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general management plan
environmental assessment

COLONIAL



NATIONAL HISTORICAL PARK • VIRGINIA
UNITED STATES DEPARTMENT OF THE INTERIOR • NATIONAL PARK SERVICE

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COLONIAL NATIONAL HISTORICAL PARK • VIRGINIA

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE
DENVER SERVICE CENTER

SUMMARY

The National Park Service has prepared this general management plan to guide the management of Colonial National Historical Park for the next 10 to 15 years. The environmental assessment has been developed to satisfy legislative obligations set forth by the National Environmental Policy Act of 1969 (NEPA), which requires consideration of alternatives and analysis of impacts of those alternatives. The plan, when approved, will replace earlier plans for management of Colonial National Historical Park in Virginia.

The park encompasses most of Jamestown Island, site of the first permanent English settlement in the Americas, Yorktown, scene of the culminating battle of the American Revolution, and Colonial Parkway, a 23-mile road that connects the park's two major areas with related historical attractions managed by the state or local entities.

The major goal of this planning effort is to provide for protection of the cultural and natural resources in the park while delineating a course of action for future management, interpretation, and development. Three alternatives have been examined in this *General Management Plan/Environmental Assessment*, and their environmental consequences are analyzed in detail.

ALTERNATIVE A

Alternative A, the no-action alternative, would involve no changes in the present management direction; Park Service actions would be limited to legislative requirements and safety concerns. New interpretation of natural or cultural resources would not be planned or implemented; the 30-year-old historical interpre-

tations now in place would continue without updating. Management of museum collections and natural resources would be unchanged.

ALTERNATIVE B

Alternative B, which is preferred by the National Park Service, would involve refinement of existing conditions. Management, which would be based on GMP objectives and previous experience, would be centered in several principal management areas: Yorktown and Yorktown battlefield, Jamestown and Jamestown Island, and the Colonial Parkway. A new design theme for Colonial National Historical Park would enhance public recognition of the park and distinguish it from other area attractions. Interpretation and visitor services would be improved, and actions would be monitored to ensure protection of cultural and natural resources. Cooperation with state and local governments and other groups would be of major importance.

At *Jamestown and Jamestown Island*, visitor services would be improved, and sensitive interpretation would help visitors to experience the site's tranquility and sense its vitality. Historical interpretation would be updated to a modern historiographical focus, and improved management of cultural and natural resources would provide additional protection. Establishment of a public transportation system would be considered. Various projects initiated in connection with the approaching Jamestown quadricentennial would enhance the management of the area's important cultural resources. The present visitor center would be replaced by a new facility situated away from the original townsite.

SUMMARY

Five distinct management districts would be established at *Yorktown* to improve management and heighten visitors' understanding of this historic area. Dramatic playlets and living history presentations would be increased to enliven interpretation, and as at Jamestown, historical interpretation would be updated. Part of Yorktown's Main Street would be closed to vehicles, and several existing buildings would be opened as retail establishments or other visitor-oriented facilities. A development concept/interpretive plan would address other management details including improvement of curatorial facilities.

At *Yorktown battlefield*, historical interpretation would be reassessed, and Virginia Highway 238 would be rerouted away from the battlefield. The visitor center roof would be redesigned, stabilized, and expanded to serve as an improved observation platform where interpretation of the first and second siege lines would be offered. A cultural landscape analysis would include evaluation of vegetation management alternatives on cultural and natural resources. Studies would be done of the feasibility of a bicycle/pedestrian trail and of the possible relocation of active recreational pursuits away from the battlefield. Rare, threatened, and endangered plants and animals would be surveyed.

The "country road" character of *Colonial Parkway* would be retained. The road-way's historical significance would be reassessed, and studies would be made of visitors' impacts on various sites along the parkway. Traffic and safety would be improved by redesign of the Five Points intersection and possibly by establishment of a separate bicycle/pedestrian trail.

Other park properties include the Cheatham Pond area, which under this alternative would be divided into two parcels for use by the U.S. Navy and York County.

Swann's Point, Tindalls Point, and Cape Henry would be managed as detached units of the park. Management of the Green Spring plantation site would emphasize resource protection and archeological research. Some park properties having no particular historical or natural value would be considered for exchange with other entities, and additional properties might be acquired to protect the historic scene.

Satellite information stations would be added at major intersections along the parkway to present information about the park. Cooperative studies with state, local, or other federal agencies would be initiated to determine actions needed to protect land and vistas. Natural resource management would be consistent with NPS philosophy on management of natural zones while supporting cultural resource objectives. All park actions would be in compliance with applicable laws, regulations, and policies.

ALTERNATIVE C

Alternative C, which would involve substantive change, would lead to a different future for Colonial National Historical Park: in light of changing land use patterns and the profusion of visitor attractions in the region, the park's role would become primarily one of resource preservation. Management of cultural resources and the park's increasingly sensitive natural resources would be integrated. Some areas would be restored to natural conditions, but important cultural resource zones would be retained. Many of the actions described for alternative B also would be in effect under this alternative.

The park would be reinterpreted according to current historical and archeological scholarship. Interpretation would stress the relationship between natural resources

and historical events. Interagency cooperation would be crucial to implementation of this alternative, under which historical and archeological artifacts would be stored in a cooperatively managed new facility and interpretation by other groups would complement that offered by the National Park Service.

At *Jamestown*, the visitor center would be replaced by a facility situated away from the original townsite. Additional studies should be conducted to assess the possibility of leaving the archeological collection in the 100-year floodplain.

Complementary interpretation would be ensured by cooperation with the state of Virginia, which operates Jamestown Settlement, and other area organizations. NPS interpretation would be centered on the natural environment and its effect on early settlers, and on technical displays. Most of the park's archeological collections would be stored in a cooperative facility, but limited artifact storage would be available at park facilities.

Management of *Yorktown and Yorktown battlefield* would include many of the actions described for alternative B. In addition, the Park Service would cooperate with local groups in implementing the recently developed master plan. The archeological collections would be stored in a central cooperative facility. Yorktown and the battle would be reinterpreted in

light of current scholarship. Native vegetation would be reestablished, and a reduction in mowing would be considered.

Management of *Colonial Parkway* would be similar to that of alternative B, but more emphasis would be placed on resource preservation. The road right-of-way would exist within the boundaries of a larger corridor managed as a natural zone. Increases in vegetation would be encouraged to screen adjacent land uses, enhance wildlife habitat, and eliminate evidence of human influence. Views of the York and James rivers and large wetland areas would be left unscreened. Unregulated use of sensitive areas would be prohibited.

Most *other park properties*, including the Cheatham Pond area, would be retained and integrated into the interpretive scope of the park. In overall park management, programs of national and international import would be initiated to highlight the significance of the European colonial experience in the New World and elsewhere in the 16th through 20th centuries. As mentioned above, cooperative agreements between participating agencies would be central to successful implementation of alternative C.

The actions proposed in the three alternatives are detailed in table 1 (page 30); their impacts are compared in table 4 (page 61).

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INTRODUCTION

BACKGROUND

Colonial National Historical Park, in the southern tidewater region of Virginia, encompasses most of Jamestown Island, site of the first permanent English settlement in North America, and Yorktown, scene of the culminating battle of the American Revolution (see Location map). The 23-mile Colonial Parkway, which connects these and other colonial sites (including Williamsburg), provides an aesthetic drive through natural environments with few modern intrusions. The park, which occupies a peninsula between the James and York rivers, integrates the histories of Jamestown, Williamsburg, and Yorktown for a comprehensive visitor understanding of the British colonial experience in North America.

In addition to the three major attractions mentioned above, the park contains several detached areas: Green Spring plantation site, where an early colonial governor made his home; Cape Henry memorial; Swann's Point, an area across the James River from Jamestown Island; and Tindalls Point, which contains various Civil War fortifications.

Colonial National Monument was established in 1930 by congressional legislation. The name was changed to Colonial National Historical Park in 1936. The Association for the Preservation of Virginia Antiquities (APVA) had acquired 22½ acres at Jamestown in the 1890s, and in the 1920s Colonial Williamsburg was established as a private nonprofit organization. Together, Colonial National Historical Park, Colonial Williamsburg, and the APVA began pioneering work in the field of historic preservation to research, preserve, restore, and interpret the first suc-

cessful British colony on Jamestown Island, the second colonial capital at Williamsburg, and the last major battle of the revolutionary war at Yorktown. These primary resources were connected by a scenic road known as the Colonial Parkway, which provided easy, enjoyable travel between the sites.

The initial vision, which reflected the sensibilities and attitudes of the age in which it was conceived, has been largely realized. Visitors today see original sites, buildings, and artifacts and learn the history of the Anglo-American colonial experience from 1607 to 1781. Others have joined with related and complementary services and facilities; for example, the Jamestown-Yorktown Foundation with the state-owned Jamestown Settlement (formerly Festival Park) and the Yorktown Victory Center. Also contributing related services are state agencies, other federal agencies; the Yorktown Day Association; local cities and counties; the travel industry; and civic, patriotic, educational, and volunteer organizations.

BRIEF HISTORY

Jamestown

Early in American history, Jamestown flourished as a commercial, religious, and political center for the new colony of Virginia. Only one aboveground structure remains from the 17th century, but preservation and interpretation of the island's historic setting enable modern visitors to sense the struggles of this tiny European community on the edge of what the settlers perceived as a great wilderness.

INTRODUCTION

Park facilities that serve Jamestown visitors include the visitor center, which provides information and interpretation as well as museum displays illustrating the life and times of settlers; pedestrian paths through the site of the original town; and an auto tour route through the more remote parts of the 1,561-acre island. The ruins of the original Jamestown glass factory are preserved just west of the present entrance station.

Yorktown/Yorktown Battlefield

In colonial times Yorktown was a seaport on the York River and a prosperous commercial center. Today it is a small but active community with a great deal of historical integrity. It is surrounded by park land, and most historic properties in the area are part of the park.

The 4,302-acre Yorktown battlefield contains earthworks, headquarters and encampment sites, and other significant remains from the 1781 battle, as well as earthworks from the Civil War era. Revolutionary war resources have been carefully preserved or reconstructed and can be seen today on two auto tours of the battlefield. In addition, the visitor center presents exhibits, dioramas, and a theater program portraying the events of the siege. An overlook on the visitor center roof allows visitors to view strategic points of the battlefield.

Significant changes could occur in Yorktown in the near future. A master plan has been developed by York County and various Yorktown groups to improve the city's waterfront and create a more vibrant community. At the same time, the National Park Service is exploring ways to increase interpretation on Main Street and Water Street.

Colonial Parkway and Cheatham

Colonial Parkway has successfully provided access to the attractions it was originally designed to connect: Jamestown Island, Williamsburg, and Yorktown. It projects an image of a country road, with scenic vistas complementing the historic sites along the way.

The Department of the Navy transferred the 786-acre Cheatham tract to the National Park Service in 1979. The tract adjoins Colonial Parkway; the intent of transfer was to protect the parkway's scenic integrity and to provide for appropriate outdoor recreation. Since the transfer, the Navy has continued to manage the area under an agreement with the Park Service. Navy personnel use the well-maintained tract for certain recreational pursuits.

Other Park Properties

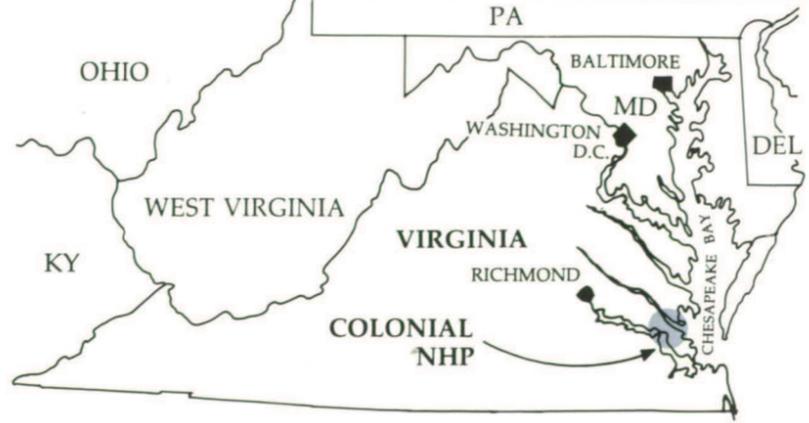
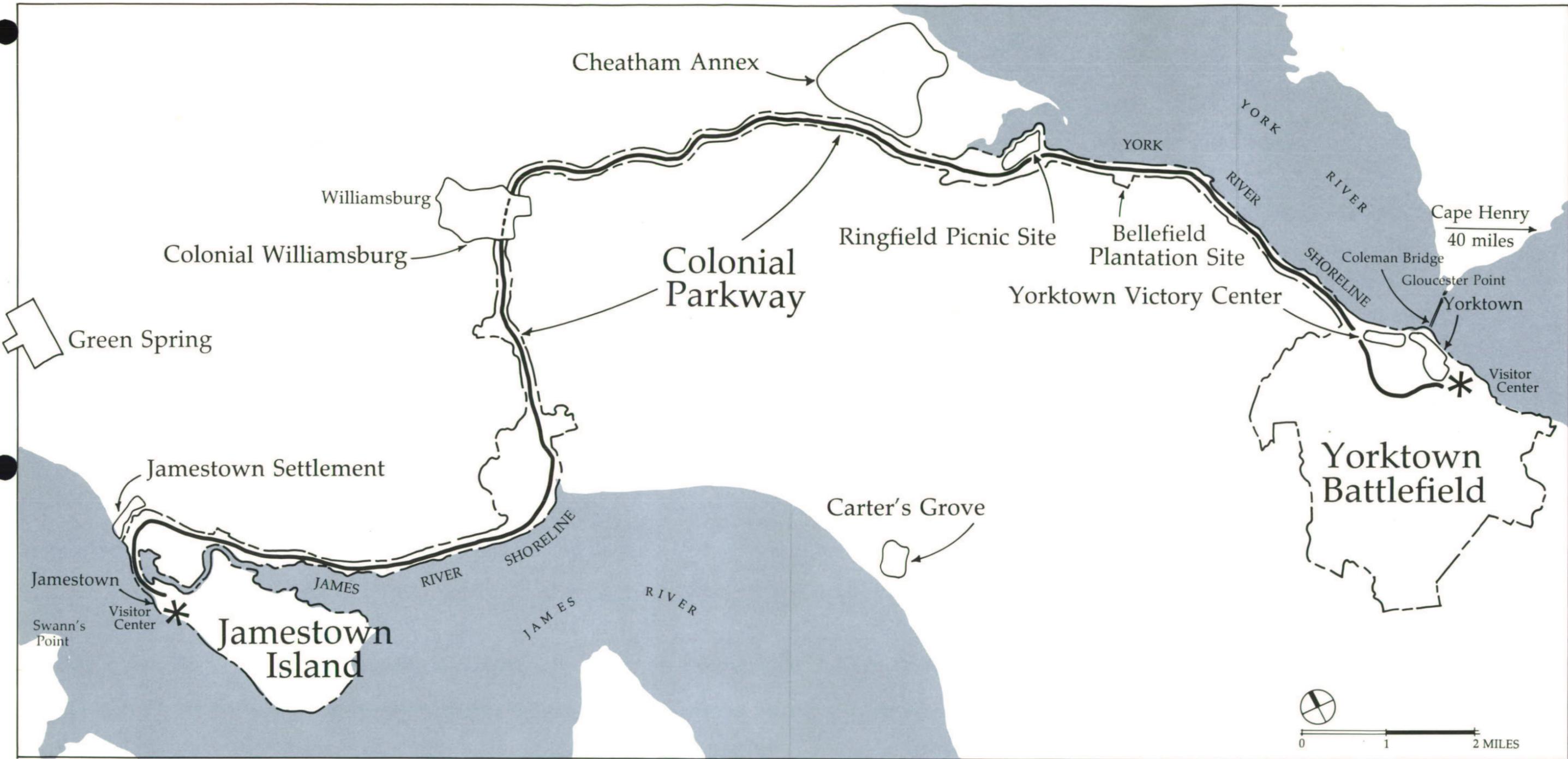
The history of the other park properties mentioned above is discussed in more detail in the "Cultural Resources" section of the "Affected Environment" chapter.

NATURAL RESOURCES

Natural resources in the park's 10,221 acres include marine and freshwater wetland habitats, pine and mixed hardwood forests, open fields, rivers, ponds, coastal bluffs, and ravines.

