternative A	Alternative B	Alternative C (NPS Preferred Alternative)
<b>Natural Resources</b>			
Floodplains	Long-term, negligible, adverse <i>Cumulative:</i> Long- and short-term, minor, adverse	Long- and short-term, negligible, adverse <i>Cumulative:</i> Long- and short-term, minor, adverse	Long- and short-term, negligible, adverse <i>Cumulative:</i> Long- and short-term, minor, adverse
Wetlands	Long-term, beneficial <i>Cumulative:</i> Long- and short-term, negligible to minor, adverse	Long- and short-term, beneficial <i>Cumulative:</i> Long- and short-term, negligible, adverse	Long- and short-term, beneficial <i>Cumulative:</i> Long- and short-term, negligible, adverse
Species of Concern	Long- and short-term, beneficial (federally and state listed) <i>Cumulative:</i> Long-term, minor, adverse	Long- and short-term, beneficial (federally and state listed) <i>Cumulative:</i> Long- and short-term, minor, adverse	Long- and short-term, beneficial (federally and state listed) <i>Cumulative:</i> Long- and short-term, minor, adverse
Vegetation	Long-term, beneficial and long- and short-term, negligible to minor, adverse <i>Cumulative:</i> Long-term, beneficial	Long- and short-term, beneficial <i>Cumulative:</i> Long- and short-term, beneficial	Long- and short-term, beneficial <i>Cumulative:</i> Long- and short-term, beneficial
<b>Cultural Resources</b>			
Archeological Resources	Permanent, negligible to minor, adverse and long- and short-term beneficial <i>Cumulative:</i> Permanent, minor, adverse and long- and short-term beneficial <i>Section 106:</i> Not applicable	Permanent, negligible to minor, adverse and long- and short-term beneficial <i>Cumulative:</i> Permanent, minor, adverse and long- and short-term beneficial <i>Section 106:</i> No adverse effect	Permanent, negligible to minor, adverse and long-term beneficial <i>Cumulative:</i> Permanent, minor, adverse and long-term beneficial <i>Section 106:</i> No adverse effect
Ethnographic Resources	Long-term, beneficial <i>Cumulative:</i> Long-term, minor, adverse and long-term, beneficial <i>Section 106:</i> Not applicable	Long-term, beneficial <i>Cumulative:</i> Long-term, minor, adverse and long-term, beneficial <i>Section 106:</i> No adverse effect	Long-term, beneficial <i>Cumulative:</i> Long-term, minor, adverse and long-term, beneficial <i>Section 106:</i> No adverse effect
Cultural Landscape	Long-term, beneficial <i>Cumulative:</i> Long-term, minor, adverse <i>Section 106:</i> Not applicable	Long-term, beneficial <i>Cumulative:</i> Long-term, minor, adverse <i>Section 106:</i> No adverse effect	Long-term, beneficial <i>Cumulative:</i> Long-term, minor, adverse <i>Section 106:</i> No adverse effect
Museum Collections	Long-term, beneficial <i>Cumulative:</i> None	Long-term, beneficial <i>Cumulative:</i> None	Long-term, beneficial <i>Cumulative:</i> None



**Table 7. Summary of Impacts of the Alternatives (Continued)**

<b>Impact Category</b>	<b>Alternative A</b>	<b>Alternative B</b>	<b>Alternative C (NPS Preferred Alternative)</b>
Historic Structures	Permanent, negligible, adverse and long-term, beneficial <i>Cumulative:</i> None <i>Section 106:</i> Not applicable	Permanent, negligible, adverse and long-term, beneficial <i>Cumulative:</i> None <i>Section 106:</i> No adverse effect	Permanent, negligible, adverse and long-term, beneficial <i>Cumulative:</i> None <i>Section 106:</i> No adverse effect
<b>Visitor Use and Experience</b>			
Visitor Use and Experience	Long-term, minor to moderate, adverse <i>Cumulative:</i> Long- and short-term, minor, adverse	Long-term, beneficial <i>Cumulative:</i> Long-term, beneficial	Long- and short-term, beneficial <i>Cumulative:</i> Long-term, beneficial
<b>Park Operations and Facilities</b>			
Park Operations and Facilities	Long- and short-term, moderate, adverse <i>Cumulative:</i> Long- and short-term, moderate, adverse	Long- and short-term, beneficial <i>Cumulative:</i> Long- and short-term, beneficial	Long- and short-term, beneficial <i>Cumulative:</i> Long- and short-term, beneficial

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