

ACTIONS COMMON TO ALL ALTERNATIVES

U.S. Highway 80 Response

1
2 The National Park Service will continue to
3 participate in the planning and
4 environmental analysis for this proposed
5 project with the goal of minimizing and
6 mitigating any impacts that would result.

Savannah Harbor Response

7 The National Park Service will continue to
8 participate in the planning and
9 environmental analysis for this proposed
10 project with the goal of minimizing and
11 mitigating any impacts that would result,
12 especially impacts on the northern shoreline
13 of Cockspur Island and the impacts on the
14 foundation of the Cockspur Island
15 Lighthouse.

Visitor Center Annex

16 Fort Pulaski proposes to construct a visitor
17 center annex designed for park visitors,
18 school groups and staff. This structure would
19 be designed to be technologically current and
20 environmentally friendly and sustainable. In
21 addition to having telecommunications
22 network capabilities, it would provide
23 connections for computers, technical, and
24 audio/visual equipment. This, in addition to
25 the space itself, would make the building
26 ideal for both educational and interpretive
27 programs, lectures, public presentations, staff
28 meetings, staff training, and video
29 conferencing. The existing visitor center is
30 inadequate in size for the current annual park
31 visitation, which has increased by about 60
32 percent since it was built and inadequate for
33 the types of presentations, exhibits, and
34 programs that today's visitors expect.

35 The specific dimensions, building footprint,
36 and other design parameters will be
37 determined in a future planning project. The
38 location will be in close proximity to the
39 existing visitor center to facilitate a complete

40 experience including touring the fort,
41 enjoying programs and demonstrations in the
42 fort, and viewing exhibits and
43 educational/interpretive programs in the
44 expanded visitor center, a short walk from
45 the fort.

ALTERNATIVE A: THE NO-ACTION ALTERNATIVE

Concept

46 The primary purpose of the no-action
47 alternative, required by the National
48 Environmental Policy Act is to serve as a
49 baseline for comparing the effects of the
50 action alternatives to the effects of the status
51 quo. The no-action alternative is the
52 continuation of current management actions
53 and direction into the future, i.e. continuing
54 with the present course of action until that
55 action is changed. "No action" does not mean
56 that the monument does nothing. Rather, the
57 no-action alternative presents how the
58 monument would continue to manage
59 natural resources, cultural resources, and
60 visitor use and experience if a new general
61 management plan was not approved and
62 implemented.

63 The no-action alternative is a viable course of
64 action and must be presented as an objective
65 and realistic representation of continuing the
66 current monument management direction;
67 otherwise, it will not be an accurate baseline
68 against which to compare action alternatives
69 and their potential impacts.

70 The monument's enabling legislation and
71 NPS management policies would provide
72 guidance for all of the alternatives. The
73 monument would continue to be managed as
74 it is today, with no major change in
75 management direction (see alternative A
76 map).

Wilderness

77 A Wilderness Eligibility Assessment has been
78 conducted to evaluate the McQueens Island

marshes for eligibility to be included within the national wilderness preservation system. The assessment identified approximately 4,500 acres of eligible land; however, under the no-action alternative, no lands are proposed for wilderness designation by Congress. Per *NPS Management Policies 2006*, the National Park Service will manage these lands to preserve their wilderness character.

Natural Resources

- Vegetation would be maintained in its present condition with the exception of removal of dead, diseased or hazardous trees, and invasive exotics and fuel removal in accord with an approved fire management plan (currently under development).
- Tidal salt marshes: natural processes would continue except for shoreline erosion control measures and mitigation for U.S. Highway 80 and Savannah Harbor projects.
- Other wetlands: natural processes would continue; mosquito control would be managed through biological controls.
- Uplands: biological mosquito control and grounds maintenance would continue as currently practiced.
- Wildlife: the park would request a deer management plan or study.
- Exotics: the park would continue exotic plant management with volunteers and staff as resources become available.

Cultural Resources

- Current management of cultural resources would continue. This includes the use of a fee demonstration project involving a partnership between monument maintenance staff and graduate and undergraduate students majoring in historic preservation from the

Savannah College of Art and Design to form a preservation team.

- Under an approved Curatorial Facilities Plan, Fort Pulaski's museum collections would be collocated with the collections of Fort Frederica and Ocmulgee national monuments in Macon in a facility associated with these monuments (new, rented, or revamped existing facility — the details of the facility and the operations have not been finalized). This would allow the Bally Building to be removed from the fort and to get the stored collections away from the coast to mitigate potential natural disasters such as hurricanes.
- As a result of the U.S. Highway 80 expansion project, federal legislation would become necessary to authorize the proposed boundary adjustment and land exchange with the Georgia Department of Transportation. As mitigation for the impact on the park, the National Park Service would seek to obtain state land adjacent to the monument boundary that contains 7 World War II historic structures and Battery Hamilton.
- Fee management program would provide opportunities for deferred maintenance projects, such as:
 - repointing masonry structures,
 - repairing and maintaining historic structures,
 - implementing the long-range interpretive plan to include updating of furnishing plan and furnishings in casemates.

Visitor Use and Experience

Current programs and opportunities would be continued.

- Visitors would enter the visitor center to obtain basic information and view orientation film, then walk to the fort and explore on their own.

- Living history demonstrations and other interpretive programs would continue on a scheduled basis.
- Access for fishing, walking, biking, and other appropriate activities would remain as currently available.

Access

Current access to the monument via the bridge over the South Channel Savannah River would be maintained. Repairs to correct deteriorating structural conditions are currently in the preliminary design stage. These repairs would be expected to extend the usable life of the bridge for another 30 to 35 years.

Boundary Expansion

As a result of the proposed U.S. Highway 80 expansion project, the national monument boundary may be expanded to include Bird Island/Long Island as well as the west end of Cockspur Island. However, the project has been placed on the Georgia Department of Transportation “long-term” list, meaning it likely would not begin for at least five to seven years. (The Georgia Department of Transportation has proposed mitigating use of monument land for the U.S. Highway 80 project by transferring the west end of Cockspur Island and Bird Island/Long Island to the National Park Service. Congressional legislation would be required to authorize this boundary expansion).

Battery Halleck, on Tybee Island, is the only known remaining undisturbed federal battery site. The acquisition of this site would help complete the ability of the national monument to interpret the entire story of the siege and reduction of Fort Pulaski. However, the land is currently in private ownership. Fort Pulaski National Monument has no authority to acquire any land on Tybee Island except by donation, so a third party, such as a land conservation trust, would have to acquire the property from the

owner, assuming a willing seller, and then donate the land to the park.

Interpretation

The park would continue implementation of the approved long-range interpretive plan. Specifics include the following:

- adaptive use of some fort casemates such as converting the ranger office to a sales outlet “sutlery” where visitors could purchase period reproductions, reprints, and other interpretive items directly related to the fort and its themes
- restored interpretive personal services program (talks, demonstrations, special events) in the fort
- improvements to the parking lot and visitors’ approach to the visitors’ center and the fort interior

Trails

The existing trail system would be maintained and work with the Georgia Department of Transportation, Chatham County, the city of Savannah, and the city of Tybee Island to extend the McQueens Island bike trail from its current end at the entrance to Fort Pulaski across the Lazaretto Creek Bridge to Battery Park on Tybee Island would be continued.

Viewshed and Vistas

A viewshed is an area of land, water, and/or other environmental or cultural elements that is visible from a fixed vantage point. Viewsheds tend to be areas of particular scenic or historic value that are deemed worthy of preservation against development or other change.

At Fort Pulaski the principal viewshed of historical interest would be the view from the fort to the location of the federal batteries on

ALTERNATIVES, INCLUDING THE PREFERRED ALTERNATIVE

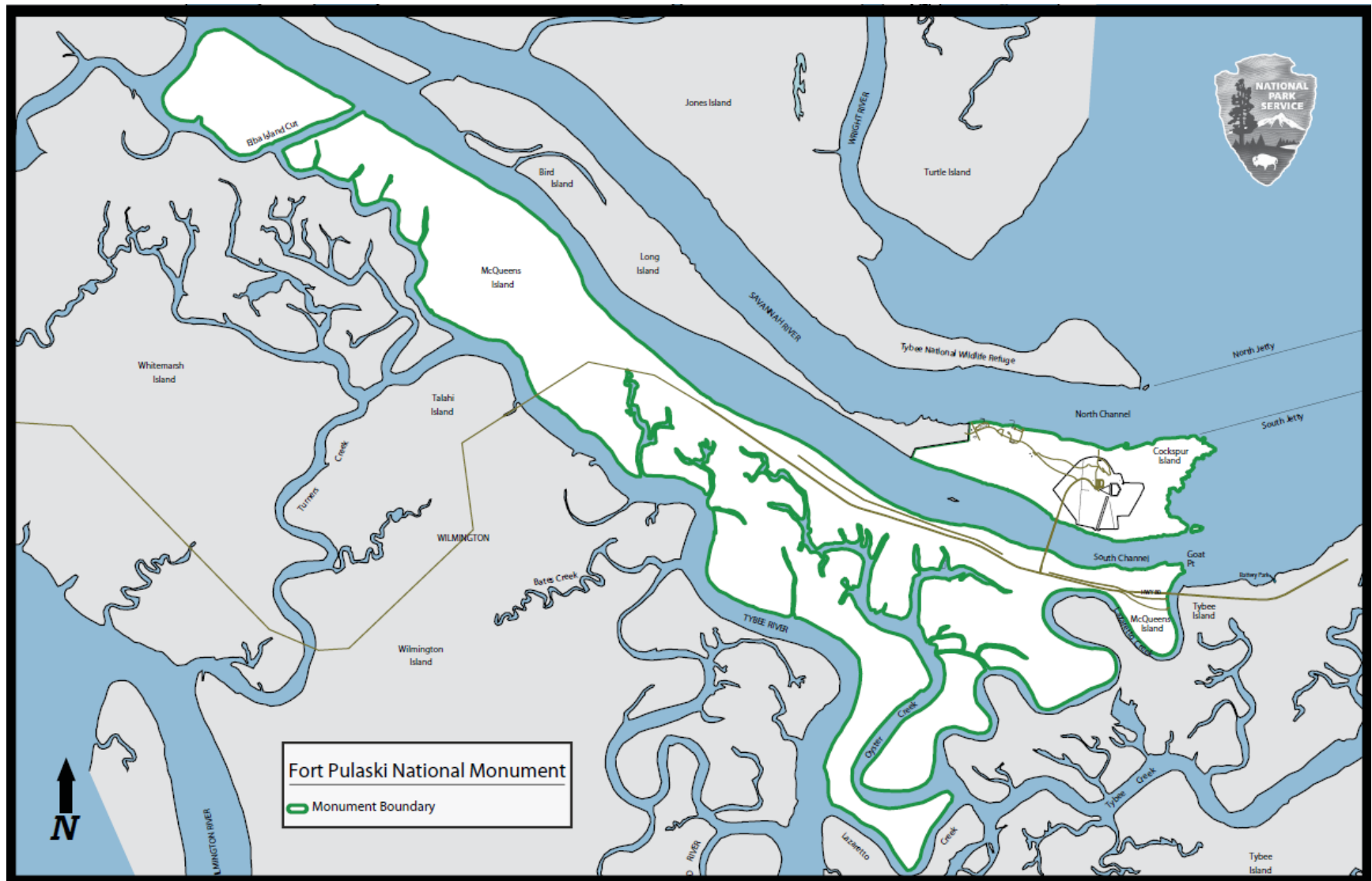
1 Tybee Island and vice versa. Under the no-
2 action alternative, Fort Pulaski would
3 maintain current viewsheds, none of which
4 are historically accurate. Because there would
5 be no change from current conditions and