Jamestown Island is a 1,561-acre low terrace island, nearly level to gently sloping. It contains pine-oak forests and associated marshes and wetlands.

The 4,302-acre Yorktown battlefield lies in the Coastal Plain uplands; its topography is gently sloping with some steep ravines.



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Loblolly pine and various oaks are the predominant species in the battlefield's pine-oak forests. It has poorly drained soils. Its waters are primarily upland streams and ponds. This area contains a blue heron rookery.

The 3,596-acre area that includes Colonial Parkway and Cheatham Pond varies from sea level marshes to upland slopes with elevations near 50 feet. It contains pine-hardwood forests with associated marshes and wetlands. There are upland streams and both freshwater and brackish ponds. Yorktown onions that grow in this area are a unique species.

An important feature of the park is the historic Green Spring plantation site north of Jamestown. William Berkeley, governor of Virginia in the mid-1600s, lived at Green Spring. The site comprises 196 acres in a hardwood forest area.

Another important feature is Swann's point, a 414-acre site in forested wetlands across the James River from Jamestown Island, which includes a historic cemetery. This area includes both fee simple and easement lands.

PLANNING PROCESS

Three alternative plans are presented in this document. Alternative A is a no-action alternative, under which no substantial changes would be made in present management direction. Alternatives B and C present two other management options. Alternative B, the alternative preferred by the National Park Service, is the draft general management plan.

In compliance with the National Environmental Policy Act (NEPA), a 30-day public review and comment period will begin when this document is made available to the public. At the end of the 30-day period, a determination will be made as to the significance of the environmental effects of the proposed action. At that time, the National Park Service will decide whether an environmental impact statement needs to be prepared. If it is determined that there would be no significant adverse effects, a finding of no significant impact (FONSI) will be prepared to complete the process of NEPA compliance.

PURPOSE OF AND NEED FOR THE PLAN

To update the management of Colonial National Historical Park, a general management plan is being developed. The purpose of the planning effort is to explore the long-range future of the park and to determine what changes will be necessary to ensure preservation of significant resources and the continuation of a high quality experience for visitors.

PARK ELEMENTS

Colonial consists of several major elements: Jamestown Island, including the townsite of Jamestown; Yorktown and the Yorktown battlefield; and Colonial Parkway, as well as other properties such as the Green Spring plantation site, Cape Henry, Swann's Point, and the Cheatham Pond area, here termed "general park properties," "park general," or "other."

ISSUES AND CONCERNS

The following issues and concerns need to be considered in planning for the management of Colonial National Historical Park.

Land use patterns in the vicinity of the park are a continuing concern, especially in Surry County directly across the river from Jamestown and at various points along the Colonial Parkway. Since the park was established in 1930, urban growth in the area has been significant. Adjacent to the park are a Coast Guard training center, two large naval bases, the cities of Williamsburg and Newport News, and the village of Yorktown. Development pressures and population increases in the region are constant threats to park resources. These threats need to be monitored so that resource protection and proper management can be imple-

mented cooperatively with other agencies and owners of adjacent property.

The park's collections of archeological artifacts are inadequately housed. The Jamestown collection is stored in the visitor center basement, which is in the 100-year floodplain. This causes problems in humidity control, and this important collection could be damaged by a major hurricane or a sudden change in groundwater level. The Yorktown collection is housed in an inadequate concrete block structure with minimal security. A strategy is needed for better storage, research, curation, and exhibition of the collections.

Colonial National Historical Park is not alone in the interpretation of the stories of Jamestown and the battles at Yorktown. Visitors can take advantage of interpretive centers, living history demonstrations, museums and collections, shops, and tours at Williamsburg, Jamestown Settlement, and the Yorktown Victory Center. An important concern to park management is coordination of current and future activities between the Park Service and other groups. Closer coordination would benefit visitors to the region.

The Glasshouse area at Jamestown, which is extensively visited, critically needs new restrooms and redesigned parking that will accommodate buses. Interpretation of this area also needs to be improved.

The Jamestown visitor center, where traditional interpretation is offered, is a modern intrusion in an otherwise prime historic area. Alternative locations need to be explored.

An important management concern is the proposal to build a bridge just upriver from Jamestown. Such a bridge would

severely intrude on the vista from Jamestown.

Yorktown's future is a major concern of local residents. Since the Park Service is a primary landowner in this area, options for future use of its public properties should be examined.

The Yorktown visitor center, was designed to allow visitors to view the battlefield from the roof. The structural soundness of the rooftop observation deck needs to be examined, and improvements need to be made in the engineering and the functional design of the deck.

Visitors' enjoyment of the Cornwallis Cave area is impeded by traffic noise and the narrow, dangerous pedestrian access.

A driving tour of Yorktown battlefield augments the visitor center program, but summer traffic congestion affects visitor enjoyment and safety. Tour traffic conflicts with nonpark traffic, and the Five Points intersection is confusing and dangerous. The matter of safety must be addressed. Strategies are needed to transform Yorktown from a vehicular to a pedestrian place.

The Yorktown battlefield landscape is more wooded now than it was in 1781, so visitors cannot see some battlefields—Surrender Field, for example—well enough to appreciate the historic context. Future management of the cultural landscape needs to be evaluated.

Interpretation at Yorktown battlefield should be updated. Current presentations concentrate on American, British, and French roles, but the actual composition of troops and their backers should be more fully described: there is little mention of Hessian and Irish mercenaries in the British and French forces, Spanish financiers

who backed the Revolution, or blacks who took part in the battle.

Yorktown battlefield is being used increasingly by walkers, joggers, bicyclists, and equestrians. Other active pursuits like kite flying, Frisbee throwing, and ball games are allowed between the second siege line and the British inner defense line; these activities can result in problems in safety and resource protection. What types and levels of recreational use are appropriate must be determined. New trail and recreation plans are needed to solve problems and improve recreational experiences.

The National Park Service opposes the planned expansion of the Coleman bridge at Yorktown.

Increased development on land adjacent to Colonial Parkway could erode the area's historic character and impinge on natural beauty. A proposed industrial pier with large Navy ships on the York River would impair views and lead to congested parkway traffic. Information and orientation are limited at parkway access points. The Ringfield picnic area, which is not visible from the parkway, is underused. Access to the shoreline from this area may be too restrictive. The future of Colonial Parkway requires specific definition.

The Park Service has never formally addressed future management of the Cheatham Pond area. Determination must be made as to what uses of that area would be in the overall public interest and what agency or combination of agencies would best manage the area.

The National Park Service still has a legal interest in the Moore House subdivision sewer system. York County is now the logical entity to own and operate the sewer system. Congressional legislation is needed to complete this transfer.

MANAGEMENT OBJECTIVES

The following objectives guide management of Colonial National Historical Park.

Entire Park

Interpret for visitors the significance and relationships of the sites and events at Jamestown, Yorktown, and Colonial Williamsburg.

Provide an integrated visitor experience, incorporating historically relevant park sites.

Preserve colonial-period resources and make them accessible in a manner that is safe and enjoyable for visitors.

Maximize the visual and historical integrity of the visitor experience.

Protect, enhance, and interpret natural resources in a manner consistent with applicable policies and regulations while supporting cultural resource objectives.

Actively promote conservation of the landscapes adjacent to Colonial National Historical Park to enhance historic and scenic views and to protect park resources and values.

Cooperate with organizations, individuals, and other agencies to further park objectives and encourage compatible land uses.

Develop and implement a comprehensive program to inventory, research, and monitor cultural resources.

Jamestown

Keep human habitation sites clear of vegetation to the extent necessary for visitors to see cultural resources.

In areas without evidence of habitation, maintain the natural environment in ways that suggest the conditions of the 1607 forest environments.

Promote a sense of the primitive isolation of the 1607 frontier.

Yorktown

Preserve, restore, and research historic structures and archeological sites of the colonial and revolutionary periods and the Victory Monument.

Plan interpretation of Yorktown around the primary interpretive theme of the siege of Yorktown; interpret this from strategic points in the town. As a secondary theme, interpret colonial commerce on the waterfront and other aspects of colonial life on Main Street.

Manage NPS properties to suggest the character and flavor of colonial times within the limits of safety and practicality.

Impart a sense of Yorktown history while encouraging social and economic vitality in keeping with preservation and interpretation goals; support a balanced mix of homes, businesses, governmental functions, churches, waterfront activities, visitor services, roads, trails, and recreational uses that reflect the community's size, scale, traditions, and spirit.

Yorktown Battlefield

Establish conditions on the battlefield and the York River that reflect the visual scene of 1781.

Promote a sense of the surrounding rural agricultural setting.

Colonial Parkway

Maintain the Colonial Parkway for safety while retaining the integrity of its design as a scenic roadway. Protect the historic sites, the landscapes, and the undeveloped vistas of the James and York rivers along the parkway.

The primary visitor experience along the parkway involves enjoyment of the parkway and its surroundings. It is best enjoyed as a limited access road with low to moderate traffic levels and little or no congestion.

ALTERNATIVES, INCLUDING THE PROPOSED ACTION

Three alternatives are analyzed. Alternative A is the no-action alternative, under which no substantive changes would be made in park management. Under alternative B, which the National Park Service prefers, present management would undergo some refinements, but many existing management concepts would be unchanged. This is the proposed action. Alternative C would lead to a different future for Colonial National Historical Park: in light of changing land use patterns and the profusion of visitor attractions in the region, the park's role would become primarily one of resource preservation. The alternatives are compared in table 1, at the end of this chapter (page 30). The costs of implementing each alternative are shown in appendix A.

ALTERNATIVE A: NO ACTION

Management of Colonial National Historical Park would not change significantly under alternative A; present policies would continue. Actions would be limited to those needed to comply with legal requirements and to protect park resources and the health, safety, and welfare of visitors and park employees. Structures and sites would continue to be used as at present and repaired when necessary; no provision would be made for updated cyclical maintenance programs.

Jamestown/Jamestown Island

For the foreseeable future, there would be little change in management of the Jamestown area under alternative A. Interpretation would still be conducted at the visitor center, and visitors would continue to be

able to take an auto tour of the island or to walk around the townsite.

Yorktown/Yorktown Battlefield

As at Jamestown, visitors would experience Yorktown through the visitor center, an auto tour, and interpretive programs. The master plan recently developed for the community might lead to some changes, but the Park Service would not initiate any new actions.

Colonial Parkway

The design character of Colonial Parkway would be maintained so that the function of a scenic drive between Jamestown, Williamsburg, and Yorktown would not be impaired.

Park General

Management would be unchanged at the park's detached units: the Cheatham Pond area, Green Spring plantation site, Cape Henry, Swann's Point, and Tindalls Point. The park would encourage continued monitoring of the air quality to maintain its present classification as a class II air quality area and to ensure compliance with the Clean Air Act.

The Park Service is conducting a comprehensive inventory of cultural resources to document significant sites, both inside and outside the park, that qualify for nomination to the National Register of Historic Places. Included will be Jamestown, Yorktown, Yorktown battlefield, and Colonial Parkway. The management of natural resources would be unchanged.

ALTERNATIVE B: REFINEMENT OF EXISTING CONDITIONS (PREFERRED)

Management under alternative B would support and build upon actions taken by the Park Service over the past 60 years to preserve and interpret the park's resources. Additional protection of resources would be carried out under this alternative, and visitors' enjoyment of the park would be enhanced, especially at Jamestown, Jamestown Island, the Colonial Parkway, Yorktown, and the Yorktown battlefield. The Park Service would closely monitor the results of all actions to ensure protection of the park's cultural and natural resources.

Cooperation with neighboring and related agencies and organizations is an important element of this alternative. Emphasis would be placed on Park Service cooperation with the APVA, York County, the Yorktown Trustees, the Yorktown Steering Committee, the Jamestown/Yorktown Foundation, Colonial Williamsburg, the city of Williamsburg, James City County, nearby military installations, the Virginia State Historic Preservation Office, other state agencies, and interested nonprofit organizations.

Jamestown

Alternative B would entail some changes in management of the Jamestown area. Actions described in this section would be carried out to improve visitors' experience and ensure long-term protection of prehistoric and historic resources.

New buildings would not be placed in the island's extensive wetland areas and would not affect floodplain values. To avoid adverse effects on wetlands, detailed analysis of potential changes in each wetland area would be completed as part of feasibility planning.

The National Park Service opposes any bridge across the James River that would disrupt the sense of primitive isolation on Jamestown Island.

The joint management of Jamestown by the National Park Service and APVA would be continued and strengthened. The joint entrance fee with APVA would continue.

Sense of Place. Few aboveground resources from the 17th century remain at Jamestown, but sensitive management and interpretation would enable visitors to experience the tranquil, contemplative quality of this historic site while sensing its vitality. In addition to telling Jamestown's 17th-century history, interpretation would emphasize contact with the historic and natural environment of the townsite and the island and with the prime physical remains: many artifacts, most of which were recovered archeologically, and the church tower (on APVA property), the only standing remnant of 17th-century Jamestown.

Visitor Center; Jamestown Collections. In keeping with the objective of promoting the historic isolation of the townsite, the visitor center would be removed from its present location. The Jamestown museum collections would be housed in the new visitor center, or possibly in a separate building. Alternative locations for a new visitor center and a collections building would be considered. The possibility of locating the visitor center in the southwest part of the present parking lot would be considered. A preliminary design study would be needed to identify the feasibility of and locations for the new building or buildings.

Additional artifact displays would be provided at the visitor center. Exhibits and audiovisual productions would be improved and interpretive services in-

creased. Artifacts would be moved from the present basement storage area (where floodwater could cause serious damage) to an above-grade area of a new visitor center specifically designed for artifact storage. A new movie would be developed to replace the present outdated one.

The collections would be housed in their entirety in a new visitor center/collections building or a separate building. If space requirements precluded storing all artifacts in a visitor center/collections building on the island, another facility would be provided in a secure location on NPS property (off Jamestown Island) to house materials that are seldom used for study. That facility could also house a representative selection of artifacts that would be preserved in the event of a catastrophe at Jamestown.

The pitch and tar swamp near the present Jamestown visitor center would be protected. Erosion and sedimentation would be prevented to protect the fragile ecological integrity of the swamp. To prevent further degradation and adverse effects, traffic flow patterns from the new visitor center to the island's prime cultural resource areas would be managed and monitored to minimize impacts on the swamp.

Glass Works. Further protection would be provided for the ruins of the original Jamestown glass factory so that gradual deterioration caused by the maritime climate could be arrested. Interpretive services and restrooms at the Glasshouse would be upgraded.

Transportation. If feasible, a public transportation system would be established for travel on the island tour road to reduce congestion at interpretive waysides and enhance visitors' perception of Jamestown Island. The Park Service would work with a cooperating organization to provide this service or, if funding permitted, the Park

Service would operate the interpretive transportation system.

Interpretation. To offer more people a high-quality interpretive experience, the Park Service would expand interpretive tours of the original townsite, character interpretation at the townsite, and educational programs for school groups. New well-defined, easily maintained wayside exhibits along the path would effectively relate updated site-specific history. A new film would better explain the site's significance and bring interpretation into a modern historiographical focus. Linkages between natural and cultural resources would be integrated into the visitor experience. Resources at Jamestown would be used as an example of historical and current relationships between people and their environment.

Jamestown Quadricentennial. The 400th anniversary of the founding of Jamestown (in 2007) is expected to be a major celebration. The Park Service would work with other agencies to plan for that anniversary. Several research projects would be finished before the quadricentennial to ensure proper protection of resources and their availability for visitors to enjoy and appreciate. Much of the research will be accomplished in cooperation with the APVA and other institutions. The Jamestown Island Research Project, a 20-year plan for gathering necessary data for the celebration, lists the following important research needs:

Reassessment of Jamestown's historical significance. A definition is needed of Jamestown's place in the world as an element of the 17th-century colonial experience.

Geomorphological study. A definition of the island's appearance in 1607 can be developed with the use of geological and remote-sensing techniques.

Cataloguing and computerization of archeological collection. The complete archeological collection (including the APVA collection) needs to be identified and recorded, then made available for research.

Development of computerized biographical data base. Consolidated data should be assembled for research on the island's populations, demography, and events.

Compilation of information. Information from previous studies should be assembled and organized, including maps documenting the island's many archeological sites.

Archeological surveys. The scope of past archeological investigations needs to be examined and potentially significant sites identified. An archeological survey and some subsurface testing also are needed to (a) determine the location of the 1607 fort, (b) identify and evaluate significant outliers on the island, and (c) define the town's boundaries and its evolution as an urban area.

Cultural inventory. A comprehensive inventory is needed of all cultural elements in Jamestown. Cultural resources of the park would be documented and forms submitted to the National Register of Historic Places. Also in preparation for 2007, the Park Service and the APVA need to do a joint management plan and memorandum of agreement for the townsite covering preservation, interpretation, visitor use, and visual resources.

Yorktown

The National Park Service reaffirms its opposition to the Coleman Bridge at Yorktown and to any expansion of that bridge.

As the Park Service has said many times since the 1930s, the bridge overwhelms the historic village of Yorktown. Heavy traffic, noise, and the visual intrusion of the bridge itself disrupt contemplation and appreciation of Yorktown history and diminish the overall visitor experience. The Park Service would prefer removal of the existing bridge and addition of a tunnel terminating northwest of Yorktown near the boundary between the park and the Naval Weapons Station. Proper provisions should be made for protection of park resources, and there should be little or no increase in traffic on Colonial Parkway.

Management Districts. The village of Yorktown is a major focus of this planning effort. For better coordination with the town's steering committee and integration of the park's historic resources into the modern community, the Park Service has identified five distinct management districts in Yorktown. In each of those districts, specific directions for preservation, interpretation, and revitalization would be observed (see the Management Districts map). In addition, the Park Service is exploring opportunities to increase interpretation on Main and Water streets in Yorktown.

Historic Yorktown's buildings and landscape would be managed as the *central preservation and interpretation district*. The aim would be to preserve the historic fabric and impart a sense of 18th-century Yorktown. Some historic buildings would be used for interpretation of historical themes; others would be adaptively re-used. Archeological resources would be preserved and interpreted as appropriate. To avoid too open and park-like an appearance on vacant lots, the Park Service would consider increased use of fences, foundation markings, and landscaping with hedges and flowers, as well as interpretive media.

The *Main Street adaptive use district* would be a transition area where visitors would move from the preservation/interpretation heart of historic Yorktown to modern Yorktown. The goal in this area would be to use existing buildings and possibly new buildings for activities compatible with and complementary to historic Yorktown. Visitors could learn, shop, eat, and enjoy themselves in ways related to historic Yorktown. Uses that would attract visitors would have priority over more restrictive uses such as offices.

Any new buildings would conform to "Design Compatibility in Historic Zones or Districts," in NPS cultural resource management guidelines, which say that contemporary structures built in historic districts should harmonize with existing structures and should blend with, rather than duplicate or mimic, historic structures. Thorough archeological surveys would be needed, and in some cases mitigation would be required before new construction could begin.

For the *Ballard Street adaptive use district*, the National Park Service or other interested parties would conduct research on historical and natural resources before decisions could be made on the acceptability or compatibility of development. Uses of sites in this area would be determined only after completion of research.

Facilities needed for visitor use or administration in the central preservation/interpretation district would occupy the *support district*. Examples of "compatible support facilities" are comfort stations and the existing parking lot.

The *residential district* would include certain properties in the residential area of Yorktown that the National Park Service either owns or has easements for. Residential use would continue, but the Park Service does not propose to construct

more housing on vacant properties. "Bed and breakfast" use on a modest scale would be acceptable, but houses could not be enlarged for that purpose.

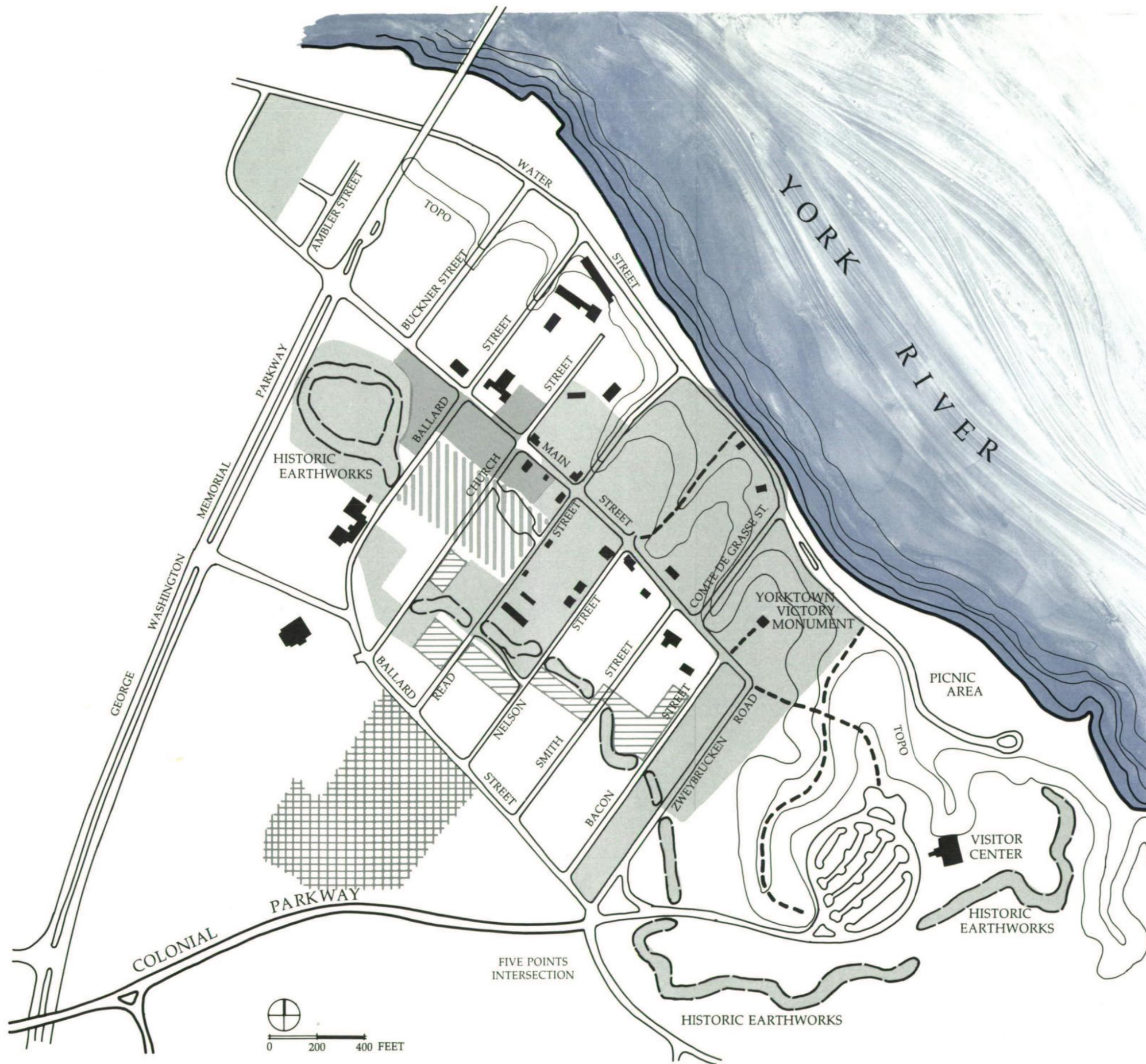
Actions needed to carry out the "districts" concept would be detailed in a development concept/interpretive plan, which the National Park Service would prepare in conjunction with the Yorktown master plan that was recently developed by York County and other Yorktown groups. The Park Service would actively cooperate with local and state officials to implement these concepts and plan for a revitalized Yorktown.

Reassessment of Historical Significance. Studies would be initiated to reassess Yorktown's historical significance as a seaport caught in the final battle of the Revolution and the last days of the British colonial experience on the eastern American seaboard. The National Park Service has prepared a draft National Register nomination for Yorktown battlefield, including a comprehensive inventory of cultural elements in the town.

Immediate Actions. The following steps would be taken as soon as possible to achieve management objectives:

The Poor Potter's site would be preserved and developed according to the approved interpretive plan. Besides interpretation, pottery-making demonstrations could be offered.

The master plan that has been prepared by York County and other Yorktown groups favors establishment of a boardwalk or riverwalk from the state-operated Victory Center to the Yorktown visitor center. The Park Service generally supports this concept provided effects of the walkway on NPS property would be considered and, if necessary, mitigated. The Park Service would study the feasibility



-  PRESERVATION AND INTERPRETATION DISTRICT
-  MAIN STREET ADAPTIVE USE DISTRICT
-  ADAPTIVE USE DISTRICT
-  SUPPORT DISTRICT
-  RESIDENTIAL DISTRICT
-  TRAIL

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COLONIAL

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NATIONAL PARK SERVICE

of building a walkway across Yorktown Creek past Windmill Point to tie in to the riverwalk on the west side of town. Another study would be made of the feasibility of building a connecting trail with stairs to historic Windmill Point. Along this trail could be outdoor exhibits, benches, and cleared vistas.

To improve interpretation of the waterfront, the National Park Service would offer technical assistance to York County for placement of exhibits on the York County pier. The Archer cottage could be used for display of archeological artifacts from shipwrecks and other exhibits.

Methods of stabilizing Cornwallis Cave would be sought. To improve safety and visitors' enjoyment of this cave and the Archer Cottage area, the area would be closed to vehicular traffic. Landscaping and interpretation need to be improved. The cave would be connected to the proposed waterfront boardwalk described above and to the existing Great Valley trail. The Park Service would explore the possibility of using the Archer Cottage as a museum for waterfront-related exhibits or for other appropriate visitor uses.

Dramatic playlets and other interpretation presented by park personnel in the Thomas Nelson house have met with resounding success. Performances would be increased to meet visitor demand, and interpretive walks and living history presentations would be developed for other areas of Yorktown.

The Victory Monument in Yorktown was authorized by the Continental Congress 10 days after the siege of Yorktown. The monument, built in 1881, is historically important and architecturally impressive. A maintenance plan for the entire monument area is needed to address the issues of aesthetics, entrance into the village, safe parking, seating, and walkways, as well as

identification of important vistas, with clearing of vegetation that impedes the view. The setting for the monument and the entrance to Yorktown would be improved by the removal of two houses along Zweybrucken Road. Landscape planting also is needed throughout the monument area.

With cooperation from the state and the county, a section of Main Street would be closed during daylight hours in the prime visitor season to improve visitor safety, make the walk down Main Street more enjoyable, and eliminate modern intrusions. (The area between Comte De Grasse and Church streets is one section of Main Street that might be considered.) Proper provisions would be made to accommodate residents and other local needs.

To promote revitalization of Main Street, the Pate House, the Burcher cottage, the Fife and Drum Museum, and the Medical Shop would be open as retail shops or as establishments offering suitable activities for visitors. The Park Service would investigate the prospect of Pate House and Burcher cottage being rehabilitated with private capital in exchange for a long-term concession contract.

Better maintenance and access are needed so that visitors can view the earthworks running through Yorktown. Careful planning must be done to balance the need for interpretive clearing (clearing of vegetation that blocks views of features to be interpreted) with maintenance of enough vegetation to protect earthworks from erosion. The redoubt on the west side of Yorktown would be considered for limited clearing and interpretation.

Other Actions. For many years the Park Service has managed the waterfront east of Comte de Grasse Street as a beach and picnic area. Outdoor recreation is not a primary objective at the park, but with

proper management it is an acceptable use. Picnic facilities, restrooms, and fencing in this area need to be rehabilitated. Pedestrian linkages are needed to connect the visitor center to the picnic area via Tobacco Road and the riverwalk. The Park Service would work with York County and others to provide shoreline protection.

The National Park Service has no plans for the NPS wharf now occupied by a post office. The property would revert to the Yorktown Trustees once it is not needed by the Park Service or the Postal Service. The Park Service would cooperate with the Postal Service, the Yorktown Trustees, York County, and other interested parties to determine the best long-range plans for this property.

Development Concept/Interpretive Plan.

The Park Service would prepare a development concept/interpretive plan (DCIP) specifying actions needed to achieve NPS objectives and implement management concepts for each district. The route for an extensive walking tour of the town would be defined and methods and media specified for interpretation of historic buildings, earthworks, Cornwallis Cave, and other historic and natural features. The idea of using the overlook behind the William Nelson property as a prime interpretive site would be evaluated.

Existing NPS properties in the *central preservation and interpretation district* that would be put to compatible use will be identified in the DCIP. The uses could be implemented through concession or leasing arrangement or by other methods.

After consulting with interested parties, the Park Service would include in the DCIP its recommendations for appropriate and compatible uses for properties in the *Main Street and Ballard Street adaptive use districts*. Uses considered could include retail shops, a light-food restaurant

with an 18th-century character, modest bed-and-breakfast houses, art galleries, and educational museums. Addition of new structures in this district to accommodate such uses would be considered. All possibilities would be explored for the private sector to cooperate in developing this part of Yorktown.

All plans and proposals would adhere to strict design standards and resource protection criteria. Necessary historical studies, archeological surveys, and mitigation would be done before development could begin. Some lots with high cultural values might be targeted for preservation with no development. New construction and adaptive use of current buildings would be consistent with earlier planning: the park's *Interpretive Prospectus* says, ". . . the town itself will, in its contemporary use, emphasize the commercial port character of 18th century Yorktown. . . . Restored historic structures along Main Street will be used by concessioners as shops offering quality imported merchandise for sale, in the tradition of the historic seaport" (NPS 1971).

The need for more parking and other facilities in the *support district* would be evaluated in the DCIP. A new ranger headquarters building is needed to house ranger functions now in three buildings on Read Street, freeing those buildings for compatible visitor uses. An NPS visitor contact station is needed in Yorktown. Ranger headquarters and the contact station could be combined in a new building on Ballard Street. The DCIP would include consideration of this concept.

The Yorktown museum collection, now stored in three unsuitable buildings, would be moved to a new facility, probably in the adaptive use district or the support district. The new location would have research space, adequate space for storage of current and future archeological

and historical materials, and a conservation facility.

Yorktown Battlefield

The present resource management and visitor services at the Yorktown battlefield function well. The following additional actions would be taken in that area under alternative B.

Reassessment of Historical Significance. Redefinition is needed of the Yorktown battlefield's place in the larger world as the site of the last event of the British colonial experience on the American eastern seaboard in the 18th century. As funding permits, the National Park Service would initiate studies of various aspects of social and economic history as well as military history. A National Register nomination for the site has been prepared in draft form, including a comprehensive inventory of all cultural elements in Yorktown battlefield area.

Cultural Landscape Analysis. The Park Service would initiate a cultural landscape analysis of Yorktown battlefield to determine historic vegetation patterns and decide which areas should be reopened. Effects of vegetation management alternatives on earthworks and other cultural and natural resources would be evaluated, as would effects of the road network on the historic scene. The views from Surrender Field and the area between the first and second siege lines would receive close attention in this study.

Cooperative Efforts. Colonial National Historical Park would consult and coordinate efforts with the Jamestown/Yorktown Foundation regarding subjects to be treated in the Yorktown visitor center and the Victory Center. Treatments in the two centers should complement each other with a minimum of duplication.

Construction. The overlook on the visitor center roof would be redesigned and stabilized for structural safety and expanded for use as an all-weather observation platform. It could then be used for improved presentation of interpretation of the first and second siege lines. This would improve visitors' understanding of the battlefield.

The earthwork associated with the first shot battery would be rebuilt to replicate the installation as it appeared in 1781. Replication would rely on archeological and archival research not yet conducted, and other earthworks would be examined to determine methods of preservation and interpretation.

Interpretation. An interpretive plan based on current historiography would be devised. New wayside and museum exhibits and a new film presentation would tell the story of the battle. Broader interpretation of the battle would mention all participant groups, including Hessian and Irish mercenaries of British and French forces, Spanish financiers behind American forces, and blacks who participated. The battle should be understood not only as a military event in the American Revolution but also within the international political arena. A program also could be created that would place the battle within the context of the history of warfare, with concentration on technical aspects.

The Park Service would develop and operate an interpretive bus system similar to the one offered in the 1970s until budget restrictions caused its demise. At that time many Yorktown battlefield visitors benefited from bus tours that included interpretation of the battlefield. Reinstatement of this service would save energy and enhance the interpretive experience.

The Park Service would sponsor or encourage volunteer efforts to enliven the

ALTERNATIVES

battlefield with activities such as costumed interpretation, demonstrations of military life, fife and drum performances, parades, dramas, and band concerts. Special events such as Yorktown Day also would contribute to visitors' understanding of the significance of Yorktown.