6 the zones that have been developed for
7 alternatives B and C would not be applied to
8 the landscape, the monument boundary map
9 (figure 2) is essentially the map for the no-
10 action alternative.



FORT PULASKI SOUTHWEST CORNER GUN DECK, 1863

FIGURE 2. MONUMENT BOUNDARIES



ALTERNATIVE B (NPS PREFERRED ALTERNATIVE)**Concept**

Fort Pulaski would be managed to focus on the April, 1862 period of significance in terms of the landscape and interpretive programs. The federal siege and reduction of the fort using rifled cannon, the hasty surrender of the confederate forces, and the story of the “Immortal 600” would be paramount. (In October 1864, Union troops stationed at Fort Pulaski accepted transfer of a group of imprisoned Confederate officers who later became known as the Immortal 600. During their incarceration at Fort Pulaski, 13 prisoners died. The dead were buried on site at Cockspur Island, Georgia. Most died of dehydration due to dysentery. March 1865, prison survivors were sent to Fort Delaware where conditions were somewhat better than at Fort Pulaski.)

- This alternative would emphasize to a high degree the restoration, preservation, and interpretation of historic landscapes and viewsheds of the site for the purpose of providing visitors a greater understanding of the siege and reduction of Fort Pulaski in 1862. There would be mitigation for tree loss.
- The visitor center parking lot would be removed and the site returned to the approximate landscape condition that existed during the principal period of significance (April 1862).
- The visitor center parking lot would be relocated to a site near the visitor center but outside the viewshed from the top of the fort. The relocated parking lot would be just as near to the visitor center and just as accessible as the current one. There would be mitigation for tree loss.
- The current facilities and opportunities would be maintained for recreation. Future facilities and opportunities must facilitate a greater understanding of the siege and reduction.

Wilderness

As part of the GMP process, the National Park Service conducted a wilderness eligibility assessment to determine whether any lands at Fort Pulaski National Monument are eligible for inclusion in the National Wilderness Preservation System. This assessment identified approximately 4,500 acres of eligible land within the monument boundary (see figure 2 and appendix B). All eligible lands at Fort Pulaski are located on McQueens Island and consist of salt marsh. The National Park Service subsequently initiated a formal wilderness study to analyze these eligible lands in depth and to determine which lands should be proposed for wilderness designation. This study, summarized previously, found that all eligible lands in the monument should be proposed as wilderness.

Under alternative B, all lands identified as eligible in the wilderness eligibility assessment are proposed for designation as wilderness. If finalized and approved by Congress, this proposal would result in approximately 4,500 acres of salt marsh receiving permanent protection as wilderness. Per *NPS Management Policies 2006*, the National Park Service will manage these lands to preserve their wilderness character until the legislative process has been completed.

Natural Resources

- Tidal Salt Marshes: Same as alternative A.
- Other wetlands: Same as alternative A.
- Uplands: In accordance with the recommendations of an approved cultural landscape report, to be completed following the approval of the general management plan, selected vegetation would be removed to facilitate understanding

of Fort Pulaski's field of fire as a defensive coastal fort and to better understand the sight lines during the historic battle.

- To mitigate the loss of selected mature trees and other vegetation from the cultural landscape inside the dike system, the National Park Service would
 - Replace mature trees outside the dike system on Cockspur Island on a two for one basis.
 - Remove mature red cedars only as they succumb to disease, lightning damage, etc.
 - Remove trees, using a certified arborist, after they are marked by a surveyor and forester, in consultation with a cultural landscape specialist, to ensure that no more trees are removed than necessary to achieve the desired sightlines.
 - Prepare a mitigation plan that would include a young tree maintenance plan that involves weekly watering for the first two years.
- Screening would remain to block the view of the Lazaretto Creek Bridge and modern development on Tybee and Cockspur islands within view of Fort Pulaski.
- Wildlife: Same as alternative A.
- Exotics: Same as alternative A

Cultural Resources

Same as alternative A plus:

- Large Historic Setting Zone would permit restoration of some cultural landscapes in accord with an approved cultural landscape report to be completed following the completion and final approval of the general management plan.

Visitor Use and Experience

Visitor understanding and appreciation of the monument's significance would be enhanced by restoring most historic site conditions and views.

- In accordance with the recommendations of an approved cultural landscape report (to be completed following the approval of the general management plan), selected vegetation would be removed to facilitate understanding of Fort Pulaski's field of fire as a defensive coastal fort and to better understand the sight lines during the historic battle.
- To mitigate the loss of selected mature trees and other vegetation from the cultural landscape inside the dike system the National Park Service would
 - Replace mature trees outside the dike system on Cockspur Island on a two for one basis.
 - Remove mature red cedars only as they succumb to disease, lightning damage, etc.
 - Remove trees, using a certified arborist, after they are marked by a surveyor and forester, in consultation with a cultural landscape specialist, to ensure that no more trees are removed than necessary to achieve the desired sightlines.
 - Prepare a mitigation plan that includes a young tree maintenance plan that involves weekly watering for the first two years.
- Screening would remain to block the view of the Lazaretto Creek Bridge and modern development on Tybee and Cockspur islands within view of Fort Pulaski.

Access

Same as alternative A.

Boundary Expansion

1 Same as alternative A.

Interpretation

2 Same as alternative A with the addition of

- 3 • Improved sight lines to the Union
4 batteries would enable interpreters to
5 more effectively convey aspects of the
6 strategy of the siege and reduction
7 than can be explained under current
8 conditions.
- 9 • Improved sight lines to the Savannah
10 River (both north and south
11 channels) would enable interpreters
12 to more effectively describe the
13 strategic location of the fort and how
14 it defended the Port of Savannah.