Traffic. The National Park Service reaffirms its approval of a long-standing plan to remove most of Virginia Highway 238 from Yorktown battlefield and build a new connection between the Coast Guard training center and U.S. Highway 17.

Recreation. To ensure safety, protect resources, and enhance visitors' experience, the Park Service would explore the feasibility of building a trail for walkers, joggers, and bicyclists. Also studied would be the feasibility of building a trail to link the west tour road to Surrender Field to prevent conflicts between vehicles and pedestrians or cyclists. Recreational pursuits such as kite flying, Frisbee throwing, and ball games would be accommodated on the battlefield only if they would not intrude on the historic scene or damage historic resources. The possibility of relocating these activities would be explored.

Colonial Parkway

Under alternative B the "country road" character of Colonial Parkway would be retained. The following actions would be taken in management of the parkway.

Reassessment of Historical Significance. Studies would be made of Colonial Parkway's place in the larger NPS planning world as an interpretive element of early 20th-century park planning. The National Park Service would initiate the necessary steps leading to a National Register nomination for the parkway; these efforts would be coordinated with projects such as the George Washington Parkway study,

recently completed by the NPS Denver Service Center.

Recreation, Visitor Services, and Interpretation. Some areas along Colonial Parkway are emerging as recreational destinations in their own right. Because such use of these areas has been determined to be compatible with the parkway purpose, the following actions would be taken to give better support to recreation.

The Park Service would study effects of visitation on resources at Indian Field Creek, College Creek, Felgate's Creek, Archer's Hope, and the Ringfield picnic area. Using "limits of acceptable change" principles, the Park Service would determine optimal levels of recreational use consistent with public health, resource protection, and desired visitor experiences. On the basis of study results, actions would be initiated to protect natural resources while better accommodating visitors at designated areas; for example, comfort stations could be added, trails hardened, or stairs built for access. If studies revealed unacceptable impacts, actions might be taken for better management of public use (for example, limiting parking). The Indian Field Creek overflow parking would be improved or removed.

A landscape management and maintenance plan would be prepared for the parkway. The plan would identify desired vistas and cultural and natural scenes along the way. Erosion and wetland concerns would be addressed. Native trees and shrubs would be planted to screen land uses that could impair scenic quality.

The Ringfield plantation site could become a major interpretive feature in the future. To ensure its availability for interpretation, needed stabilization work would be done, and the exposed foundation would be protected from the elements and from casual visitor use.

Traffic and Safety. Access points along Colonial Parkway would be limited to the present number. The Park Service would work with state and local governments and other federal agencies to reduce commuter traffic on the parkway.

The Five Points intersection of the parkway near the Yorktown visitor center would be redesigned to improve safety and enhance parkway travel.

Increasing bicycle, pedestrian, and jogger traffic along the parkway indicates that a separate bicycle/pedestrian trail parallel to the road is needed. The feasibility and desirability of such a trail would be studied. If found to be appropriate, the trail would be designed to ensure human safety, protect sensitive resources as much as possible, and conform to the high design standards of the parkway.

Cheatham Pond Area

Both York County and the Department of the Navy have asked the Park Service to consider their needs for long-term use of the Cheatham Pond tract. York County owns and operates New Quarter Park west of the property, and the Navy's naval supply center is at Cheatham Annex, immediately east of the tract. As an initial step, the National Park Service has developed the following management objectives for the tract to define the range of options available for future management of the area.

Protect and manage natural and cultural resources.

Ensure the protection of the adjacent Colonial Parkway.

Accommodate U.S. Navy security needs.

Provide for compatible recreational uses.

The following options have been considered for future management of the tract.

- a. As at present, continued ownership by the National Park Service with cooperative management by the Navy.
- b. Return of ownership to the Navy. (The Navy has requested consideration of this option because it needs a rustic bivouac area, a security buffer for the adjacent naval supply center, and more recreational facilities for military personnel.)
- c. Transfer of the tract by an act of Congress to York County, which owns and operates New Quarter Park (about 500 acres). That park adjoins the Cheatham tract on the west. The county administrator has requested transfer of the tract to the county to meet the growing demand for outdoor recreation. The county would plan to build a boat launching ramp and allow low-density recreation on the site. The director of the state's Office of Planning and Recreational Resources has supported this request, citing the 1989 *Virginia Outdoors Plan*, which refers to a major need for more recreation areas in this vicinity (Virginia 1989).
- d. Leasing of the property to York County.
- e. Management of the tract by York County, the Navy, and the National Park Service, with ownership remaining with the Park Service. The Navy would manage the (roughly) eastern part of the property, York County, the western part. The Park

Service would continue to manage the part closest to Colonial Parkway.

These options have been evaluated to determine how well they would meet management objectives. The implications of each option are discussed under "Alternative B" in the Environmental Consequences chapter. The recommendation in alternative B for management of the Cheatham Pond tract is that the tract be divided into parcels (option e), with long-term leases or long-term management agreements with both the Navy and York County. It is further recommended that the Navy, York County, and the National Park Service work together to develop boundaries and operating procedures that would meet the needs of all parties, including specific provisions for protection of natural and cultural resources.

Park General

To strengthen Colonial's identity and resolve some parkwide problems, the following actions would be taken under alternative B.

Visitor Awareness. A design theme would be established for Colonial National Historical Park to increase awareness of the National Park Service's presence and to distinguish the park from other attractions in the area. The design theme would be used on road signs, maps, exhibits, park literature, publications, and other materials for the park. The Park Service would work closely with the APVA on the design theme for Jamestown.

The Park Service would seek to develop satellite visitor information stations at major intersections along Colonial Parkway. These small-scale facilities at parkway turnouts would provide information about Colonial National Historical Park.

Protection of Land and Views. The National Park Service would undertake cooperative studies with local governments, landowners, conservation and historical groups, and other interested parties to determine ways to ensure protection of the viewshed and continued high-quality visitor experiences in areas where these features could be affected by land uses around the park. A strip of land is needed as a buffer between Colonial Parkway and the Jamestown marina. A related cooperative study would be done for lands in Surry County, across the James River from Jamestown.

The National Park Service would work with government bodies, businesses, private groups, and individuals to protect scenic vistas. One example of a view that should be preserved is the historic and natural view of the York River as seen from Colonial Parkway.

To avoid adding to the negative visual impact of existing utility lines, all new utility lines would be installed underground. For economic, health, and safety reasons, municipal water lines would be extended to Jamestown Island.

Only a few land protection measures would be needed. The Sessions/Shield property in Yorktown would be acquired only if the owners wanted to sell or if resource damage was occurring. Other private properties on the east end of Main Street are well maintained and contribute to the residential character of Yorktown. If an owner expressed a desire to sell an easement to ensure that a property would perpetually be a single-family residence, the National Park Service would be prepared to purchase the easement.

To protect the historic scene, the park would ultimately acquire (possibly through land exchange) a parcel of land along Virginia Highway 704 that is owned

by York County and an undeveloped privately owned parcel along the allied encampment tour road. The Park Service would request legislation to acquire in fee additional property near Colonial Parkway east of Virginia Highway 682 to protect the view along the parkway in that area. A land protection plan would be prepared that would fully evaluate the need for additional measures.

A tract of NPS property west of the Ballard Street administrative offices of York County has no historical resources or other value to the National Park Service. After a thorough investigation and inventory of resources and possible uses, the Park Service would consider trading the property to York County for land in the Yorktown battlefield.

Management of Specific Properties. The Tindalls Point property at Gloucester Point, across the river from Yorktown, contains remnants of a Civil War earthwork built on or near British fortifications from the revolutionary war. Maintenance and interpretation of the property would be coordinated with Gloucester County, which owns an adjacent park. Limited clearing of vegetation on the earthwork would be maintained so that the earthwork could be seen by visitors.

Swann's Point and Cape Henry would be retained and managed as detached units. For Cape Henry, a new cooperative management agreement is needed among the U.S Army, the city of Virginia Beach, and the National Park Service.

The primary management goals at Green Spring are resource protection and research. Resource protection would be enhanced by more frequent ranger patrols, by increased use of the area for research, interpretation, and compatible visitor uses, and by improved community understanding of the value of the area.

A full research program would be developed, including a level I archeological survey and a complete restudy of the 17th and 18th century mansion sites. A cooperative agreement with a university or an experienced nonprofit organization might make it possible to carry on a long-term investigation through the use of field schools, with the public being invited to observe the investigations. When the research data was available, a plan would be prepared to provide for long-range management, protection, interpretation, and visitor use. Another management goal for the near future is to keep open the existing fields through an agricultural lease or other appropriate means.

Interpretation of the above detached properties would be enhanced through new brochures, maps, waysides, and similar media to ensure their integration into the park story.

Existing monuments would be maintained, but the addition of other monuments would not be encouraged.

Rather than expansion of the Coleman Bridge at Yorktown, which the National Park Service opposes (see "Issues"), the course of action the Park Service would prefer is a tunnel northwest of Yorktown, with the existing bridge removed.

The picnic area at Great Neck is used little by visitors, but it generates continuing expenses for custodial services, utilities, grounds work, and general maintenance work. Meanwhile, there is a consistent demand for more picnic tables at the Jamestown parking lot. In the interest of better use of the park's limited maintenance budget, the Great Neck picnic area would be closed and tables would be added to the Jamestown parking lot lunch areas.

Legislation is needed to make it legally possible for the National Park Service to

transfer to York County the sewer systems for the Moore House subdivision and Yorktown. Such a transfer would be in the public interest, because York County could manage and maintain those community sewer systems more effectively.

Management of Cultural Resources. Management of the park's irreplaceable cultural resources is imperative in light of the urban pressures placed on the park. The following actions would be included.

Comprehensive identification, inventory, and evaluation of all cultural resources in the park. As appropriate, data from the inventory would be entered into the list of classified structures and the geographic information system (GIS) to be developed for cultural resources (see page 25).

Use of data from the above inventory to assign priorities to individual cultural resources or groups of cultural resources. The priorities, which would guide management strategies and project funding, would be based on the significance of the resources to the park's enabling legislation, NPS management policies, the general management plan, and National Register objectives.

Active management of the park's museum collections in accordance with procedures outlined in the *NPS Museum Handbook* (NPS 1990c).

Completion of preservation guidelines. This would have high priority. All preservation treatment would be conducted according to standards set forth in the guidelines.

Development of a cultural GIS for the park.

Management of Natural Resources. Management of the park's significant natural resources is vital in light of extensive urban growth and projected future conditions. Protection is needed for wetlands, critical habitats, and several rare, threatened, or endangered plants and animals. Natural resource management would include the following actions.

In natural zones and subzones, keep natural resource management consistent with NPS policies and requirements mandated by law. Otherwise, natural resource management would support cultural resource objectives.

Maintain the present air and water quality.

Protect rare, threatened, and endangered species and their habitats by developing subzones within historic zones for protection and management of these species and habitats. Development of subzones would be based on recommendations from recent surveys of RTE species and communities. Subzones would include buffer areas for protection of rare or significant natural communities.

Protect wetlands and floodplains. Consult as necessary with the U.S. Fish and Wildlife Service and the Virginia Division of Natural Heritage about possible designation of resource protection subzones for wetlands and other critical habitats.

Comply with Chesapeake Bay regulations.

Adopt best management practices for open fields. Where appropriate, the revised mowing techniques the park has already implemented would be continued. The reduced mowing rotation is intended to restore native vege-

tation; this, in turn, would decrease erosion and the invasion of exotic species.

Carry out hazardous waste management, and recycle materials as much as possible.

Develop an up-to-date inventory and data base of natural resources.

Develop an active resource monitoring program.

Cooperate with public agencies and with owners of property that adjoins the park to promote resource preservation and monitoring of land uses that could affect park management. This could include sharing of data and resource inventory/monitoring projects such as development of data bases for GISs (see next column).

Ensure that natural resource management and protection practices in the park are consistent with all applicable laws, policies, executive orders, and other regulations.

Colonial's natural resources are components of a larger ecosystem that spreads beyond park boundaries. Therefore, cooperation with state, local, and other federal agencies is critical to protecting resources in the park and the region. To implement resource protection and suitable management cooperatively with other agencies and owners of adjacent property, the National Park Service has created a four-year plan for natural resource management. Under this alternative, the Park Service would fully endorse and support efforts to increase understanding and protection of natural resources. Management would be consistent with NPS policies. Elements of the four-year plan are summarized in this section.

Vegetation mapping and land use classification that was completed through a cooperative agreement with North Carolina State University would be used in continued inventory, monitoring, and management programs. Support would continue for computerized data bases that are being produced to delineate the park's vegetation, wetlands, streams, ponds, earthworks, roads and trails, and adjoining land use patterns.

The park staff is developing a geographic information system (GIS)—a computerized mapping and analysis package that can perform many tasks more accurately and efficiently than conventional mapping and data storage/retrieval systems. This GIS will facilitate management of park resources in relation to nearby land use issues and changes in urban development. A GIS is an important link between neighboring public agencies and landowners because data can be shared and used more consistently and easily. Where possible, natural resource data collected for the park will be converted and used in the park's GIS.

A fire management under revision during the GMP process would continue to guide all fire management activities. The plan would conform to fire management guidelines under NPS-18.

The consistently rainy climate in tidewater Virginia leads to soil erosion and sedimentation problems that require vigilance for park management. Erosion and soil loss in all areas of the park would be monitored and suitably managed. Future actions might include addition of fencing, revegetation, obliteration of illegal trails that are causing erosion, and repair of fences where needed. The Park Service would continue efforts already in effect to control soil loss from excessive erosion of sensitive bluffs along the York River. Care would be taken to avoid soil loss from sedimentation of creeks, wetlands, and

tidal rivers. Areas of erosion and other soil problems would be identified so that adverse impacts could be reduced or mitigated. All construction actions would have to comply with state sediment control standards and the Chesapeake Bay regulations, which were designed to prevent excessive sedimentation and erosion in the bay.

The park staff would continue working with the district soil conservationist to devise best management practices and other techniques for managing the park's open-field areas. Agricultural leasing would be pursued where appropriate.

A water resource management plan would be developed under a cooperative agreement with the Virginia Institute of Marine Science. After literature review, nontidal wetlands would be delineated and a hydrographic overview of the park prepared. Plans would include inventory and monitoring as needed, and regulatory requirements and actions for the park would be determined. Park management would cooperate with adjacent areas in water resource management and mitigation efforts.

In preparation of plans for new buildings, executive orders and NPS regulations regarding floodplains and wetlands would be considered. To avoid adverse effects on wetlands, detailed analysis of potential changes in each wetland area would be completed as part of feasibility planning.

An air quality management plan would be implemented. The plan would include an outline of legal roles and responsibilities for air quality management in the park, assessment of impacts of pollution on park resources, and recommendations for monitoring air pollution and its impacts. The park would continue to be managed as a class II air quality area.

ALTERNATIVE C: SUBSTANTIVE CHANGE

Alternative C represents a departure from existing management and an exploration of the kinds of changes that might be possible in light of recent developments at nearby facilities. The resources of Colonial National Historical Park would be reinterpreted according to current historical and archeological scholarship and research, and public education would be updated. In response to recent emergence of similar features and attractions in the area, the park would offer visitors an impressive array of educational choices.

Cultural resource objectives would continue to be supported throughout the park under this alternative, but more consideration would be given to natural processes. As great growth and development have occurred in Virginia and the region over the past few decades, Colonial National Historical Park has become a unique area: large tidal creeks, rare flora and fauna, wetlands, and forests in the park have been preserved from extensive alteration. Natural resources found in the park's protected lands are becoming increasingly rare, so management aimed at preserving these resources is increasingly important.

Funding for natural resource management would be equal to that for cultural resource management under this alternative. This would support increases in natural resource personnel and research, as well as management projects emphasizing biodiversity, habitat protection, and protection of water quality and wetlands beyond statutory and policy requirements. Management of cultural and natural resources would be integrated; this could include more interpretive emphasis on the relationship of natural resources to historic events. Important cultural resource zones would be retained. Areas not currently managed for cultural resource pres-

ervation, interpretation, or visitors' use would be restored to natural conditions.

If agricultural leasing was instituted, it would be monitored and managed to benefit the park's open fields. It would not be allowed where it could adversely affect archeological resources or where erosion, the use of pesticides, or the introduction of exotic species would affect natural areas such as wetlands. All wetlands would continue to be managed as natural resource areas, and no action would be allowed that would reduce the integrity of wetland environments.