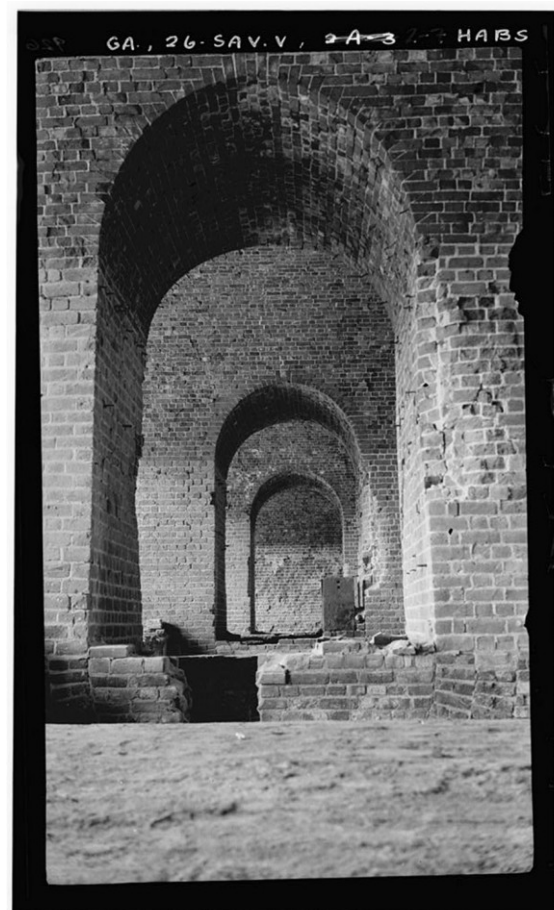
Trails

15 Same as alternative A.

Viewshed and Vistas

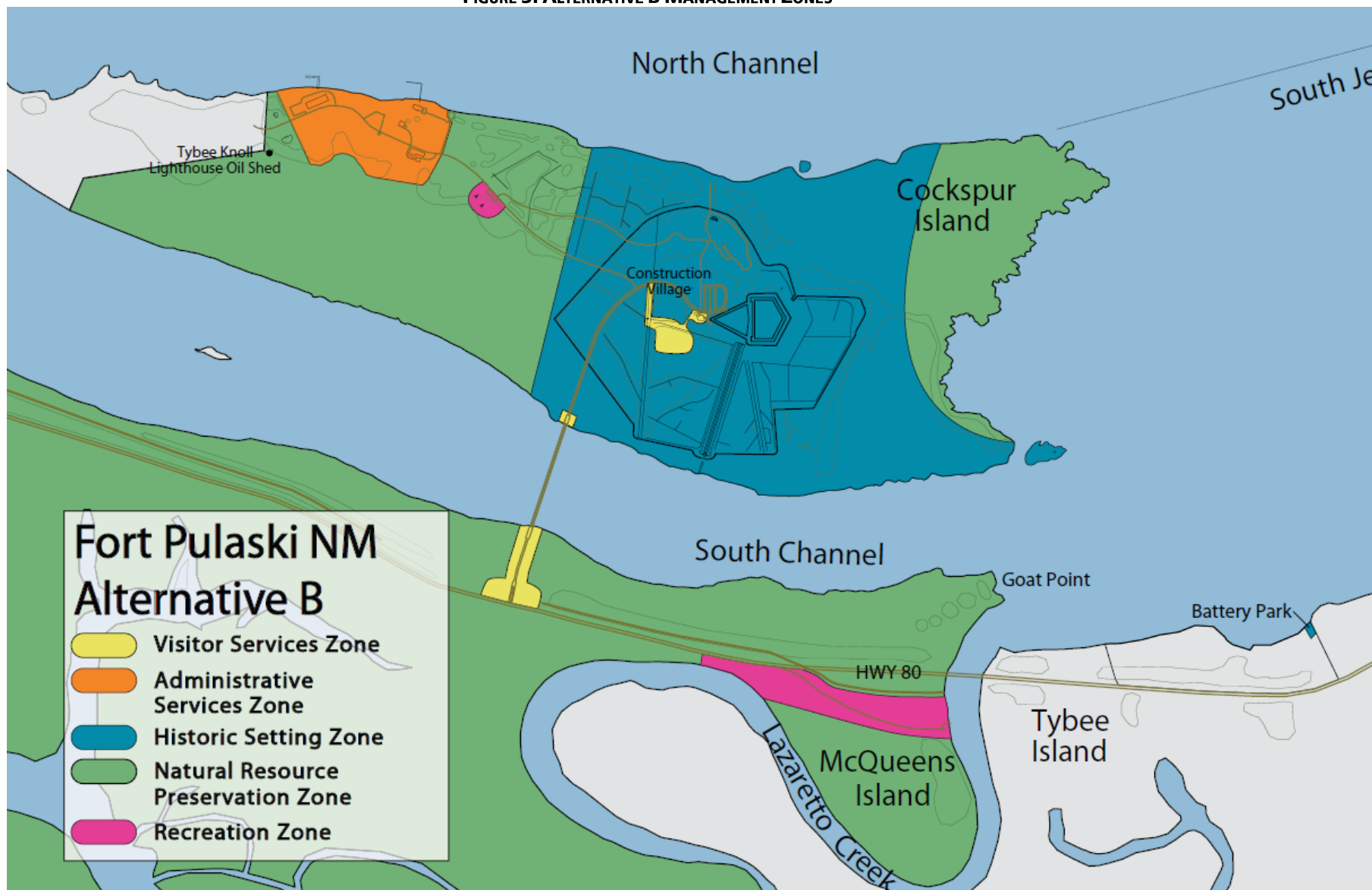
- 16 • In accordance with the
17 recommendations of an approved
18 cultural landscape report (to be
19 completed following the approval of
20 the general management plan),
21 selected vegetation would be
22 removed to facilitate understanding
23 of Fort Pulaski's field of fire as a
24 defensive coastal fort and to better
25 understand the sight lines during the
26 historic battle.
- 27 • To mitigate the loss of selected
28 mature trees and other vegetation
29 from the cultural landscape inside the
30 dike system the National Park Service
31 would
 - 32 – Replace mature trees outside the dike
33 system on Cockspur Island on a two
34 for one basis.
 - 35 – Remove mature red cedars only as
36 they succumb to disease, lightning
37 damage, etc.

- 38 – Remove trees, using a certified
39 arborist, after they are marked by a
40 surveyor and forester, in
41 consultation with a cultural
42 landscape specialist, to ensure that
43 no more trees are removed than
44 necessary to achieve the desired
45 sightlines.
- 46 – Prepare a mitigation plan that
47 includes a young tree maintenance
48 plan that involves weekly watering
49 for the first two years.
- 50 • Screening would remain to block the
51 view of the Lazaretto Creek Bridge
52 and modern development on Tybee
53 and Cockspur islands within view of
54 Fort Pulaski.



FORT PULASKI INTERIOR ARCHES

FIGURE 3. ALTERNATIVE B MANAGEMENT ZONES



ALTERNATIVE C

Concept

- 1 Fort Pulaski would be managed with a much
2 broader interpretive mandate than in
3 alternative B. This would include a wider
4 range of themes and historic periods as well
5 as natural resource themes.
6
- 7 • Only minor changes from existing
8 conditions would be made to restore
9 historic views. There would be
10 mitigation for tree loss.
 - 11 • Appropriate recreational activities
12 and facilities within the park would
13 be allowed to expand.

Wilderness

- 14 Same as alternative B.

Natural Resources

- 15 • Tidal Salt Marshes: Same as
16 alternative A.
- 17 • Other wetlands: Same as alternative
18 A.
- 19 • Uplands: In accordance with
20 recommendations of the cultural
21 landscape report, vegetation would
22 be removed to better understand the
23 sight lines during the historic battle
24 (from the Union batteries at Goat
25 Point to Fort Pulaski). This
26 alternative removes less vegetation
27 than alternative B. Mitigation
28 measures would be the same as in
29 alternative B.
- 30 • Wildlife: Same as alternative A.
- 31 • Exotics: Same as alternative A.

Cultural Resources

- 32 Same as alternative B with the addition of

- 33 • Tybee Knoll Lighthouse oil shed
34 would be stabilized.
- 35 • Access to Cockspur Island
36 Lighthouse would be provided.
- 37 • The smaller Historic Setting Zone in
38 this alternative would permit
39 restoration of cultural landscapes, in
40 accord with an approved cultural
41 landscape report, within the historic
42 dike system and some vista clearing
43 between the southeastern wall of the
44 fort and the federal battery exhibit on
45 Tybee Island to enhance
46 interpretation of the siege and
47 reduction of Fort Pulaski.

Visitor Use and Experience

- 48 Visitor understanding of the siege and
49 reduction of the fort and appreciation of the
50 monument's significance would be enhanced
51 by restoring some historic site conditions and
52 views.
- 53 Expand recreational access by
- 54 • expanding the trail system on
55 Cockspur Island (for example, a trail
56 to the Tybee Knoll Lighthouse oil
57 shed); and
 - 58 • expanding launching facilities for
59 canoes and kayaks at Lazaretto
60 Creek.

Access

- 61 Same as alternative A with the addition of
62 expanded canoe and kayak launching
63 facilities at Lazaretto Creek.

Boundary Expansion

- 64 Same as alternative A.

Interpretation

- 65 Same as alternative A with the addition of:

- Interpretation of the siege and reduction of the fort would be improved because vegetation would be removed to better understand the sight lines during the historic battle (from the batteries at Goat Point to Fort Pulaski).
- Expanded recreational opportunities would create additional opportunities for interpreting the natural resources of Fort Pulaski, particularly the tidal salt marshes.

Trails

- Same as alternative A with the addition of an expansion of the trail system at the west end of Cockspur Island. A boardwalk would be

- developed through the marsh on Cockspur Island.

Viewsheds and Vistas

- In accordance with recommendations of the cultural landscape report, vegetation would be removed to enhance understanding of the sight lines during the siege and reduction of the fort (from the batteries at Goat Point to Fort Pulaski). Same mitigation strategy as alternative B but less mitigation needed.
- This alternative removes less vegetation than alternative B.



PAVED TRAIL

National Park Service

FIGURE 4. ALTERNATIVE C MANAGEMENT ZONES

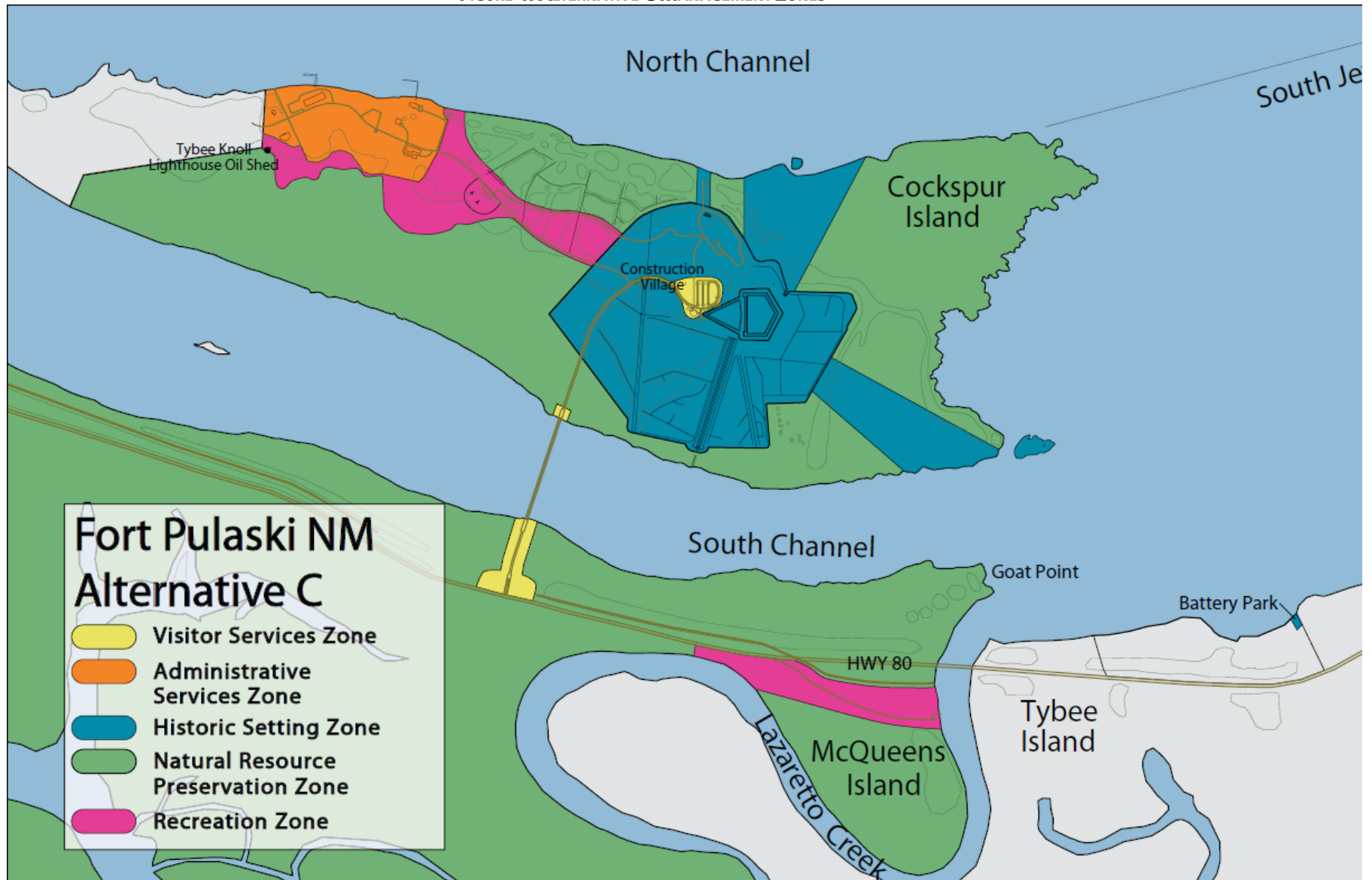


TABLE 5. COMPARISON OF ALTERNATIVES

	Alternative A	Alternative B	Alternative C	Differences
Overall Concept	Alternative A would continue current management practices and policies.	Fort Pulaski would be managed to focus on the April 1862 period of significance both in terms of the landscape and interpretive programs; this includes landscape restoration and interpretation of the construction village.	Fort Pulaski would be managed with a much broader interpretive mandate than in alternative B to include a wider range of themes and historic periods as well as natural resource themes.	A would continue current management with no restoration of historic landscapes or views. B would emphasize restoration of cultural landscapes and viewsheds. B would also relocate the visitor parking lot to a site outside the view from the top of the fort. C would place less emphasis on the restoration of historic landscapes and viewsheds and more emphasis on expanding interpretive efforts to include a broader range of historic periods and natural resources themes.
Wilderness	No land within the monument would be proposed for wilderness designation by Congress.	Approximately 4,500 acres of salt marsh at McQueens Island would be proposed for wilderness designation by Congress.	Same as alternative B.	Alternatives B and C are identical with respect to the amount of proposed wilderness under the Wilderness Study.
Natural Resources	<p>Vegetation would be maintained in its present condition with the exception of removal of dead, diseased or hazardous trees, and invasive exotics and fuel removal in accord with an approved fire management plan.</p> <p>Tidal Salt Marshes: natural processes would continue except for shoreline erosion control measures and mitigation for U.S. Highway 80 and Savannah Harbor projects.</p> <p>Other wetlands: natural processes would continue; mosquito control would be managed through biological controls.</p> <p>Uplands: mosquito control would be managed through biological controls and grounds maintenance would continue.</p> <p>Wildlife: park would request</p>	<p>Tidal Salt Marshes: same as alternative A.</p> <p>Other wetlands: same as alternative A.</p> <p>Uplands: selected vegetation would be removed to facilitate understanding and interpretation of the historic events.</p> <p>Any loss of trees due to vista clearing would be mitigated.</p> <p>Wildlife: same as alternative A.</p> <p>Exotics: same as alternative A.</p>	<p>Tidal Salt Marshes: same as alternative A.</p> <p>Other wetlands: same as alternative A.</p> <p>Uplands: In accordance with recommendations of the cultural landscape report, vegetation would be removed to better understand the sight lines during the historic battle. This alternative removes less vegetation than alternative B.</p> <p>Mitigation measures would be the same as in alternative B.</p> <p>Wildlife: same as alternative A.</p> <p>Exotics: same as alternative A.</p>	The large Historic Setting Zone in alternative B would provide for more restoration of historic views and landscapes than in alternative C. This would mean potentially more vegetative clearing than in alternative C, which would clear vegetation in a narrow, cone-shaped band, from the southeast wall of the fort to the shoreline in the direction of the Battery Park site on Tybee Island. Management of tidal salt marshes, other wetlands, and other natural resources would be identical across all alternatives.

	Alternative A	Alternative B	Alternative C	Differences
	a deer management plan or study. Exotics: exotic plant management would continue with volunteers and staff as resources become available.			
Cultural Resources	Current management of cultural resources would continue. Fort Pulaski's museum collections would be colocated with the collections of Fort Frederica and Ocmulgee national monuments in Macon. Fee management program would provide opportunities for deferred maintenance projects, such as re-pointing masonry structures and repairing and maintaining historic structures.	Same as alternative A plus: Large Historic Setting Zone would permit restoration of some cultural landscapes in accord with an approved cultural landscape report to be completed following the completion and final approval of the general management plan.	Same as alternative B plus: Tybee Knoll Lighthouse oil shed would be stabilized. Access to Cockspur Island Lighthouse would be provided. Smaller Historic Setting Zone in this alternative would permit restoration of cultural landscapes, within the historic dike system and some vista clearing between the southeastern wall of the fort and the federal battery exhibit on Tybee Island.	The large Historic Setting Zone in alternative B would provide for more restoration of historic views and landscapes than in alternative C. Alternative A would maintain existing conditions. Management of historic structures including the fort and demilune, dikes and drainage structures, monuments, World War II era structures, archeological resources, and collections, would be identical under all alternatives.
Visitor Use and Experience	Current programs and opportunities would continue. Visitors would continue to enter the visitor center to obtain basic information and view orientation film, then walk to the fort and explore on their own. Living history demonstrations and other interpretive programs would continue on a scheduled basis. Access for fishing, walking, biking, and other appropriate activities would remain as currently available.	Same as alternative A plus: visitor understanding and appreciation of the monument's significance would be enhanced by restoring most historic site conditions and views.	Same as alternative A plus: visitor understanding of the siege and reduction of the fort and appreciation of the monument's significance would be enhanced by restoring some historic site conditions and views. Recreational access would be increased by expanding the trail system on Cockspur Island and expanding launching facilities for canoes and kayaks at Lazaretto Creek.	Under alternative B the visitor experience would be focused on the views and structural elements of the national monument that tell the story of the siege and reduction and hasty surrender of Fort Pulaski in April of 1862. Alternative C would immerse the visitor in a broader range of interpretive themes including natural resource themes.
Access	Current access to the monument via the bridge over the South Channel Savannah River would be	Same as alternative A.	Same as alternative A plus: Canoe and kayak launching facilities at Lazaretto Creek would be expanded.	All alternatives are the same with respect to maintaining access to Cockspur Island over the existing bridge. Alternative C adds canoe and kayak launching facilities at Lazaretto Creek.

	Alternative A	Alternative B	Alternative C	Differences
	maintained. Repairs to correct deteriorating structural conditions are currently in the preliminary design stage.			Access to the tidal creeks that meander among the salt marshes of McQueens Island would remain the same under all alternatives.
Boundary Expansion	<p>With U.S. Highway 80 project, boundary might be expanded to include Bird Island/Long Island as well as the west end of Cockspur Island. Authorizing legislation would be required.</p> <p>Battery Halleck, on Tybee Island, is the only known remaining undisturbed federal battery site. The acquisition of this site would help complete the ability of the national monument to interpret the entire story of the siege and reduction of Fort Pulaski.</p>	<p>Same as alternative A.</p> <p>Same as alternative A.</p>	<p>Same as alternative A.</p> <p>Same as alternative A.</p>	Potential boundary expansion under all alternatives would be identical.
Interpretation	Implementation of the monument's approved long-range interpretive plan would continue.	<p>Same as alternative A plus: Sight lines to the Union batteries would be improved to enable interpreters to more effectively convey aspects of the strategy of the siege and reduction of the fort.</p> <p>Sight lines to the Savannah River would be improved to enable interpreters to more effectively describe the strategic location of the fort and how it defended the Port of Savannah.</p>	<p>Same as alternative A plus: Interpretation of the siege and reduction of the fort would be improved because vegetation would be removed to better understand the sight lines during the historic battle.</p> <p>Recreational opportunities would be expanded to create additional opportunities for interpreting the natural resources of Fort Pulaski, particularly the tidal salt marshes.</p>	Alternative A would continue current interpretive programs, themes, and emphases. Alternative B would focus more on the siege and reduction of Fort Pulaski during April 1862 both in terms of interpretive themes, methods, exhibits and in managing the cultural landscape and views to support that strategy. Alternative C would expand the range of interpretive themes and historical periods beyond the siege and reduction period and would include more programs, exhibits, and brochures to address natural resource themes, especially the vast salt marshes of McQueens Island.