Park management would stress protection of natural resources that are dwindling elsewhere in the Virginia tidewater area, relying on cooperating agencies to conduct major interpretive programs. NPS actions would be those needed to ensure resource preservation and link the park complex to similar neighboring attractions. The visitor experience thus offered would relate Colonial's cultural and natural resources to the entire European colonial period.

Jamestown

Under alternative C, the historic and archeological resources of Jamestown and Jamestown Island would be managed to ensure the greatest possible resource protection. Areas within the 100-year floodplain (such as Jamestown Island) would be restored as much as possible to natural floodplain conditions if cultural resources would not be adversely affected.

Cultural interpretation and an excellent visitor experience are available at the remarkably well-designed state-operated museum facility at nearby Jamestown Settlement. Interpretation at Colonial National Historical Park would emphasize wetlands and forested environments that

dominate the island's landscape, and natural resource management would be as consistent as possible with the objectives for natural zones in NPS areas.

The present visitor center would be removed and a less intrusive reception center built outside the historic area and away from wetlands and floodplains. The new center would offer protected storage for the artifact collection now stored in the basement of the visitor center, which is in the 100-year floodplain. Moving the collection would be part of a centralized, cooperative curatorial program outlined in the "Park General" section of this alternative, page 29.

Exhibits and interpretive programs at the reception center would be changed. Much of the traditional historical interpretation would be left to Jamestown Settlement, with NPS staff acting as consultants to ensure complementary interpretation. The reception center would be devoted to technical displays designed to explain the archeological process as it relates to Jamestown. Most interpretation would deal with the displayed artifacts as technical tools, promoting better understanding of the past. Demonstrations of ongoing archeological and curatorial activities would be offered. Other services would be limited to personal ones: guided and non-guided tours of the townsite, auto and bus island tours, and technical demonstrations related to the archeological story; for example, glass production.

A possible option for visitors would be parking at Jamestown Settlement to board a bus for an interpreted tour of Jamestown, the island, and the Glasshouse. A joint information/orientation complex would be part of this arrangement. Careful planning would be needed to keep fee revenues to the APVA and the Park Service at or above current levels.

ALTERNATIVES

As in alternative B, the ruins of the original Glasshouse would be further protected to arrest ongoing deterioration, and the needed research and data base would be assembled to ensure that measures would be taken to preserve all resources, including a comprehensive inventory and preparation of a National Register nomination for the site.

The crucial element for this alternative would be the execution of a cooperative agreement and program between the management of Jamestown Settlement, the National Park Service, and APVA. Such an agreement would ensure that the activities of the three organizations would complement each other and explore other mutually beneficial actions that could be taken by the cooperating agencies.

Yorktown/Yorktown Battlefield

Except as outlined below, management of Yorktown and Yorktown battlefield under alternative C would be similar to that described for alternative B. The Park Service would continue to cooperate with York County, various Yorktown groups, the Jamestown/Yorktown Foundation, and others to implement concepts in the locally developed master plan.

The National Park Service would reexamine the management of Yorktown battlefield in light of NPS cooperation with the Jamestown/Yorktown Foundation and other groups. Interpretive exhibits and activities would be carefully defined and coordinated between the Yorktown visitor center and the state-operated Yorktown Victory Center to avoid overlap or duplication. The Park Service still would interpret its Yorktown properties. Interpretive frameworks would be updated to bring interpretation into a modern historiographic focus. Interpretation of the battlefield proper would be based on a revised

concept of the battle, its participants, and its importance as one element in the entire historic scene represented by the park.

The Yorktown archeological collection would be transferred to a central curatorial facility under the cooperative administration of various agencies, including the National Park Service. This proposal is detailed in "Park General" section of this alternative, page 29.

Natural resource management would involve encouraging restoration of native vegetation in the battlefield. Efforts toward this end would include decreased mowing, where appropriate, wetlands protection and research, abatement of erosion along coastal bluffs below the visitor center, revegetation of unplanned trails, and reduction of exotic species. Only minimum-impact uses would be allowed near wetlands on Yorktown battlefield. Agricultural leasing would be allowed for some open-field areas along the battlefield where environmentally and economically appropriate.

As in alternative B, necessary research would be done and a data base assembled to ensure preservation of all resources. A draft National Register nomination has been prepared for Yorktown battlefield. A comprehensive inventory of cultural elements would be compiled.

Colonial Parkway

As in alternative B, impact studies would be planned to determine the acceptable level of recreational use along the parkway; however, NPS efforts in this alternative would be concentrated on resource preservation. Selected developments for active recreational pursuits might be added; for example, a bicycle trail could be constructed parallel to the parkway. The

Five Points intersection would be redesigned to improve safety.

Natural resource management in the parkway corridor would be adjusted under this alternative. The parkway would be regarded as two corridors: the paved roadway corridor a few hundred feet wide within the larger corridor, which would be managed as a natural zone according to principles of landscape ecology; vegetation would be allowed to grow as much as feasible within safety and maintenance limits. Unregulated use of sensitive wetland areas near the parkway would not be allowed. Increased vegetation would help to buffer adjacent land uses, enhance wildlife habitat, and reduce human influence in the corridor. Views of the York and James rivers and large wetland areas would be left unscreened.

Mowing would be reduced to a minimum, and management would promote low-key recreational activities along the parkway by not encouraging formalized uses with established picnic areas, beaches, or other locations where large groups might concentrate. Exotic plants would be controlled, and native species would be used for revegetation. Maintenance of the corridor would be modified as necessary to reflect the changes in policy.

As in alternative B, the needed research and data base would be assembled to ensure actions would be taken to preserve all resources. This would include compilation of a comprehensive inventory and nomination of Colonial Parkway to the National Register as a separate entity, along with all eligible park properties within or adjacent to its right-of-way.

Park General

Harmony among agencies would be crucial to implementation of alternative C, as

would Park Service willingness to take the necessary steps to ensure success. Proprietary attitudes toward resources and management must be forgone to foster true interagency cooperation.

NPS archeological collections from Jamestown and Yorktown would be moved to a central curatorial facility in the Williamsburg area jointly designed, built, and administered by public and private agencies with significant collections related to the region. Besides the National Park Service, others with important collections are Colonial Williamsburg, the APVA, the Jamestown/Yorktown Foundation, and the College of William and Mary. Future archeological work for the region would be planned by a joint board attached to the curatorial facility.

The National Park Service would make every effort to act as the key agency, promoting cooperation and sharing of resources. Programs of national and international import would be planned to stress the significance and influence of the European colonial experience in the New World and elsewhere in the 15th through 20th centuries.

The Park Service would retain and interpret the Green Spring plantation site. A serious effort would be made to bring this important resource into the overall park interpretation. Also retained would be the Cheatham Pond area, Cape Henry, Tindalls Point, Swann's Point, the Ringfield and Bellefield plantation sites, and similar properties. To bring these features into the interpretive scope of the entire park, the Park Service would update film interpretation and create brochures, maps and other interpretive materials.

TABLE 1: COMPARISON OF ALTERNATIVES

[Abbreviations: APVA = Association for Preservation of Virginia Antiquities; DCIP = development concept/interpretive plan; DNH = Division of Natural Heritage (state of Virginia); GIS = geographic information system; NPS = National Park Service; RTE = rare, threatened, or endangered (plant and animal species); USFWS = U.S. Fish and Wildlife Service.]

**Alternative A:
No Action**

No major changes in management or policies; NPS actions limited to complying with laws and protection of resources, human health, and safety.

Alternative B: Refinement of Existing Conditions (preferred)

Interpretation and visitor services improved; all actions monitored to ensure protection of cultural and natural resources. Emphasis on cooperation with state and local governments, other groups.

Alternative C: Substantive Change

Management of cultural and natural resources integrated; preservation of park's increasingly sensitive natural resources stressed; areas that are not managed for cultural resource preservation, interpretation, or visitors restored to natural condition; important cultural resource zones retained. Projects to emphasize biodiversity, protection of habitat, water quality, wetlands beyond requirements; interpretive emphasis on relationship of natural resources to historic events.

Jamestown/Jamestown Island

Little change; interpretation at visitor center, auto tours of island would continue; visitors could walk around townsite.

Visitor services improved: through sensitive interpretation, visitors would experience tranquility and vitality of this historic site; interpretive emphasis on Jamestown's 17th-century history, importance of cultural and natural environment of townsite and island; tours of original townsite expanded; educational programs for school groups and character interpretation at townsite added; site-specific history in updated wayside exhibits.

Historic and archeological resources of Jamestown and Jamestown Island managed to ensure resource protection; emphasis on NPS interpretation on wetlands and forested environments that dominate the island's landscape; present visitor center removed; less intrusive reception center built outside historic area.

- Present visitor center removed; new film at new visitor center would offer modern interpretation; emphasis on linkage between natural and cultural resources; relationships between people and environment.
- Memorandum of agreement and joint management plan for townsite between NPS and APVA covering preservation, interpretation, visitor use, and visual resources.
- Public transportation system established if feasible (NPS or cooperating organization) to reduce congestion on island tour road and waysides and enhance visitors' perception of Jamestown Island.
- Ruins of original glass works protected to arrest gradual deterioration caused by maritime climate; interpretive services, restrooms at Glasshouse upgraded.

- Technical displays at reception center to explain archeological process as related to Jamestown; artifacts displayed as technical tools to promote greater understanding of past; demonstrations of ongoing archeological and curatorial activities; film presentations updated.
- Cooperative agreement for Jamestown Settlement and NPS to ensure that activities would complement each other and be mutually beneficial; NPS staff act as consultants; new exhibits and interpretation at park's new reception center; most offsite historical interpretation left to Jamestown Settlement.
- Guided and nonguided tours of townsite; auto and bus island tours; technical demonstrations related to archeological story (e.g., glass production).
- Original Glasshouse ruins further protected to stop deterioration; research and data base collected to ensure preservation of all resources; comprehensive inventory of this site; National Register nomination prepared.

**Alternative A:
No Action**

Alternative B: Refinement of Existing Conditions (preferred)

Alternative C: Substantive Change

Jamestown/Jamestown Island (continued)

Museum collection to remain in present location.

Cultural resources protected: after preliminary design study, museum collections housed in new visitor center on island or in separate collections building in secure off-island location away from flood danger.

Centralized, cooperative curatorial program would include protected storage at new center for artifact collection now in basement of building in 100-year floodplain.

—

Wetlands and floodplains protected from further disturbance; feasibility planning to include analysis of potential changes to wetlands. Erosion, sedimentation prevented to preserve fragile pitch and tar swamp near present visitor center.

New reception center built away from wetlands after removal of present visitor center; areas in 100-year floodplain restored to natural floodplain conditions as much as possible without adversely affecting cultural resources; natural resource management as consistent as possible with objectives for natural zones in NPS areas.

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Reassessment of town's historical significance would define Jamestown's place in the world as an element of the 17th-century colonial experience.

Same as alternative B.

National Register nomination prepared for Jamestown.

Jamestown Quadricentennial. Research projects for quadricentennial to include compilation of archeological information; geomorphological study of island's 1607 appearance; computerized cataloguing of complete archeological collections; development of computerized biographical data base regarding island's populations, demography, and events; archeological surveys (including subsurface testing) to identify potentially significant sites. Comprehensive inventory of all cultural elements at Jamestown also included; this would lead to National Register nomination for Jamestown.

Same as alternative B.

Yorktown/Yorktown Battlefield

Little change in policies, management; no new NPS actions; interpretive programs and tours unchanged; possibly some changes from community master plan.

At Yorktown; increased visitor services; enhanced interpretation; improved safety. At battlefield, improved interpretation; restoration to earlier appearance; improved safety. NPS opposes expansion of Coleman Bridge, prefers removal of bridge, addition of tunnel northwest of Yorktown; concepts of locally developed master plan carried out.

Management similar to alternative B; emphasis on NPS cooperation with county and various local groups; concepts of locally developed master plan carried out.

No management districts established.

Management districts established: *Central preservation and interpretation district* with buildings, landscape of historic Yorktown; some buildings used to interpret historical themes, others adaptively reused; archeological resources interpreted as appropriate; possible use of more fences, landscaping with plants, foundation markings; interpretation increased on Main and Water streets. *Main Street adaptive use district*, transition area between historic Yorktown and modern village; existing buildings, possibly new buildings used for compatible activities to attract visitors; new buildings would conform to NPS guidelines and harmonize with historic structures—thorough archeological surveys and some mitigation required. *Ballard Street adaptive use district*, where research done on historical and natural resources before decisions made or sites used.

Same as alternative B.

(continued next page).

**Alternative A:
No Action**

Alternative B: Refinement of Existing Conditions (preferred)

Alternative C: Substantive Change

Yorktown/Yorktown Battlefield (continued)

Management districts (continued): *Support district*, with facilities for administrative or visitor use in central preservation/interpretation district, such as comfort stations and existing parking lot. *Residential district*, with properties where NPS owns or has easements in Yorktown's present (and past) residential area; residential use continued, no new housing built; possible bed-and-breakfast in existing structures.

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—	NPS cooperation with local and state officials to plan for a revitalized Yorktown, including management districts and resource protection criteria; development concept/interpretive plan (DCIP) detailing actions needed to carry out districts concept prepared by NPS in conjunction with locally prepared Yorktown master plan. Resource protection criteria, design standards, mitigation completed before development could begin.	Same as alternative B.
Main Street not closed.	Part of Main Street closed to vehicles in daytime to improve safety, eliminate modern intrusions; residents and local needs accommodated.	Main Street not closed.
Yorktown museum collection kept in present location.	Museum collection moved from three unsuitable buildings to a new storage facility with research space and enough storage space for current and future cultural items.	Yorktown archeological collection transferred to a central cooperative curatorial facility.
NPS would not add walkway to locally planned riverwalk.	Locally prepared master plan includes a boardwalk or riverwalk from state-operated Victory Center to Yorktown visitor center; mitigation of any adverse effects on NPS property required; NPS to study feasibility of walkway across Yorktown Creek past Windmill Point to tie in with riverwalk, and feasibility of connecting trail to Windmill Point with stairs, benches, outdoor exhibits.	Same as alternative B.
—	Pate House, Burcher cottage, Fife and Drum Museum, Medical Shop opened as retail shops or to offer suitable visitor activities; possibility of private capital to rehabilitate first two to be investigated.	Same as alternative B.
—	Victory Monument maintenance plan to address aesthetics, entrance into village, safe parking, seating, walkways, identification of vistas where clearing needed to see better; landscape planting needed throughout Victory Monument area.	Same as alternative B.
—	Ways sought to stabilize Cornwallis Cave; cave area closed to vehicles to improve safety and visitors' enjoyment; cave connected to planned boardwalk and to Great Valley trail; improvement needed in landscaping and interpretation.	Same as alternative B.
No major changes in interpretation.	To enhance interpretation of waterfront, NPS would give technical assistance to county in placement of exhibits on York County pier; Archer cottage available for exhibits, including display of artifacts from shipwrecks.	Same as alternative B.

**Alternative A:
No Action**

Alternative B: Refinement of Existing Conditions (preferred)

Alternative C: Substantive Change

Yorktown/Yorktown Battlefield (continued)

—	Poor Potter's site preserved, developed according to approved interpretive plan; possible pottery-making demonstrations with interpretation.	Same as alternative B.
—	More dramas at Thomas Nelson house; addition of interpretive walks, living history programs in other Yorktown areas.	NPS interpretation of Yorktown properties continued, updated to modern historiographical focus.
—	Possible clearing of redoubt on west side of town for better access, view of earthworks; care taken to retain enough vegetation to prevent erosion.	Same as alternative B.
No new studies done.	Studies initiated to reassess Yorktown's historical significance as a seaport caught in final battle of American Revolution and to redefine Yorktown battlefield's importance as site of battle; as funding allows, NPS to initiate studies of various aspects of social, economic, and military history.	Same as alternative B.
—	Picnic facilities, restrooms, and fencing need rehabilitation; pedestrian linkages needed to connect visitor center to picnic area; NPS would work with York County and others to protect shoreline.	Same as alternative B.
—	NPS wharf property returned to Yorktown Trustees after federal uses gone.	Same as alternative B.
—	Cultural landscape analysis of Yorktown battlefield done to ascertain historic vegetation patterns, decide which vistas should be cleared; evaluation of effects of vegetation management alternatives on earthworks, other cultural and natural resources, effects of road network on historic scene; special attention to views from Surrender Field and area between first and second siege lines.	Restoration of native vegetation in battlefield encouraged; mowing decreased where appropriate; wetlands protected; erosion along coastal bluffs below visitor center diminished; unplanned trails revegetated; exotic species reduced.
—	Park coordination with Jamestown/Yorktown Foundation to minimize duplication in interpretation at battlefield visitor center, Victory Center.	Yorktown battlefield management reexamined in light of NPS cooperation with Jamestown/Yorktown Foundation and others; interpretive exhibits, activities at battlefield and Yorktown Victory Center carefully coordinated to eliminate duplication.
No changes to visitor center roof.	Roof overlook on visitor center redesigned, stabilized, and expanded for use as all-weather observation platform and for better interpretation of first and second siege lines.	Same as alternative B.
—	After more research, first shot battery earthwork rebuilt to 1781 appearance; examination of other earthworks to determine preservation and interpretation.	First shot battery marked by flag or other symbol.
—	New interpretive plan based on current historiography; new wayside and museum exhibits; new film presentation telling story of battle, including mention of all participant groups, battle's importance to history of warfare and international politics as well as American Revolution.	Battlefield interpretation based on revised concept of battle, its participants, importance as one element in entire historic scene.