	Alternative A	Alternative B	Alternative C	Differences
Trails	The existing trail system would be maintained. With help from partners, the McQueens Island bike trail would be extended from its current end at the entrance to Fort Pulaski across the Lazaretto Creek Bridge to Battery Park on Tybee Island.	Same as alternative A.	Same as alternative A plus: The trail system at the west end of Cockspur Island would be expanded and a boardwalk would be developed through the marsh on Cockspur Island.	All alternatives would expand the McQueens Island bike trail beyond the current end at the Fort Pulaski entrance to Lazaretto Creek and ultimately to Tybee Island.
U.S. Highway 80 Project	The National Park Service would continue to participate in the planning and environmental analysis for this proposed project with the goal of minimizing and mitigating any impacts that would result.	Same as alternative A.	Same as alternative A.	All alternatives are the same.
Savannah Harbor Project	The National Park Service would continue to participate in the planning and environmental analysis for this proposed project with the goal of minimizing and mitigating any impacts that would result, especially impacts on the northern shoreline of Cockspur Island and the impacts on the foundation of the Cockspur Island Lighthouse.	Same as alternative A.	Same as alternative A.	All alternatives are the same.
Viewshed & Vistas	Current viewsheds, none of which are historically accurate, would be maintained.	Selected vegetation would be removed to facilitate understanding of Fort Pulaski's field of fire as a defensive coastal fort and to better understand the sight lines during the historic battle. Any loss of trees due to vista clearing would be mitigated.	In accordance with recommendations of the cultural landscape report, vegetation would be removed to facilitate understanding of the sight lines during the siege and reduction of the fort. The mitigation strategy would be the same as alternative B; less mitigation would be needed because less	Alternative A would maintain current landscapes, viewsheds, and vistas. Alternative B would potentially restore historic landscapes, especially through the relocation of the visitor parking lot to a location outside the view from the top of the fort. Alternative C would reestablish the direct line of sight between the southeastern wall of the fort and the approximate location of some of the federal batteries on Tybee Island.

	Alternative A	Alternative B	Alternative C	Differences
			vegetation would be removed.	

DEVELOPMENT OF COST ESTIMATES

National Park Service decision makers and the public must consider an overall picture of the complete costs and advantages of various alternatives, including the no-action alternative, to make wise planning and management decisions for the park. Such consideration can shed light on the cost of the no-action alternative and make possible a more legitimate comparison to the action alternatives.

The actual cost of implementing the approved general management plan will ultimately depend on future funding and service wide 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 National Park Service 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.

Cost estimates were developed through an evaluation of capital and annual operating costs for each of the alternatives. The estimates in this section regarding the general costs of implementing the alternatives were originally developed based on fiscal year 2006 dollars and the *Cost Estimating Guideline with Class "C" Cost Data: New Construction* (NPS 2001). The cost table has been adjusted upward from those numbers by an inflation factor of 9.3% representing the period January 2006 through February 2010. This inflation factor was obtained using a calculator on the website InflationData.com, published by Financial Trend Forecastsers®. The National Park Service uses a broad range of costing techniques including Class "A", Class "B", and Class "C" levels of cost estimating. Class "A" and "B" estimates are based upon more detailed information, and represent design and construction finances at

the time of actual development activities. The capital costs estimates calculated for this general management plan are in the form of Class "C" estimates, which are general order-of-magnitude, estimates. The accepted industry range of Class "C" estimates is minus 30 percent to plus 50 percent. Therefore, a \$1,000,000 estimate has an actual range of between \$700,000 and \$1,500,000.

Range of Annual Costs

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 that the alternative is fully implemented as described in the narrative.

The total number of full-time equivalent employees is the number of person-years of staff required to maintain the assets of the monument at a good level, provide acceptable visitor services, protect resources, and generally support the monument's operations. The full-time equivalent number indicates staff funded by the operation of the National Park System only, not volunteer positions or positions funded by partners. Full-time equivalent salaries and benefits are included in the annual operating costs.

One-time facility costs include those for the design, construction, rehabilitation, or adaptive reuse of visitor centers, roads, parking areas, administrative facilities, comfort stations, educational facilities, entrance stations, fire stations, maintenance facilities, museum collection facilities, and other visitor facilities.

One-time nonfacility 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 monument management activities that would require substantial funding above monument annual operating costs. Examples include preparing

- 1 historic structures reports and an historic
2 resource study.

Implementation

- 3 Actions directed by general management
4 plans or in subsequent implementation plans
5 are accomplished over time. Budget

- 6 restrictions, requirements for additional data
7 or regulatory compliance, and competing
8 national park system priorities could prevent
9 immediate implementation of many actions.
10 Major or especially costly actions could be
11 implemented 10 or more years into the
12 future.

TABLE 6. COSTS OF ALTERNATIVES

Item	Alternatives		
	Alternative A	Alternative B	Alternative C
Annual Operating Costs (ONPS) ⁽¹⁾	\$1,396,627	\$1,517,374	\$1,507,143
Staffing — FTE ⁽²⁾	23	23	23
Total One-Time Costs	\$488,890	\$1,468,770	\$1,212,978
One-Time Facility Costs ⁽³⁾	\$445,389	\$683,786	\$427,994
Visitor Center Annex	\$445,389	\$445,389	\$445,389
One-Time Non-Facility Costs ⁽⁴⁾	\$43,501	\$339,595	\$339,595

(1) 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 that the alternative is fully implemented as described in the narrative.

(2) The total number of FTEs is the number of person-years of staff required to maintain the assets of the monument at a good level, provide acceptable visitor services, protect resources, and generally support the park's operations. The FTE number indicates ONPS-funded NPS staff only, not volunteer positions or positions funded by partners. FTE salaries and benefits are included in the annual operating costs.

(3) One-time facility costs include those for the design, construction, rehabilitation, or adaptive reuse of visitor centers, roads, parking areas, administrative facilities, comfort stations, educational facilities, entrance stations, fire stations, maintenance facilities, museum collection facilities, and other visitor facilities.

(4) One-time nonfacility 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 monument management activities that would require substantial funding above monument annual operating costs. Examples include preparing historic structures reports and an historic resource study.

The following applies to costs presented throughout this general management plan:

- 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 National Park Service 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 Service- wide priorities, and on partnership funds, time, and effort.

TABLE 7. SUMMARY OF IMPACTS

Topic	Alternative A	Alternative B	Alternative C
Transportation	Impacts to transportation under all alternatives would be negligible to minor, long term, direct, and adverse. Moderate to major impacts on a number of the monument's natural resources could ensue from deepening the Savannah River ship channel and constructing the proposed Jasper Port, both of which would take place outside the monument boundary.	Same as alternative A.	Same as alternative A.
Climate	Direct impacts on climate under all alternatives would be negligible, long term, direct and indirect, and adverse. Major, long-term, and adverse impacts on monument resources could ensue from global climate change. The alternatives in this plan would contribute a negligible increment to this adverse impact.	Same as alternative A.	Same as alternative A.
Archeological Resources	Impacts on archeological resources would continue to result from visitor use and administrative activities. Impacts would be permanent, negligible, and adverse.	Impacts similar to alternative A, except that landscape restoration activities (i.e. removing and replanting trees) could result in some soil disturbance and attendant impacts on archeological resources. Similar impacts may result from relocating the parking area and removing the old lot. On the other hand, funding would also be sought for archeological studies to provide information about the construction village that was necessary to recreate part of the cultural landscape. Funding would also be sought to prepare exhibits. Overall, impacts on archeological resources would be permanent, negligible, and adverse.	Impacts similar to alternative A, except that landscape restoration activities (i.e. removing and replanting trees) could result in some soil disturbance and attendant impacts on archeological resources. Impacts from restoration would be less under this alternative than under alternative B because the amount of land to be restored is smaller and because the parking lot would not be relocated. Impacts on archeological resources would be permanent, negligible and adverse.
Museum Collections	Moving museum collections to a safer location would result in permanent, beneficial impacts. Cumulative impacts on museum collections would be permanent and beneficial. The actions under alternative A would contribute a significant increment to this cumulative impact.	Impacts similar to alternative A. However, funding would also be sought for archeological studies to provide information about the construction village that was necessary to recreate part of the cultural landscape. In addition, funding would be sought to prepare exhibits. The proposed studies would expand the monument's museum collections. Impacts to museum collections would be local, long term, and beneficial. Cumulative impacts would be	Same as alternative A.

Topic	Alternative A	Alternative B	Alternative C
		permanent and beneficial. The actions under alternative B would contribute a significant increment to this cumulative beneficial impact.	
Historic Structures	Impacts to historic structures would continue to occur due to aging of the historic fabric, normal wear and tear, and vandalism. Impacts would be short term, negligible, and adverse, mostly due to normal wear and tear. Cumulative impacts would be moderate to major and adverse due to continued development in the local and regional area. The actions under alternative A would constitute a negligible increment to this cumulative impact.	Impacts to historic structures would for the most part be local, long term, direct and indirect and beneficial due to partial restoration of the historic scene from the principal period of significance. However, removal of the parking area of the Mission 66 visitor center would result in long-term, direct, major, and adverse impacts on a historic structure. In addition, some short-term, direct, negligible, and adverse impacts would occur to historic structures, mostly due to normal wear and tear. Cumulative impacts would be moderate to major and adverse due to continued development in the local and regional area. The actions under alternative B would contribute to these adverse cumulative impacts on a negligible to minor degree.	Same as alternative A, plus impacts from stabilizing the Tybee Knoll Lighthouse oil shed and providing access to Cockspur Island Lighthouse. Impacts to historic structures would for the most part be local, long term, direct and indirect and beneficial. Some short-term, direct, negligible, and adverse impacts would occur, mostly due to normal wear and tear. Cumulative impacts would be moderate to major and adverse. The beneficial actions under alternative C would offset these cumulative adverse impacts on a negligible degree.
Cultural Landscape	Impacts to the cultural landscape would be long term and beneficial due to a gradual reduction in nonnative vegetation. Cumulative impacts would be long term, minor to moderate, and both beneficial and adverse. Alternative A would contribute a negligible to minor increment to this cumulative impact.	Impacts to the cultural landscape would be long term, moderate to major, and both beneficial and adverse. Restoration of historic site conditions and views would result in an overall beneficial impact on the cultural landscape; however, movement of the visitor center parking lot from its original location would result in an adverse effect to a historic property. Cumulative impacts would be long term and beneficial. Alternative B would contribute a moderate increment to this cumulative impact.	There would be less restoration of cultural landscapes under this alternative than under alternative B. Beneficial impacts of restoring historic site conditions and views would be correspondingly less. Unlike alternative B, there would be no impacts on the cultural landscape (beneficial or adverse) resulting from relocation of the existing visitor center parking lot. Overall impacts on the cultural landscape would be long term and beneficial due to restoration of historic site conditions and views. Cumulative impacts would be long term, minor to moderate, and both beneficial and adverse. Alternative C would contribute a moderate, beneficial increment to this cumulative impact.

Topic	Alternative A	Alternative B	Alternative C
Ethnographic Resources	Alternative A would have few if any impacts on ethnographic resources at Fort Pulaski because it would continue to provide long-term protection to the fort and its historic context. Impacts to ethnographic resources would therefore likely be negligible, long term, and neutral.	Same as alternative A.	Same as alternative A.
Soils and Geologic Resources	Geological, physiographical, and soil resources would continue be subject to current management practices and policies. Impacts on soils and geologic resources would be long term, negligible to minor, adverse, and local. There would be a long-term, moderate to major, adverse cumulative impact on soils and geologic resources. The actions under alternative A would contribute a negligible increment to this cumulative impact.	Impacts would include those from alternative A, plus impacts from restoration of historic site conditions and views in selected locations. There would be additional impacts from moving the visitor parking lot. Soils under the old parking area would be restored as much as possible in order recover a semblance of the historic scene. Soils under the new parking area would be compacted and covered by paving material. Overall impacts on soils would be local, long term, direct, minor to moderate, and adverse. There would be a long-term, moderate to major, adverse cumulative impact on soils and geologic resources. The actions under alternative B would contribute a very small increment to this cumulative impact.	Impacts would include those from alternative A, together with additional erosion from construction and use of new trails and other recreational facilities. Some removal of vegetation would occur to restore historic sight lines, but not as much as under alternative B. Impacts to soils would be local, short and long term, minor, and adverse. There would be a long-term, moderate to major, adverse cumulative impact on soils and geologic resources. The actions under alternative C would contribute a negligible increment to this cumulative impact.
Plant Communities and Vegetation	Current impacts on plant communities and vegetation would continue and would be due primarily to removal of dead, diseased, or hazardous trees, as well as fuel removal in accordance with an approved fire management plan. Impacts would be long term, adverse, negligible to minor, and local. There could be long-term, moderate to major and adverse cumulative impacts on vegetation and plant communities in the surrounding region. The actions under alternative A would contribute a negligible increment to this cumulative impact	Impacts would include those from alternative A, plus impacts from restoration of historic site conditions and views in selected locations including moving the visitor parking lot. Vegetation in the vicinity of the old parking area would be restored as much as possible in order recover a semblance of the historic scene. Vegetation in the area of the new parking lot would be removed. Overall impacts on plant communities and vegetation would be local, long term, direct, minor to moderate, and adverse. There would be a long-term, moderate to major, adverse cumulative impact on plant communities and vegetation. The actions under alternative B would contribute a small increment to this adverse cumulative impact.	Impacts would include those from alternative A, plus impacts from restoration of historic views and installation of some new recreational facilities. Impacts to plants and plant communities from vista clearing would be less under alternative C than under alternative B because less clearing would take place under alternative C. Impacts on plant communities and vegetation would be local, short and long term, direct, minor, and adverse. There would be long-term, moderate to major and adverse cumulative impacts on vegetation and plant communities in the surrounding region. The actions under alternative C would contribute a very small increment to this cumulative impact.

Topic	Alternative A	Alternative B	Alternative C
Exotic/Nonnative Plants	Impacts from continuing encroachment of exotic plants and nonnative vegetation would be long term, adverse, and moderate to major, and would be concentrated on Cockspur Island. There could be a long-term, moderate to major, adverse cumulative impacts on native natural processes. The actions under alternative A would contribute a very small increment to this cumulative impact.	Site restoration activities would produce some reductions in exotic vegetation, but nonnative vegetation would continue to displace native vegetation in large portions of Cockspur Island. In addition relocation of the parking lot would result in disturbed ground where exotics could generate. Site restoration in the former parking area would entail control of exotics. Nevertheless, despite these and other efforts, nonnative vegetation would continue to displace native vegetation in large portions of Cockspur Island. Overall, impacts from exotic plants and nonnative vegetation would be long term, adverse, and moderate to major. There could be long-term, moderate to major, adverse cumulative impacts on native natural processes. The actions under alternative B would offset these cumulative adverse impacts on a negligible degree.	Impacts would generally be the same as under alternative B, except that a less extensive sightline restoration effort would mean less removal of exotics. Impacts from exotic plants and nonnative vegetation would be long term, adverse, and moderate to major, and would be concentrated on Cockspur Island. There could be long-term, moderate to major, adverse cumulative impacts on native natural processes. The actions under alternative C would offset these cumulative adverse impacts on a negligible degree.
Fish and Wildlife	Existing impacts on fish and wildlife would continue, primarily as a result of disturbance to soils and vegetation caused by ongoing visitor use and NPS management activities. Impacts would be long term, minor, and both beneficial and adverse. Impacts would be concentrated at Cockspur Island. Minor adverse impacts on soil, water quality, and vegetation would result in minor adverse effects on some fish and wildlife species. In contrast, the removal of exotics would result in minor beneficial effects on some wildlife species. There would be long-term, moderate, adverse cumulative impacts on fish and wildlife. The actions under alternative A would contribute a very small increment to this cumulative impact.	Impacts on fish and wildlife would be local, short and long term, direct and indirect, minor, and both beneficial and adverse. Impacts would be concentrated at Cockspur Island and would result from restoration of historic site conditions and views in selected locations, as well as movement of the principal parking area to a new location. Minor adverse impacts on soil, water quality, and vegetation would result in minor adverse effects on some fish and wildlife species. In contrast, the removal of exotics would result in minor beneficial effects on some wildlife species. There would be long-term, moderate, adverse cumulative impacts on fish and wildlife. The actions under alternative B would contribute a very small increment to this cumulative impact.	Impacts on fish and wildlife would be local, short and long term, direct and indirect, minor, and both beneficial and adverse. Impacts would be concentrated at Cockspur Island and would result primarily from restoration of historic site conditions and views in selected locations, as well as the construction of new recreational facilities. Minor adverse impacts on soil, water quality, and vegetation would result in minor adverse effects on some fish and wildlife species. In contrast, the removal of exotics would result in minor beneficial effects on some wildlife species. There would be long-term, moderate, adverse cumulative impacts on fish and wildlife. The actions under alternative C would contribute a very small increment to this cumulative impact.
Water Quality	Impacts on water quality would be due to sedimentation from existing roads and trails, as well as from oil and grease discharges at parking areas and road crossings over waterways. Additional impacts could occur from the use of herbicides to control	Overall, impacts on water quality under alternative B would be local, short and long term, direct and indirect, minor, and adverse. There would be a long-term, adverse cumulative impact on water quality in the watershed. The intensity of the impact is	There would be slightly more runoff and impacts on water quality under alternative C than under alternative A, but less than under alternative B. Impacts on water quality would be local, short and long term, minor, and adverse. There would be a long-term,

Topic	Alternative A	Alternative B	Alternative C
	nonnative vegetation. Impacts would be long term, negligible to minor, adverse, and local. There would be a long-term, adverse cumulative impact on water quality in the watershed. The intensity of the impact is unknown. The actions under alternative A would contribute a very small adverse increment to this cumulative impact.	unknown. The actions under alternative B would contribute a very small increment to this cumulative impact. Impacts would be partially mitigated by use of best management practices during clearing and site recovery.	adverse cumulative impact on water quality in the watershed. The intensity of the impact is unknown. The actions under alternative C would contribute a very small increment to this cumulative impact. Impacts would be partially mitigated by use of best management practices during clearing and site recovery.
Floodplains	Impacts from actions under this alternative would not result in impairment of floodplain functions because no new structures would be built that would impede the flow of floodwaters, and impacts from existing structures would be negligible to minor. Nothing in this alternative would increase the risk posed by flooding to the historic fort or other key monument resources. Cumulative impacts would be long term, minor to major, and adverse. The actions under alternative A would contribute a very small increment to this cumulative impact.	Same as alternative A.	Impacts would generally be the same as under alternatives A and B. Some new trails and other recreational facilities would be constructed, with minimal additional impacts on floodplain functioning. Impacts to floodplain functions would be negligible to minor, local, direct and indirect, and adverse. Impacts to infrastructure in the event of flooding would be moderate to major, short and long term, and adverse. Cumulative impacts would generally be the same as under alternative A. The actions under alternative C would contribute a very small increment to this adverse cumulative impact.
Wetlands	Past impacts on wetlands would continue and would be long term, minor, adverse, and local. There would be a long-term, minor to major, adverse cumulative impact on wetlands. The actions under alternative A would not contribute any new impacts on this cumulative impact.	Impacts would generally be the same as those from alternative A. The site of the new visitor parking area under alternative B is located in an area of former (pre-1847) wetlands. Final siting of the parking area will be done in such a way as to avoid or minimize any wetland impacts. Such impacts, if they occur, are likely to be local, long term, negligible to moderate, and adverse. Cumulative Impacts would be the same as under alternative A. The actions under alternative B would contribute a very small increment to this cumulative impact.	Same as alternative A.