**Alternative A:
No Action**

Alternative B: Refinement of Existing Conditions (preferred)

Alternative C: Substantive Change

Yorktown/Yorktown Battlefield (continued)

—	NPS encouragement of volunteer presentations of costumed interpretation, demonstrations of military life, fife and drum performances, parades, band concerts, dramas, visitor experience also enhanced by special events like Yorktown Day.	Same as alternative B.
—	Interpretive bus system developed to enhance interpretation, save energy.	Same as alternative B.
—	Virginia Highway 238 moved out of battlefield area; new connection built between Coast Guard training center and U.S. 17.	Same as alternative B.
—	Agricultural leasing encouraged where appropriate; battlefield uses would be minimized to protect resources.	Only minimum-impact uses allowed near wetlands in Yorktown battlefield area; agricultural leasing allowed for some open-field areas near battlefield where environmentally and economically appropriate.
No bike/pedestrian trail added.	To help avert conflicts between vehicles, pedestrians, and cyclists, feasibility of trail for walkers, joggers, and bicyclists explored; linking trail from west tour road to Surrender Field also studied.	Same as alternative B, but more emphasis on careful attention to natural resource considerations.
—	Possible relocation of active recreation away from battlefield; after natural areas inventory by state DNH finished, thorough survey of RTE plants, animals to assess potential effects on habitat; revegetation with native plants to control exotic species, benefit native plant, animal communities.	Same as alternative B.

Colonial Parkway

Design character of parkway retained; scenic drive between Yorktown, Williamsburg, and Jamestown would remain unimpaired.	"Country road" character of Colonial Parkway retained; historical significance reassessed, including parkway's place in the larger NPS planning scheme.	Parkway regarded as two corridors: paved roadway corridor a few hundred feet wide within larger corridor to be managed as a natural zone according to principles of landscape ecology; historical significance reassessed, including parkway's place in the larger NPS planning scheme.
—	Effects of visitation on resources studied at Indian Field, College, and Felgate's creeks, Archer's Hope, Ringfield picnic area; optimal levels of recreational use set according to "limits of acceptable change" principles.	Impact studies done to establish acceptable level of recreational use along parkway; NPS efforts concentrated on resource preservation; low-key recreational activities along parkway promoted; formalized uses not encouraged through provision of established picnic areas or beaches.
—	No new access points along parkway; commuter traffic reduced through NPS cooperation with state, local, and federal entities; Five Points intersection redesigned to improve safety and enhance parkway travel.	Same as alternative B.
—	Study of feasibility of bicycle/pedestrian trail parallel to road; sensitive resources protected if trail added; design would conform to parkway standards.	Same as alternative B.

**Alternative A:
No Action**

Alternative B: Refinement of Existing Conditions (preferred)

Alternative C: Substantive Change

Colonial Parkway (continued)

- Landscape management and maintenance plan prepared to identify desired vistas and cultural and natural scenes and to address erosion and wetland concerns; native plants added to screen unattractive land uses.
 - Stabilization work to save Ringfield plantation site for future interpretive area; exposed foundation protected from elements and casual visitor use.
- National Register nomination for parkway. Steps taken toward National Register nomination for parkway; efforts coordinated with similar NPS projects.

Vegetation increases favored to screen adjacent land uses and human influences, enhance wildlife habitat, views of York and James rivers, large wetland areas left unscreened; native species used in revegetation; exotic plants controlled; minimum mowing; corridor maintenance modified as needed to reflect policy changes; unregulated use of sensitive wetland areas prohibited.

Same as alternative B.

Same as alternative B.

Cheatham Pond Area

No change in management of Cheatham Pond area.

Long-term leases or management agreements with U.S. Navy for east part of Cheatham Pond area, York County for west part; NPS management of area near parkway continued; cooperation among parties to develop boundaries and operating procedures, including protection of natural and cultural resources.

Cheatham retained by NPS; interpretation enhanced to integrate this area into overall park story.

Park General

Actions limited to compliance with laws, protection of resources, safety, health; natural resource management unchanged; uses of sites, structures unchanged; inventories not updated; cyclical maintenance programs not established.

Design theme established for park road signs, exhibits, literature to increase awareness of park, distinguish it from other area features; close cooperation with APVA on design theme for Jamestown; satellite information stations at major parkway intersections to give information about park; cooperation with public agencies, nearby landowners in data sharing and inventory/monitoring projects, cooperation with state, local, and other federal entities to protect natural resources.

Crucial to implementation of this alternative would be harmony among agencies, NPS willingness to take essential steps to ensure success; proprietary attitudes toward resources and management must be forgone to foster true interagency cooperation.

Management unchanged at Tindalls Point, Swann's Point, Cape Henry, Green Spring.

Maintenance, interpretation of Tindalls Point property coordinated between NPS and Gloucester County; limited clearing to make earthworks visible; Swann's Point, Cape Henry managed by NPS as detached units; resource protection and research at Green Spring; interpretation of detached properties enhanced through new brochures, maps, waysides to ensure their integration into park story.

NPS would retain Tindalls Point, Swann's Point, Cape Henry, and Green Spring, as well as Ringfield and Bellefield plantation sites; interpretation enhanced and properties integrated into overall park story through updated films, brochures, maps.

**Alternative A:
No Action**

Alternative B: Refinement of Existing Conditions (preferred)

Alternative C: Substantive Change

Park General (continued)

Ongoing comprehensive inventory of cultural resources continued; significant sites inside and outside of park documented.

Inventory and evaluation of all cultural resources in park; data entered into list of classified structures and cultural GIS to be developed; high priority on preservation maintenance guidelines; preservation treatment conducted according to standards in those guidelines.

Same as alternative B.

Current uses of structures continued; museum collections not moved.

Museum collections updated and moved to new facilities.

NPS Jamestown and Yorktown archeological collections moved to a central curatorial facility jointly managed by public and private agencies, future archeological work planned by a joint board; NPS would promote cooperation and sharing of resources.

—

Emphasis on original planning for cultural resource conservation and park's status as nation's first historical park.

Same as alternative B.

—

Existing monuments maintained, addition of others not encouraged.

Same as alternative B.

No landownership adjustments.

Acquisition of Sessions/Shield property in Yorktown if owners willing to sell; NPS would consider buying easements on other properties if owners interested; eventual acquisition of parcel along Virginia 704 now owned by county, undeveloped privately owned parcel along allied encampment tour road; purchase of land near parkway east of Virginia 682; consideration of trade to county of a tract west of Ballard Street offices for land in Yorktown battlefield.

Same as alternative B.

No major changes in interpretation.

NPS interpretation updated.

Cooperating entities would continue major interpretive programs; NPS actions would link park complex to similar neighboring attractions; NPS interpretation to relate Colonial to entire European colonial period; park's resources reinterpreted according to current scholarship and research; public education updated; both cultural resources and natural processes emphasized; NPS would encourage national and international history programs designed to emphasize importance of European colonial experience in 15th through 20th centuries.

—

For better use of limited maintenance budget, little-used Great Neck picnic area closed; tables added to lunch areas at Jamestown parking lot.

Same as alternative B.

—

Cooperative studies with local governments, landowners, others on viewshed and high-quality visitor experience where nearby land uses could affect those features; buffer strip needed between parkway and Jamestown marina; cooperative study also needed for lands in Surry County; all new utility lines placed underground; municipal water lines extended to Jamestown Island for safety.

Same as alternative B.

—

Hazardous waste management practiced; materials recycled as much as possible.

Same as alternative B.

**Alternative A:
No Action**

Alternative B: Refinement of Existing Conditions (preferred)

Alternative C: Substantive Change

Park General (continued)

Natural resource management unchanged.

Additional protection needed for wetlands, critical habitats, and RTE plants and animals; where possible, natural resources managed according to NPS polices on natural zones; otherwise, cultural resource objectives supported. RTE species and their habitats protected; consultation as necessary with USFWS and Virginia DNH on possible designation of resource protection subzones for wetlands, other critical habitats; compliance with Chesapeake Bay regulations.

Higher management priority on natural resources; funding equal to that for cultural resource management.

—

NPS would develop an up-to-date inventory and data base of natural resources and an active resource monitoring program. Research done as needed, and data base assembled to ensure preservation of all resources.

Same as alternative B.

Existing resource management plans updated on a regular schedule.

Same as alternative A.

Same as alternative A.

—

Preparation of land protection plan to evaluate need for other measures.

Same as alternative B.

—

Continuation of vegetation mapping and land use classification with North Carolina State University; where possible, natural resource data converted and used in park's GIS.

Same as alternative B.

Park managed as a class II air quality area.

Same as alternative A.

Same as alternative A.

—

Monitoring and control of erosion and soil loss in park; park staff would continue working with district soil conservationist on best management practices and other techniques for managing open field areas; agricultural leasing pursued where appropriate.

If instituted, agricultural leasing monitored and managed to benefit park's open fields, not allowed where erosion, pesticide use, or introduction of exotic species would adversely affect natural areas like wetlands; no prime and unique farmlands converted to nonagricultural uses.

—

Floodplain and wetland regulations considered in plans for new buildings; feasibility planning would include analysis of potential changes in wetlands.

All wetlands managed as natural resource areas; no actions allowed that would reduce integrity of wetland environments.

—

To restore native vegetation and decrease erosion and invasion of exotic species, best management practices used for open fields; revised mowing techniques continued where appropriate.

Mowing eliminated from most areas in park and parkway.

THE AFFECTED ENVIRONMENT

BACKGROUND

Colonial National Historical Park lies between the York and James rivers in Virginia. Much of the surface relief is flat, but steep topography can be found along edges of ravines and sandstone bluffs lining tidal rivers and creeks. Various types of land use surround the park, including two large naval bases, a Coast Guard facility, rural residential subdivisions, the cities of Newport News and Williamsburg, and the village of Yorktown.

Two sizable areas of the park, Jamestown Island, site of the first permanent English settlement in North America, and Yorktown, where the last major campaign of the American Revolution ended, are connected by the 23-mile Colonial Parkway. Some smaller noncontiguous areas—the Cape Henry Memorial, Swann's Point, the Green Spring plantation site, and Tindalls Point—also contribute to visitors' understanding of early life in North America.

To fulfill its cultural resource obligations, the National Park Service has taken steps to coordinate this planning effort with the Virginia state historic preservation officer in accordance with 36 CFR 800 and the 1990 programmatic agreement among the National Park Service, the Advisory Council on Historic Preservation, and the National Council of State Historic Preservation Officers. On August 24, 1990, the National Park Service sent a letter to the Virginia state historic preservation officer inviting that office and other state offices to participate in the planning process. The NPS Denver Service Center received a reply from the Virginia Historic Preservation Review and Compliance Officer, and Park Superintendent Alec Gould acknowledged the state's interest in participating on October 3, 1990. Superintendent Gould

later met with representatives of the state for general discussion of the general management plan and its progress. After review of the draft plan by the NPS Washington Office, NPS staff met with the Virginia state historic preservation officer, at which time the state expressed several concerns. Some of those concerns are reflected in this draft document; others will be discussed and analyzed further during the public comment and review period.

CULTURAL RESOURCES

Colonial contains various prehistoric and historic resources aboveground and below grade. Artifacts vary from prehistoric ones thousands of years old to historic 17th, 18th, and 19th century materials. Most historic resources relate to the British colonial experience in some way, but Spanish and northern European sites also may exist in the park.

Cultural resources in Colonial are briefly described below. In appendix B are lists of significant cultural sites that are on the list of classified structures or a 1990 field inventory report, or both. (The report is hereafter referred to as "the 1990 report.") The lists do not include all the park's cultural resources: the Park Service never has done a comprehensive cultural resource inventory with all elements of the park considered as one administrative unit.

Jamestown

Twelve sites in the Jamestown part of the park are on the list of classified structures and the 1990 report (this includes two sites at Green Spring; see appendix B). Sites in this area are primarily archeological sites of the 17th and 18th centuries.

Yorktown/Yorktown Battlefield

Sixty-nine sites for the Yorktown/Yorktown battlefield area are on the park's list of classified structures and the 1990 report. These are archeological sites, buildings, and monuments relating to the 1781 siege of Yorktown.

Colonial Parkway

Four sites in the Colonial Parkway section of the park are on the park's list of classified structures and the 1990 report. Included are archeological sites, buildings, and monuments relating to events in the 17th through 20th centuries.

Other Park Properties

Cheatham. Various cultural resources, including military redoubts and archeological remains, are alleged to exist in the Cheatham Pond area. A review is needed of the cultural inventory work done by the U.S. Navy, with additional studies to follow if necessary.

Green Spring. Archeological resources at Green Spring reflect plantation life in early Virginia. The site is associated with William Berkeley (1606–1677), governor of Virginia from 1642 to 1652 and again from 1660 to 1677, who lived on a 984-acre estate at this site during most of his career. The Green Spring plantation house is alleged to have been the first large English country house built in North America.

The National Park Service acquired 196 acres at Green Spring in 1966. NPS archeologists excavated the site in 1955. Green Spring played a pivotal role in Bacon's Rebellion (1676–1677): it served as the de facto capital of Virginia after Bacon's burning of Jamestown in 1676. The old house was razed in 1796 and a new one

built behind the site of the original. The site of the second house has not been located.

Cape Henry. Cape Henry is a memorial site of 0.23 acres commemorating the arrival of the first Jamestown colonists on April 26, 1607. A large memorial cross and a low granite wall are within the boundaries of Fort Story military reservation. The military complex and the altered environment impinge upon this cultural resource.

Swann's Point. Swann's Point, across the James River from Jamestown, was acquired by fee simple title and scenic easement for general protection of the park environs. It is important to early colonial and revolutionary war history.

Mill Dam Site. A dam that was built around 1736 served the paper mill of William Parks. The paper mill site has long been thought to be important to interpretation of early industry in the British colonies, but further information is not available.

Tindalls Point/Gloucester Civil War Fortifications. Civil War fortifications at Tindalls Point range from 7 to 10 feet high and 15 to 20 feet thick at the base. A ditch 7–15 feet deep accompanied the fortifications, which were built atop fortifications erected in 1781. A well and barracks also were part of the Civil War installation. The fortifications were designed as a defense against landward assault on a water battery on the end of the point.

Kiskiack Indian Village Site. The Kiskiack Indian village, which was shown on John Smith's map of 1612, was important to early relationships between English settlers and native Americans.

Archer's Hope Landing Site/Archer's Hope Settlement Site. English settlers

made an exploratory landing at Archer's Hope on May 12, 1607. The landing site may prove a valuable cultural resource. The Archer's Hope settlement site is thought to be on the creek explored by Jesuit missionaries in 1570. By 1619 several land grants had been issued in the area, and by 1624 the community numbered 14, including three families.

Neck of Land. An extension of the original Jamestown settlement, the Neck of Land was developed between 1607 and 1622. By 1624 about 25 persons (four families) lived there. The community developed separately from Jamestown. Later, Confederate forces built fortifications in the area. By the 1780s the Neck of Land was almost unoccupied.

Glebe Land Site. The Glebe land site is an archeological site connected to the Anglican church of Jamestown.

Bellefield Plantation Site. The house ruins and cemetery site at the Bellefield Plantation site are related to Edward Digges, British colonial governor of Virginia in 1655 and 1656. The Digges family was closely connected to the early development of Yorktown. The site is currently interpreted through wayside exhibits.