Topic	Alternative A	Alternative B	Alternative C
Wilderness Resources and Values	Resources would continue to be protected and opportunities for solitude and primitive and unconfined recreation would continue to be available. Impacts on wilderness resources and values from the continuation of current management would be long-term, minor, beneficial, and local. There would be a long-term, minor to moderate, adverse cumulative impact on wilderness resources and values in the region. The actions under alternative A would not contribute to this cumulative impact.	Formal designation of wilderness would afford the highest level of protection available to federally managed public lands and allow permanent protection of the wilderness resource. Impacts on wilderness resources and values would be long term, moderate to major, and beneficial. There would be a long-term, minor to moderate, adverse cumulative impact on wilderness resources and values in the region. The actions under alternative B would offset these impacts somewhat by granting most of the salt marsh in the monument permanent protection as wilderness.	Same as alternative B.
Visitor Use and Experience	Access to historic resources and the availability of varied recreational opportunities would continue. Impacts on visitor use and experience would be long term, moderate, and neutral. The cumulative impact on visitor use and experience in the monument would be long term, negligible to minor, and beneficial. The actions under the no-action alternative would not contribute an appreciable increment to this cumulative impact.	Impacts to visitor use and experience would stem primarily from targeted restoration of historic views, including enhanced historic views west from the fort gun deck resulting from relocation of the visitor parking lot. The area of the former parking area would be restored as much as possible to its historic appearance, thereby enhancing the experience of many visitors. The impacts would be local, short and long term, moderate, and both beneficial and adverse, depending on a given visitor's individual preferences. Some visitors would appreciate the enhanced opportunity to experience historic views, while others would experience the removal of vegetative cover as a loss. The cumulative impact on visitor use and experience in the monument would be long term and beneficial. The actions under alternative B would contribute substantially to this cumulative impact.	Impacts to visitor use and experience under alternative C would stem both from targeted restoration of historic views and authorization of additional recreational facilities. Impacts would be local, short and long term, moderate, and both beneficial and adverse, depending on a given visitor's individual preferences. Less clearing would take place under this alternative than under alternative B, and impacts on visitor use and experience would vary accordingly. The cumulative impact on visitor use and experience in the monument would be long term and beneficial. The actions under alternative C would contribute a substantial increment to this cumulative impact.

Topic	Alternative A	Alternative B	Alternative C
Socioeconomic Environment	There would be no changes to visitor spending or construction activity within Chatham County under alternative A. Long-term and short-term impacts on the socioeconomic environment would be local, negligible, and neutral. As a result, county employment, housing, and sales would remain constant. In terms of cumulative impacts, long-term and short-term impacts would be local, moderate, and beneficial. Alternative A would contribute a negligible increment to this total cumulative effect.	This alternative would produce only slight increases to visitor spending or monument expenditures within Chatham County. Long-term and short-term impacts on the socioeconomic environment would be local, negligible, and beneficial. As a result, county employment, housing, and sales would not be measurably affected. In terms of cumulative impacts, long-term and short-term impacts would be local, moderate, and beneficial. Alternative B would contribute a negligible increment to this total cumulative effect.	Same as alternative B.
Park Operations	Operation of existing visitor and administrative facilities in the monument would result in continuing minor, long-term, neutral impacts on NPS operations. The cumulative impacts of the no-action alternative and other reasonably foreseeable future actions required of monument staff would be minor to moderate, long term, and neutral.	Impacts would include those of alternative A, plus the additional costs and effort needed to restore and maintain targeted historic views. The restoration would impose additional maintenance and interpretation responsibilities on monument staff. However, no addition of permanent staff is necessary to implement alternative B. Thus, alternative B would result in minor, long-term, neutral impacts on park operations.	Same as alternative B.

MITIGATIVE MEASURES COMMON TO ALL ACTION ALTERNATIVES

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

12 To ensure that implementation of the action
13 alternatives protects natural and cultural
14 resources and the quality of the visitor
15 experience, a consistent set of mitigative
16 measures would be applied to actions
17 proposed in this plan. The National Park
18 Service would conduct appropriate
19 environmental review (e.g., that required by
20 the National Environmental Policy Act,
21 National Historic Preservation Act, and other
22 relevant legislation) for these future actions.
23 As part of the environmental review, the
24 National Park Service would avoid, reduce,
25 or minimize adverse impacts when
26 practicable. The implementation of a
27 compliance-monitoring program would be
28 considered to stay within the parameters of
29 National Environmental Policy Act and
30 National Historic Preservation Act
31 compliance documents, U.S. Army Corps of
32 Engineers Section 404 permits, etc.
33 Compliance with Section 106 and 36 CFR 800
34 will be guided by the 2008 Programmatic
35 Agreement between the National Park
36 Service, the Advisory Council for Historic
37 Preservation, and the National Conference of
38 State Historic Preservation Officers. The
39 compliance-monitoring program would
40 oversee these mitigative measures and would
41 include reporting protocols.

42 The following mitigative measures and best
43 management practices would be applied to
44 avoid or minimize potential impacts from
45 implementation of the alternatives. These
46 measures would apply to all alternatives.

Cultural Resources

47 The National Park Service would preserve
48 and protect, to the greatest extent possible,
49 resources that reflect the history, events, and
50 people associated with Fort Pulaski National
51 Monument. Specific mitigative measures
52 include the following:

- 53 • Continue to develop inventories for
54 and oversee research about
55 archeological, historic, and
56 ethnographic resources to better
57 understand and manage the
58 resources. Conduct any needed
59 archeological or other resource
60 specific surveys, national register
61 evaluations, and identify
62 recommended treatments.
63 Incorporate the results of these
64 efforts into site-specific planning and
65 compliance documents.
- 66 • Continue to manage cultural
67 resources and collections following
68 federal regulations and NPS
69 guidelines. Inventory the
70 monument’s collection and keep in a
71 manner that would meet NPS
72 curatorial standards.
- 73 • Subject projects to site-specific
74 planning and compliance procedures.
75 For archeological resources, by
76 locating projects and designing
77 facilities in previously disturbed
78 (which may represent historical
79 developments requiring treatment as
80 cultural resources) or existing
81 developed areas, make efforts to
82 avoid resources and thus adverse
83 impacts through use of the *Secretary*
84 *of the Interior’s Standards for*
85 *Archeology and Historic Preservation*.
- 86 • Use screening and/or sensitive design
87 that would be compatible with
88 historic resources and cultural
89 landscapes and not adjacent to
90 ethnographic resources. If adverse
91 impacts could not be avoided, a
92 consultation process with all
93 interested parties would be employed
94 to determine the appropriate impact
95 mitigation measure(s).

- 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. This would include artifacts used in exhibits in the visitor center.
- In addition, for structures and land landscapes, mitigative measures include documentation according to standards of the Historic American Buildings Survey/Historic American Engineering Record/Historic American Landscape Survey. The level of this documentation, which includes photography, archeological data recovery, and/or a narrative history, would depend on significance (national, state, or local) and individual attributes (an individually significant structure, individual elements of a cultural landscape, etc.) and be determined in consultation with the Historic Preservation Division, Georgia Department of Natural Resources.

Natural Resources

Exotic Plant Species. Implement an exotic plants control program during construction activities. Standard measures could include the following elements: ensure construction-related equipment arrives onsite free of mud or seed-bearing material, certify all seeds and straw material as weed-free, identify areas of noxious weeds preconstruction, treat noxious weeds or noxious weed topsoil before construction (e.g., topsoil segregation, storage, herbicide treatment), and revegetate with appropriate native species.

Soundscape. Cockspur Island, the site of the principal cultural resource of the national monument is located between U.S. Highway 80 to the south and the Savannah River, the major waterway for large container ships

serving the Port of Savannah, to the north. Despite these land and water thoroughfares, the relative quiet and serenity of Cockspur Island is an important feature of the site to visitors.

The National Park Service will restore to the natural condition wherever possible those monument soundscapes that have become degraded by unnatural sounds (noise), and will protect natural soundscapes from unacceptable impacts. Using appropriate management planning, superintendents will identify what levels and types of unnatural sound constitute acceptable impacts on monument natural soundscapes. The frequencies, magnitudes, and durations of acceptable levels of unnatural sound will vary throughout a park, being generally greater in developed areas. Within and adjacent to parks, the Service will monitor human activities that generate noise that adversely affects monument soundscapes, including noise caused by mechanical or electronic devices. The National Park Service will take action to prevent or minimize all noise that through frequency, magnitude, or duration adversely affects the natural soundscape or other monument resources or values, or that exceeds levels that have been identified through monitoring as being acceptable to or appropriate for visitor uses at the sites being monitored.

Soils. Build new facilities on soils suitable for development. Minimize soil erosion by limiting the time that 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 manner. Place construction equipment in previously disturbed areas. Locate trails on soils with low erosion hazards and small changes in slope and develop proper signs to minimize social trails. Ensure proper drainage of parking areas.

Threatened and Endangered Species and Species of Concern. Mitigative actions would occur during normal monument 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 monument affected, and additional mitigations will be added depending on the specific action and location. Mitigative 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.

Many of these measures would also benefit rare, threatened, and endangered species by helping to preserve habitat.

Vegetation. Monitor areas used by visitors (e.g., trails) for signs of native vegetation disturbance. 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 riparian 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. Salvage vegetation from construction activities should be used to the extent possible.

Water Resources. Contractors for construction projects would be required to develop and implement a storm water pollution prevention plan. Standard best management practices to limit erosion and control sediment release would be employed. Such measures include use of silt fencing, limiting the area of vegetative disturbance, use of erosion mats, and covering banked soils to protect them until they are reused. To avoid introduction of exotic plant species, no hay bales would be used to control soil erosion.

Wildlife. The National Park Service will adopt monument resource preservation, development, and use management strategies that are intended to maintain the natural population fluctuations and processes that influence the dynamics of individual plant and animal populations, groups of plant and animal populations, and migratory animal populations in parks.

In addition to maintaining all native plant and animal species and their habitats inside parks, the Service will work with other land managers to encourage the conservation of the populations and habitats of these species outside parks whenever possible. To meet its commitments for maintaining native species in the national monument, the National Park Service will cooperate with states; tribal governments; the U.S. Fish and Wildlife Service; and the National Oceanic and Atmospheric Administration, as appropriate, to

- participate in local and regional scientific and planning efforts, identify ranges of populations of native plants and animals, and

develop cooperative strategies for maintaining or restoring these populations in the parks;

- employ techniques to reduce impacts on wildlife, including visitor education programs, restrictions on visitor activities, and park ranger patrols;
- prevent the introduction of exotic species into the national monument; and
- remove, when possible, or otherwise contain individuals or populations of species that have already become established in the unit.

Wetlands. Delineate wetlands and apply protection measures during construction. Wetlands would be delineated by qualified NPS staff or certified wetland specialists and clearly marked before construction work. Construction activities would be performed in a cautious manner to prevent damage caused by equipment, erosion, siltation, etc.

Visitor Safety and Experience

Although there are limitations on its capability to totally eliminate all hazards, Fort Pulaski staff and concessioners, contractors, and cooperators will seek to provide a safe and healthful environment for visitors and employees. The national monument will work cooperatively with other federal, tribal, state, and local agencies; organizations; and individuals to carry out this responsibility. Fort Pulaski will strive 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.

The national monument recognizes that the natural and cultural resources it protects are

not only visitor attractions, but that some may also be potentially hazardous. Therefore, when practicable and consistent with congressionally designated purposes and mandates, Fort Pulaski will reduce or remove known hazards and apply other appropriate measures, including closures, guarding, signing, or other forms of education. In doing so, the national monument's preferred actions will be those that have the least impact on monument resources and values.

Noise Abatement

Mitigative measures would be applied to protect the natural sounds in the national monument. Specific mitigative measures include the following:

- Implement standard noise abatement measures during typical maintenance (grass cutting and use of other types of power equipment) and construction activities. Standard noise abatement measures could include the following elements:
 - a schedule that minimizes impacts to visitor experiences,
 - the use of the best available noise control techniques wherever feasible, and
 - the location of stationary noise sources as far from sensitive uses as possible.

Scenic Resources

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

- Where appropriate, use facilities such as fences to route people away from sensitive natural and cultural resources, while still permitting access to important viewpoints.
- Provide vegetative screening, where appropriate.

FUTURE STUDIES AND IMPLEMENTATION PLANS NEEDED

After completion and approval of a general management plan for managing the national monument, other more detailed studies and plans would be needed for implementation of specific actions. As required, additional environmental compliance (National Environmental Policy Act, National Historic Preservation Act, and other relevant laws and policies), and public involvement, would be conducted. Those additional studies include but would not be limited to the following:

- Completion of a cultural landscape report — A cultural landscape report is the primary guide to treatment and use of a cultural landscape. Based on the historic context provided in a historic resource study, a cultural landscape report documents the characteristics, features, materials, and qualities that make a landscape eligible for the National Register.
- Fire management plan—A fire management plan is required for all parks that have vegetation that will sustain fire. The fire management plan is a public document (requires a public comment period).
- Comprehensive interpretive plan — The comprehensive interpretive plan process is the basic planning component for interpretation and education in a park. The plan is a tool to help parks decide priorities for their objectives, determine what stories to tell, identify their audiences and describe the most effective mix of media and personal services to use.
- Resource stewardship strategy — As a program planning document, the resource stewardship strategy serves as a link between the monument's general management plan and its strategic planning, wherein the monument's personnel and financial resources are allocated to implement resource stewardship actions. The resource stewardship strategy identifies specific components of the

monument resources to target for management during the next 20 years, establishes methods to evaluate the status of these components, determines measurable targets for resources, and evaluates whether the resources are currently meeting targets. Resource stewardship strategy documents are reviewed by subject matter experts before finalization; however, they are not publicly reviewed compliance documents.

- Ethnographic overview and assessment —The most comprehensive background study, this document reviews existing information on monument resources traditionally valued by stakeholders. This study also documents the need for further research on cultural affiliations, important events and associated places in the park, and traditional uses and ways of life.

ENVIRONMENTALLY PREFERABLE ALTERNATIVE

The environmentally preferable alternative is defined as the alternative that would promote the national environmental policy as expressed in section 101 of the National Environmental Policy Act. That section indicates that it is the continuing responsibility of the federal government to do the following:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
- Ensure safe, healthful, productive, and esthetically and culturally pleasing surroundings for all Americans.
- Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences.

- Preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and a variety of individual choices.
- Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities.
- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

A description of how each alternative would or would not achieve the requirements of sections 101 and 102(1) of the National Environmental Policy Act criteria is provided below and illustrated through a rating system in table 8.

Criterion 1 — Fort Pulaski National Monument is a unit of the national park system and as the trustee of this area the National Park Service would continue to fulfill its obligation to protect this area for future generations. The no-action alternative would provide less direction on important issues needed to successfully manage the monument; consequently it was ranked lower than the action alternatives. Alternatives B through C would provide a roughly equal level of protection for the monument over time.

Criterion 2 — All the alternatives would ensure safe, healthful, productive, and culturally pleasing surroundings for all Americans. Alternative B would provide the most pleasing surroundings by moving the existing parking area to a less visible location.

Criterion 3 — Alternative C would provide more opportunities for recreational use of the monument's resources than the other action alternatives, while still ensuring their future protection. Therefore, alternative C scores the highest under criteria 3.

Criterion 4 — Alternative B provides the greatest opportunities for learning because it would restore more of the Monument's landscape to its historic condition than would the other alternatives. These restoration activities would also provide the greatest protection and enhancement of the monument's cultural landscape.

Criterion 5 — All of the alternatives offer environmental protection benefits to society, but alternatives B through C would do so to a greater extent than alternative A.

Criterion 6 — All of the alternatives would result in enhancing the quality of the renewable resources through NPS management, but alternatives B through C would do so to a greater extent than alternative A.

The environmentally preferable alternative for the monument's *General Management Plan* is alternative B (the preferred alternative). According to the ratings included in table 8, this alternative would surpass the other alternatives in realizing the full range of national environmental policy goals in Section 101. In particular, the preferred alternative best responds to criteria 2 ("ensure . . . aesthetically and culturally pleasing surroundings for all Americans") by moving the existing parking area to a less visible location and improving the views from the historic fort.

TABLE 8. ENVIRONMENTALLY PREFERABLE ALTERNATIVE ANALYSIS

Criteria	Alternatives		
	A	B	C
1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.	4	5	5
2. Ensure safe, healthful, productive, and aesthetically and culturally pleasing surroundings for all Americans.	3	5	4
3. Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences.	4	4	5
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.	3	5	4
5. Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities.	4	5	5
6. Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.	4	5	5
Total Points*	22	29	28

* Five points were given to the alternative if it fully meets the criterion; four points if it meets nearly all of the elements of the criterion; three points if it meets more than one element of the criterion; two points if it meets only one element of the criterion; and one point if the alternative does not meet the criterion.

ALTERNATIVES AND ACTIONS CONSIDERED BUT DISMISSED FROM DETAILED EVALUATION

- 1 During the planning process for Fort Pulaski
- 2 National Monument, other alternative
- 3 concepts and elements of concepts were
- 4 presented and then dismissed from further
- 5 consideration.

Combination of Two Alternatives

- 6 The planning team initially proposed two
- 7 alternatives whose only difference was that in
- 8 one, the visitor parking lot would be removed
- 9 from its current location and relocated to a
- 10 location outside the view from the top of the
- 11 fort. The resulting area would be restored
- 12 partially to the conditions that existed during
- 13 April, 1862, in order to establish a more
- 14 accurate representation of that scene. During
- 15 the internal reviews of the draft general
- 16 management plan / wilderness study /
- 17 environmental impact statement the decision

- 18 was made to combine these two alternatives
- 19 into one because of their similarity. The
- 20 resulting alternative is alternative B in the
- 21 document.

Remove Fort Pulaski and Surrounding Structures from Floodplains

- 22 Fort Pulaski National Monument is located
- 23 within a 100-year floodplain, Zone VE, which
- 24 has been mapped by the Federal Emergency
- 25 Management Agency on a Flood Insurance
- 26 Rate Map issued in 2004. Zone VE is
- 27 described as having a 1% chance of flooding
- 28 per year with an additional high wind velocity
- 29 potential (FEMA, 2004). No new structures
- 30 are proposed to be constructed in the 100-
- 31 year floodplain under either of the action
- 32 alternatives in this draft plan. However, the
- 33 National Park Service proposes to retain in
- 34 place all existing structures in the floodplain
- 35 because it is not practicable to relocate them
- 36 to a point outside the 100-year floodplain. In

1 accordance with NPS policy, a floodplain
2 statement of findings has been prepared that
3 outlines in more detail the reasons for
4 retaining these structures in place (see NPS
5 *Management Policies* 2006 § 4.6.4). The
6 floodplain statement of findings is attached
7 to this document as appendix D.

Construct an Observation Tower on Tybee Island

8 The planning team considered construction
9 of an observation tower on Tybee Island as
10 an alternative to clearing a small section of
11 trees on Cockspur Island to provide a view of
12 the fort from Tybee Island that would give
13 visitors to the exhibits at Battery Park some
14 idea of the scene that federal troops manning
15 the batteries on Tybee Island would have had
16 in April 1862. This idea was dismissed as too

17 controversial, costly, impractical, and
18 potentially dangerous.

Permit After-Hours Vehicular Access to the Park

19 Early consideration was given to providing
20 more after-hours access to the monument for
21 bird watching, fishing, stargazing, nature
22 study, etc. Fishing is now allowed along the
23 banks of the Savannah River on and around
24 Cockspur Island, including the use of the
25 Cockspur Island Bridge after hours (bridge is
26 closed to vehicles). However, the team
27 determined that to allow vehicles onto the
28 island after hours would put both visitors and
29 resources at risk due to lack of staff available
30 on site to respond to emergencies.



David Libman, National Park Service

SOUTH CHANNEL BRIDGE