Ringfield Plantation Site. House ruins, a cemetery, two wells, and a vestigial tree-lined approach are remnants of the 1690s Ringfield Plantation, which belonged to British colonist Joseph Ring. The site, which today is used largely for recreation, is interpreted through wayside exhibits.

NATURAL RESOURCES

Besides significant cultural resources, Colonial has a variety of natural resources that need management and protection, including wetlands, critical habitats, and several rare, threatened, and endangered

plants and animals. Bald eagles nest in some parts of the park. Since the park was established, the surrounding environment has been altered by extensive growth and urban development. As part of an active resource management program, park personnel are initiating or completing studies or inventory and monitoring programs to ensure protection and proper management of natural resources.

Climate

The park's average winter temperature is 41 degrees Fahrenheit; the average daily minimum is 30°F. The average summer temperature is 76°F.; average daily maximum, 87°F.

Precipitation is common throughout the year; 55% of the annual total falls from April through September. The average seasonal snowfall is 9 inches; average relative humidity in midafternoon is about 60%. Humidity is higher at night; the average at dawn is about 80%.

The sun shines 70% of the time in summer, 60% in winter. Southwest winds prevail; winds are highest in March. Wind speed averages 12 miles per hour (SCS 1985).

Fire History

Data for the park indicate that 168 fire events between 1932 and 1988 burned 1,458 acres. The average fire burned approximately 9 acres; predominant fuel types were grasses and woodlands. The number and size of wildfires have been significantly reduced in the past ten years; during that time the average fire burned 0.7 acres. Most wildfires in this area are human-caused; fires caused by lightning or other natural causes are rare.

Historically, fires at Colonial have been suppressed before they could burn a large area. This has caused buildup of a high fuel load, which raises concern that a potentially severe fire could start in the park and spread to nearby residential, commercial, or military areas. A wildfire at Newport News several years ago burned to within 5 miles of the park. Research proposed in the park's fire management plan would include an in-depth investigation of vegetation in the park and the ecological and historical role and effect of fire.

Wildlife

Colonial is home to a variety of animal species: park files reveal the presence of 40 mammals, 225 bird species, and 81 reptiles. Some known animals are squirrels, rabbits, white-tailed deer, turkeys, opossums, raccoons, red and silver fox, beaver, small hawks, owls, and geese. Bald eagles have been sighted in several areas, and great blue heron rookeries are in and near the park. Most rare species known to be in the park are associated with wetlands. Wildlife habitat areas at Colonial are still pristine compared with most of the surrounding region, where rapid urban growth has reduced habitat for many species.

Earlier this year the Virginia Division of Natural Heritage completed a survey throughout Colonial National Historical Park for rare, threatened, and endangered species and for critical habitat areas. The survey report covered the area's diverse flora and fauna and contained recommendations for management to protect and conserve species and critical habitats. Survey findings of rare wildlife species are summarized in appendix C.

Overall, Colonial was found to contain highly diverse wildlife habitats, especially along the marsh wetlands and estuarine

creeks. The Cheatham annex property was found to contain a diverse number of species and rare community types. Other highly diverse and important wildlife areas in the park are Jamestown Island, Queen Creek, Swann's Point, Hog Island, and all wetland areas, including brackish marshes, rivers, and nontidal creeks flowing through the park. Survey findings are summarized in appendix C.

The Cheatham property adjoins Queen Creek, the largest marsh creek in York County. Despite some disturbance and development upstream, in this area Queen Creek is a major fish nursery. The field biologist noted that the forested edges of the creek, which are relatively pristine and undisturbed, offer potential roosting, feeding, and nesting areas for bald eagles, a federally listed endangered species. Eagles have been sighted over Queen Creek, but no nesting sites have been confirmed in the Cheatham Pond area.

The park contains habitat for many aquatic species. The U.S. Fish and Wildlife Service surveyed fishes in waters in the Yorktown unit in 1987 and found 19 species represented by 15 genera in 12 families. Species found were perch, sunfish, bluegill, large-mouth bass, striped bass, spotted sea trout, crayfish, and blue crab. Waters around the park support oyster beds, crabs, clams, crayfish, perch, sunfish, bluegill, and bass. Most wetland areas are nursery grounds for fish species like white perch and striped bass. Fingering size striped bass and spotted sea trout found in Yorktown Creek indicate that different fish species may use the marsh as a nursery area (USFWS 1988).

In surveys completed in 1991, the U.S. Fish and Wildlife Service found the area to be a rich fisheries resource and an important nursery area for at least six species of fish, including species of recreational and commercial importance such

as striped bass, Atlantic croaker, summer flounder, spot, and Atlantic menhaden. The survey found 33 species representing 11 families (USFWS 1991). The authors of the report note results from the historic survey data of the nearby James River and Powhatan Creek, recorded in the Biota of Virginia data base (BOVA) between 1942 and 1948. In that information, 51 species of fish representing 12 families were found.

The Virginia Institute of Marine Science conducted beach seine surveys in the James River near Jamestown Island and found 48 species of fish representing 21 families. Although no rare, threatened, or endangered species were recorded in recent surveys, the Atlantic sturgeon is known to occur in the vicinity of Jamestown Island (USFWS 1991). These reports all indicate the importance of the Jamestown Island area for fish nurseries and habitat for a variety of marine and anadromous fish species. Field observations also found grass shrimp, which are an indicator species for good water quality.

Vegetation

Park vegetation is approximately 80% forest; 20% is landscaped areas plus open expanses of grass and brush. Historically, the proportions were opposite: vegetation during colonial times was predominantly open fields. The historic pattern of little forest to mostly field is essential to an understanding of the battles that took place in this setting.

Major vegetative cover types in the park are wetlands/marsh, open/agricultural fields, coastal pine, and hardwood forests. Forested areas are predominantly stands of loblolly pine and Virginia mixed pine and hardwood. Understory species are bedstraw, hairy hawkweed, hay-scented fern, lady fern, adder's mouth, poison ivy,

and holly. Flowering native flora that enhance visitors' experience are dogwood, redbud, paper mulberry, scotch-broom, and the Yorktown onion. Non-native species invading many areas of the park are bamboo, Johnson grass, and kudzu. Extensive wetlands found throughout the park support a variety of important plant species (see Wetlands and Open Fields map).

Vegetation varies in different parts of the park. Jamestown Island has pine-oak forests with associated marshes and wetlands. Loblolly pine is the predominant forest species. Understory vegetation is thick, with vines. Vegetation near Yorktown is pine-oak forests; loblolly pine and various oak species predominate. Along Colonial Parkway are pine-hardwood forests with associated marshes and wetlands. Green Spring plantation site has vegetation classified as pine-hardwood forest; loblolly pine is the dominant overstory species. At Swann's Point is forested wetland, chiefly pines and hardwood, with cypress and marsh vegetation along the shoreline. Cheatham Pond area is predominantly a mixed hardwood-pine forest environment managed for open space, wildlife habitat, military training, and recreational activities such as fishing for military personnel.

The pitch and tar swamp near the Jamestown visitor center contains unique vegetation. This 22-acre swamp is classified as a palustrine wetland system. The upstream part, where pioneer species such as red maple and black gum are replacing common marsh species like cattail, arrow arum, saltbush, and switch grass, is characterized as emergent. Downstream the swamp becomes increasingly saline as it feeds into Kingsmill Creek. Vegetation in that part of the swamp is characterized by big cordgrass.

Natural ecological succession in the park is from subclimax pine to oak-hickory or

other shade-tolerant hardwoods. Hardwood species common in drier areas are tulip poplar, white oak, willow oak, black cherry, red oak, and hickory. Predominant hardwood species in wet soils or poorly drained areas are sweet gum, white ash, red maple, black walnut, black gum, and sycamore.

Besides benefiting wildlife habitat, park flora buffer modern visual intrusions, enhancing the historical integrity and aesthetics of the park environment. According to NPS records, the park supports over 593 vascular plant species representing 98 families and 352 genera.

Park tree species that are sensitive to ozone are loblolly pine, sycamore, sweet gum, aspen, yellow poplar, black cherry, and ash. The common milkweed also is sensitive to ozone.

Rare, Threatened, Endangered, or Special Status Species

As part of the planning process, the Park Service consulted the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and the Virginia Division of Natural Heritage for recent information on rare, threatened, endangered, candidate, and special status plant and animal species and critical habitat in Colonial National Historical Park.

Under contract with the National Park Service, the Virginia Division of Natural Heritage has completed a biological survey of natural resources in all NPS units in Virginia, including Colonial. The purpose of the survey was to identify rare, threatened, and endangered (RTE) plants and animals and unique or exemplary natural communities. The results indicate that, in NPS areas in the state, Colonial has the second highest number of RTE species. Current files of both agencies

show that many plant species considered rare by the state are found in the park: 13 rare plant element occurrences have been recorded, representing 11 species that are of special concern to Virginia. Jamestown Island has the highest concentration of rare plants.

Also identified in the survey was one rare natural community type adjacent to the Cheatham Pond area in the park, recorded as a mid-height herbaceous estuarine wetland. Cheatham Pond also contained a rare community element including up to four rare plant species. All rare, threatened, or endangered species and their status are listed in appendix C.

Of 21 animal species considered rare by the state, the only federally listed one found in or near the park was the bald eagle. Other federal candidate species are found in records for York and James City counties, and the survey results found 7 rare animal habitat areas representing 5 species within the park: great blue heron, great egret, northern spring amphipod, bald eagle, and least bittern. Results of the survey indicate that many of these species use the park for breeding and resting sites. This includes a pair of bald eagles.

The northern amphipod found in the park was the first known location of this species in Virginia. Its status is unknown at this time.

Significant natural communities in the park have been documented. A draft list of potential natural areas has been compiled. The state may designate these areas "peninsula natural areas" under the recently passed Chesapeake Bay regulations. Many of them are brackish marshes, old growth forest, bluff, or freshwater wetlands environments that contain rare species. These areas are eligible for designation as resource protection subzones when they occur within cultural resource zones.

Topography and Soils

Elevations in the park range from sea level to 130 feet. Jamestown Island is nearly level to gently sloping. Yorktown area topography, classified as Coastal Plains Uplands, is gently sloping with some steep ravines. Colonial Parkway and the Cheatham Pond area combined occupy 3,596 acres in which topography varies from sea level marshes to upland slopes with elevations near 50 feet. The Green Spring plantation site is nearly level. The 414-acre Swann's Point area, ranges from nearly flat to steep slopes, with elevations from sea level to 100 feet.

Hydric soils dominate much of the park, as wetlands are extensive. Jamestown Island is within the Levy-Pamunkey-Dogue soil series. These are deep, very poorly drained to well-drained soils, predominantly clayey or loamy. The Yorktown unit along the York River is in the Emporia-Bohicket-Slage soil series: predominantly loamy or clayey soils. Yorktown battlefield is in the Bethera-Izagora-Slage soil type: predominantly clayey or loamy soils. Several soil associations are found on the coastal plains and river terraces along Colonial Parkway. Soils on Green Spring plantation site are primarily a Peawich-Emporia-Levy soil association: deep, very poorly drained to well drained.

Mowing practices have been changed in some areas of the park, including Yorktown battlefield and along the parkway. Reduction of broad-scale mowing is intended to minimize illegal trails (which have developed in fields and along the bluffs in Yorktown), reduce erosion and sedimentation (including further erosion and degradation of the bluffs at Yorktown), and encourage reestablishment of native vegetation in fields, meadows, and open roadsides along the parkway, where mowing was extensive in the past. The park is working with the district soil con-

servationist to devise best management practices and other techniques for managing the park's open field areas. Erosion control is underway along the bluffs in Yorktown after a park committee reported on the problems.

Prime and Unique Farmlands

According to the Soil Conservation Service, U.S. Department of Agriculture (SCS), prime and unique farmlands cover 36% of York and James City counties. Prime farmlands, as defined by the SCS, are lands that may be in use as cropland, pasture, or woodland but are best suited to production of food, feed, forage, fiber, and oilseed crops. Prime farmlands soils have properties favorable for economic production of sustained yield crops. Many Yorktown battlefield areas have prime and unique farmland soil types. It is important that best management farming practices be followed to maintain soil and surface water quality. Many of the field areas in the park have intermediate levels of both leaching and runoff potential. This aggravates and contributes to pesticide pollution of groundwater and streams.

Water Resources

Surface Water. The park is bounded on either side by approximately 42 miles of the York and James rivers. Interstate Highway 64 is the approximate watershed drainage divide between the York River on the north and the James and Chickahominy rivers on the south and west, respectively. There are more than 24 miles of streams in the park. Approximately 22% of the park has been mapped as wetland habitat.

Water bodies in the Yorktown area are Wormley pond, Great Run, Baptist Run, Beaver Dam Creek, Yorktown Creek, and

Ballard Creek. On Jamestown Island are Back River, Sandy Bay, Kingsmill Creek, Passmore Creek, and the Thorofare. The varied hydrology along Colonial Parkway includes upland streams and both freshwater and brackish ponds, a total of 11 water bodies: Roosevelt Pond, Indian Field Creek, Felgate's Creek, Kings Creek, Queen Creek, Cheatham Pond, Jones Mill Pond, Halfway Creek, College Creek, Papermill Creek, and Powhatan Creek. The Green Spring site has a freshwater spring and a small creek.

Preliminary findings show good water quality in most waters in the park, but more data are needed on heavy metals and certain pollutants before water quality can be fully understood. Many upstream areas and major segments of wetlands, creeks, and water bodies are outside park boundaries. Previous studies have led to the conclusion that because most creeks and water bodies are small, any disruptive activity in watersheds for the park would severely affect park water quality.

Extensive communication is needed between park management and managers of adjacent property, and cooperative management programs may be needed to protect the water resource. Overall water quality in the James and York river basins is good, but problems have been documented in waters near or upstream from Colonial Parkway. Kepone, a pesticide, was discovered in the James River in the 1970s. Increased runoff is also a problem, and discharge from individual septic systems has increased as urban development has escalated along the James and its tributaries. York River problems have been low levels of dissolved oxygen, pH imbalance, and bacterial contamination in many upstream tributaries. A high priority in park resource management is control of runoff and sedimentation to reduce pollution of streams and tidal rivers in and around the park.

Groundwater. Groundwater resources vary throughout the region. The three major groundwater zones are the principal artesian aquifer, the upper artesian aquifer, and groundwater aquifers. Groundwater pressure is good, but many surface water supplies in Virginia tidewater areas have been tapped to capacity. Further use of groundwater could increase land subsidence and saltwater intrusion and damage surface water resources inside park boundaries. Studies of groundwater resources now underway will update information and enable NPS personnel to monitor threats to park water resources.

Floodplains and Wetlands

Floodplains. Where average base flood elevations have been calculated for Colonial, they have been found to be 7 feet. Many areas of the park are within zone A flood areas—those that have unknown or uncalculated flood elevations.

Many areas near the James and York rivers are within the 100-year floodplain and are subject to periodic flooding from hurricanes and large coastal storms. Floodplain maps and studies from the Federal Emergency Management Agency show most of the tidal creeks (for example, Indian Field Creek) to be within the 100-year floodplain. Almost all of Jamestown Island is within 100-year and 500-year floodplains; only a few scattered small upland areas (such as the visitor area parking lot) are outside the flood zone. Along Colonial Parkway, which crosses floodplains at major creeks such as Felgate's Creek, there are flood-prone areas on the approach to Jamestown Island and in small areas along the York River.

Wetlands. According to USFWS wetlands inventory maps, much of the park is covered by wetlands, and Jamestown Island is covered extensively by palustrine emer-

gent and forested wetlands (see Wetlands and Open Fields map). Major wetland types in and around the park are estuarine intertidal areas such as the York river area, estuarine emergent lands like Kings and Queen creeks, lacustrine areas like Jones Mill Pond, and various palustrine wetlands covered with emergent or forest vegetation. Queen Creek, in the Cheatham area, is the largest marsh creek wetland system in York County. Almost all the estuarine creeks are nursery areas for fish species such as white perch and striped bass. Some vernal pools, or "seasonal wetlands" are being investigated further in inventory and monitoring studies.

Air Quality and Visibility

Air pollution is a potential problem at Colonial. Most air pollution in the park comes from external sources. Air pollution that originates a great distance from the park can still affect park resources. Rapid urban growth in this area has brought oil refineries, power plants, breweries, and residential and commercial development, along with more highways and gas stations. Woodburning stoves are a major contributor to air pollution in the region.

Pollutants that could affect air quality and visitors' experience are sulfur dioxide, nitrogen oxide, photochemical smog, hydrocarbons, ozone, carbon monoxide, particulates, hydrogen sulfide, and hydrogen fluoride. Minor pollution originating inside the park is primarily from auto emissions, wind-blown dust and soil, smoke from fireplaces, and infrequent forest fires.

Traffic on Colonial Parkway is increasing as the route becomes more of a commuter corridor for Gloucester, Yorktown, Newport News, and Williamsburg. An average of 175,000 vehicles per month are driven over the parkway for purposes other than recreation. This compares to the 70,000

vehicles per month whose occupants come to the park for recreation or to enjoy the historic resources.

Visibility is an essential element of the national park experience. Scenic vistas are recognized as an important resource in the national park system. At Colonial, visibility is vital to interpretation of the historic events commemorated by the park. Significant vistas are the James River, upon which the Jamestown settlers arrived; the York River, scene of a bombardment in which British ships were sunk; and Yorktown battlefield, where Cornwallis surrendered.

SOCIOECONOMIC ENVIRONMENT

The area around Colonial National Historical Park has grown steadily since World War II and now has many urban and suburban characteristics. For 1980 the population of York County was 35,463; James City County's was 22,763. The growth rate of both counties in the 1970s was 27%, and indications are that growth continues. Slightly less than half (48%) of James City County's population and three-fourths of York County's were classified as urban in 1980. People of both counties are relatively affluent: per capita income for James City County was \$7,452; for York County, \$7,260. Both counties' populations are highly educated; almost one-fourth of the residents have college degrees.

The region's economy is fairly diverse. Defense-related jobs and other federal expenditures provide a solid economic base. Tourism-related industries also are primary employers.

VISITOR CHARACTERISTICS

Past information on Colonial's visitors shows different patterns for Jamestown

and Yorktown; the two cannot be combined for an average total figure. A total of 18% of Jamestown visitors were local residents, 20% were regional visitors living within a two- to three-hour drive of the park, 60% were from other parts of the nation, and 2% were from other countries. At Yorktown the breakdown was 15% local residents, 40% regional visitors, 43% national visitors, and 2% international visitors. In-depth visitation statistics are needed for best management of interpretation and visitor services; for example, data are needed on visitors' use of interpretive programs, brochures and handouts, and information services.

Visitation to the park is computed by adding visitation figures for special use areas: the Jamestown visitor center, the Yorktown visitor center, the Moore house, the Nelson house, and the Yorktown town center. All these visits are classified as "historical" visits; that is, visits to features of historical interest. It is estimated that the average visit to the visitor center takes three-quarters of an hour and to other sites, half an hour each. The percentage of visitation by season is shown in table 2. This seasonal variation table is based on the total visitation to the visitor centers only.

TABLE 2: VISITATION BY SEASON

Season	Jamestown	Yorktown
Summer (June–August)	45%	44%
Fall (September–November)	23%	25%
Winter (December–February)	6%	7%
Spring (March–May)	26%	24%

The days of heaviest visitation are the Fourth of July, Yorktown Day, and Jamestown Day. Overall high visitation is between May and October. Special events at other area attractions can affect visitation to Colonial. Visitation from 1983 through 1990 is shown in table 3.

TABLE 3: TOTAL VISITATION, 1983–1991

Year	Jamestown Visitor Center	Yorktown Visitor Center	Total Visitation
1983	408,063	303,386	5,965,128
1984	449,625	342,068	5,748,831
1985	451,642	343,382	5,697,690
1986	416,378	356,714	5,111,883
1987	389,604	341,569	7,085,303
1988 ¹	383,078	352,615	7,381,900
1989 ¹	342,490	335,894	6,414,421
1990 ¹	356,069	338,509	7,779,143
1991 ¹	321,615	346,609	8,630,348

1. In these years there was road construction on Colonial Parkway, Route 199 to Jamestown.





Green Spring

Cheatham Annex

Colonial

Parkway

YORK RIVER

Yorktown Battlefield

Jamestown Island

JAMES RIVER



- PARK BOUNDARY
- WETLANDS
- PONDS/STREAMS
- OPEN FIELDS

WETLANDS &
OPEN FIELDS
COLONIAL

NATIONAL HISTORICAL PARK • VIRGINIA
UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
333-20,021-DSC-SEPT 91

ON MICROFILM

ENVIRONMENTAL CONSEQUENCES

The environmental consequences of each alternative are described in this chapter, and recommended mitigative measures are described where appropriate. The effects of the alternatives are compared side-by-side in table 4, (page 61).

ALTERNATIVE A: NO ACTION

Effects on Cultural Resources

Initially, alternative A would have few effects on cultural collections; however, archeological artifacts stored at both Yorktown and Jamestown would be seriously endangered in the long term if current situations continued. The Jamestown visitor center would remain in the floodplain; thus, the potential for damage of park property and artifacts would continue. Since the problems of inadequate storage would not be addressed, these important collections could be adversely affected if no mitigating actions were taken.

Without adequate inventories, National Register nominations now underway could not be finished, and the list of classified structures would still be incomplete. All park cultural resources, including archeological sites and historic buildings, would be threatened by the lack of a sufficient data base for proper planning and protection. Areas such as Cheatham Pond, Green Spring plantation site, Swann's Point, and Tindalls Point, would not benefit from survey or from integration into the general park scheme.

Effects on Natural Resources

Alternative A would not cause any significant effects on topography, soils, water resources, water quality, or air quality.

Wildlife and Vegetation. Alternative A would not result in increased disturbance of vegetation or animal populations in the park, but it still would cause adverse effects because no official mechanism would exist to guide overall funding and implementation of programs to monitor, inventory, and manage vegetation and wildlife populations. The lack of coordinated funding and guidance would mean inventories and monitoring activities would not be updated and resource management plans would not be implemented consistently. No actions would be taken to minimize invasion by exotic plant species.

Rare, Threatened, or Endangered Species. This alternative would have no effect on rare, threatened, endangered, or special status plant and animal species. The park would continue to monitor activities that could affect known habitat for such species; however, funding for further research and monitoring would not be ensured.

Prime and Unique Farmlands. Under alternative A, erosion would continue to threaten historic resources, especially those at the Yorktown Bluffs and on parts of Jamestown Island. No prime or unique farmland would be converted to nonagricultural use.

Floodplains and Wetlands. Alternative A would not significantly affect floodplains or wetlands. Wetlands would be inventoried and monitored according to NPS management policies, and all applicable laws and regulations would be complied with.

Effects on Socioeconomic Environment

Construction of a storage facility for artifacts would add an estimated total of \$1 million to the local economy and increase

employment opportunities in the construction occupations. Otherwise, there would be little change in the local economy.

Effects on Visitors

The no-action alternative would result in few changes in visitors' experience at the park. The rates of growth in visitation and the seasonal pattern of visitation would be unchanged. Visitors would continue to experience Colonial's resources through interpretation at the Jamestown and Yorktown visitor centers, auto tours of Jamestown Island and Yorktown Battlefield, and drives along Colonial Parkway. These experiences, along with those available at other area resources, would help visitors gain an appreciation of the colonial era of American history. Similarities in several area interpretive programs might cause some confusion, but this would not be expected to be a major impact.

ALTERNATIVE B: REFINEMENT OF EXISTING CONDITIONS (PREFERRED)

Effects from Cheatham Pond Options

As was mentioned earlier, the intent of the transfer of the Cheatham Pond tract from the Navy to the National Park Service was to protect the scenic integrity of Colonial Parkway and provide for outdoor recreation. The use of this land for recreation would reduce the ever-increasing pressure for more opportunities for recreational use at Yorktown battlefield and along the parkway.

The implications of the five options for management of the Cheatham tract are as follows:

It might be difficult to achieve the objective of protecting natural and cultural resources under either option

a (no change) or b (return of ownership to the Navy). Neither of those options would accommodate the growing public demand for outdoor recreation.

Option c (transfer of the tract to York County) would not necessarily guarantee resource protection; however, objectives for public recreational use would be met.

The implications of option d (leasing the property to York County) would be similar to those described for option c.

Option e (dividing the property into two parcels) could accomplish many of the objectives. York County would provide the low-density recreational uses and the desired boat launching ramp. At the same time, security needs and some recreational opportunities for the Naval supply center would be met.

Regardless of the option selected, before disposition the Park Service would have to conduct inventories of cultural and natural resources, including the potential for habitat of threatened or endangered species and the presence of significant cultural sites.

Effects on Cultural Resources

Alternative B would ensure professional protection and administration of the park's archeological collections. Cultural resources would benefit from the surveys, which would provide a professional data base for documentation and continuing research, thus helping to ensure continued protection of cultural resources.

Jamestown. Relocation of the Jamestown visitor center to a new building near the

parking lot would remove the intrusion on the original community. Moving the archeological collection to a new facility designed for artifact storage would reduce the threat of damage to these resources.

Additional protection of the ruins of the original Jamestown glass factory west of the present entrance station would arrest gradual deterioration caused by the maritime climate.

Establishment of a transportation system on Jamestown Island would benefit cultural resources by reducing the need for additional parking, controlling traffic patterns and circulation, and decreasing automobile emissions.

All planning for the 400th anniversary of the founding of Jamestown must be carefully handled carefully to ensure protection of the park's cultural resources.

Yorktown. The Yorktown artifact collection would benefit from upgrading of storage through construction of a new facility for the collection.

Management districts would be selectively designated because their creation could draw an arbitrary line between historic and nonhistoric elements and might incorrectly imply greater importance of some properties over others in the overall planning scheme. Boundaries would be well thought out. Care would be taken to avoid compromising pivotal properties. Any reconstruction or new construction would comply with NPS policies and guidelines, and activities would be considered only if they could be pursued without compromising extant historic structures and archeological resources.

Effects from adaptive reuse of structures would depend on the quality of supervision and administration. Care would be taken to keep the proposed adaptive use

appropriate to the building, avoid altering or destroying historic fabric, and avoid compromising the historic character of the resource or surrounding environs. Load studies and evaluation of the stress impact of additional numbers of people would be included in any such proposal. Archeological and archival documentation would precede any rebuilding in adaptive reuse districts. Archeological resources could be compromised in areas of rebuilding.

Closing of Main Street between Comte de Grasse and Church streets would block passage through a thoroughfare that has existed as a major transportation route since the settlement was platted early in the 18th century. The closing would encourage more pedestrian use and be safer for pedestrians. It would curtail weekend traffic jams of beach users in summer, reducing detracting from the historicity of the area by traffic and lessening automobile exhaust fumes, which impede preservation of cultural resources, especially masonry components.

If closed, the street must not be turned into a promenade or mall space; it must be recognizable as a historic street. Historic fabric must not be removed, and any bricks, cobbles, or similar materials found in place must be left there. The method of closing must be carefully thought out: physical closing of the right-of-way with trees, planters, permanent bollards, or other devices is unsuitable; instead, traffic should be rerouted by signs. All work must be easy to reverse and should not compromise historic fabric or the setting in which it occurs.

If a new walkway was constructed, effects on park property would have to be kept to a minimum. Clearing of vistas must be handled carefully, and trails and wayside exhibits must be properly designed and located to minimize the visual impact.

Yorktown Battlefield. Care would be taken to see that reconstruction of the first shot battery was recognizable as new construction so that it would not be confused with original earthwork elements. Archeological resources could be compromised by this reconstruction.

Colonial Parkway. Surveys of archeological and cultural resources would have to be made before any expansion of recreational use of sites along Colonial Parkway. In addition, the parkway's eligibility for the National Register of Historic Places should be confirmed and inventory and forms completed before initiation of any expanded recreational use.

Original design schemes and philosophies would be considered in plans for redesign of the Five Points intersection.

Park General. To ensure continued protection of the park's cultural resources, comprehensive cyclical maintenance programs would be instituted. Cultural surveys would have to be done before any transfer of the Cheatham Pond area.

The Park Service would need to monitor rerouting of Virginia 238 to ensure that cultural sites would not be endangered or compromised along the new right-of-way.

Effects on Natural Resources

Topography would not be significantly affected under alternative B. All natural resource actions would benefit the environment because further baseline information would become available to be used as a basis for decisions in natural resource management in the park and in coordinated management and protection within and outside park boundaries.

Wildlife and Vegetation. There could be adverse effects on some wildlife habitat

and vegetation under alternative B. Plans for proposed surface-disturbing actions (construction of bike trail, walkway across wetlands at Yorktown, trails through Yorktown battlefield) would cause minimal disturbance of vegetative communities. Recreational activities in Yorktown battlefield would not significantly affect open fields, but the areas would be monitored and actions taken to mitigate damage from excessive trampling, bare ground, and "social trails" caused by concentrated use. Mitigative actions would be those necessary to maintain natural vegetation and "open field" conditions.

Additional disturbance in undeveloped areas on Jamestown Island would cause significant impacts because the island's wetland and woodland habitats harbor the highest concentration of rare plant species. However, disturbance would be limited as much as possible to previously disturbed areas. Removal of the existing visitor center would allow natural revegetation of that site. The new visitor center would be built on the present parking lot as much as possible. This would minimize new disturbance, so effects on vegetation and wildlife habitat would be limited.

Studies of "limits of acceptable change" for recreational impacts along Colonial Parkway would provide data needed to manage recreational use. Further disturbance of vegetation at picnic areas, waysides, and viewpoints would not be allowed except as needed to stabilize eroding slopes or install hardened paths to reduce dispersed impacts. Disturbance of vegetation could increase erosion, invite invasion of exotic plants, and raise costs of maintenance and landscape management. If vegetation was being disturbed by recreational use, suitable action would be taken to avoid more damage. Threatened or endangered species habitat would be considered, especially in wetland areas, and visitor activities limited accordingly.

The proposed bike trail along Colonial Parkway could cause adverse effects. Care would be taken to mitigate effects on wetland habitats along the parkway, which contain the greatest concentrations of rare animals in the park. Extensive evaluation of proposed routes would be necessary to minimize disruption of vegetation and thus limit erosion. Routes would be planned to minimize significant changes in forest cover (which could create new open areas) and disturbance of natural woodland and open-marsh viewsheds.

The diverse wildlife species in the Cheatham Pond area could be affected by extensive development. As mitigation, development would be kept to a minimum along the Queen Creek shoreline, and none would be allowed in wetlands and marl ravines. Any potential lease for the Cheatham Pond area must contain specific actions to protect habitats.

Rare, Threatened, or Endangered Species.

As mentioned above, the largest concentrations of rare plants in the park are on Jamestown Island. RTE species will benefit from a continuing inventory the state natural heritage division is conducting. Added benefits would result from establishment of resource protection zones and identification of critical habitat and potential natural areas.

In its survey of the Cheatham Pond area, the Virginia Division of Natural Heritage noted that increased shoreline development in some areas (such as Queen Creek) is rapidly destroying potential bald eagle habitat. The division has said that effects on rare plants could be minimized by designation of several special interest areas. Potential bald eagle feeding, roosting, and nesting areas along Queen Creek could be affected by increased access to that area. In parts of the Cheatham Pond area recommended for designation as special interest areas, rare plant and animal species

could be adversely affected by actions like timber cutting, paving of surfaces, or use of herbicides and pesticides, if such actions were allowed in or near those areas. (Paving increases runoff and reduces recharge of aquifers.) These activities could occur under the proposed action; if so, they must be carefully mitigated to protect the rare resources in the Cheatham property. All potential special interest areas, highly erodible shorelines, and productive nursery areas in Queen Creek must be protected through avoidance as far as possible and by specific provisions in leases to safeguard rare species and their habitats. Another important action to avoid adverse effects on rare species would be limitation of visitor access to small parts of the Cheatham property.

Developments such as a bike trail along Colonial Parkway and a walkway over Yorktown Creek could be within or adjacent to wetlands; such features would be carefully monitored to prevent adverse effects on rare animals and plants. Trails and new park buildings would be designed to avoid adverse effects.

Soils. Through ongoing consultation and cooperative studies with federal and local soil scientists, the National Park Service would continue efforts to control exotic plants and establish native cover. This would help in continued reduction of potential erosion and other soil losses from prime and unique farmlands, battlefields, and archeological sites.

Any adverse effects on soils from actions of this alternative would be partially mitigated by revegetation with native plants and by not disturbing sensitive erodible soils adjacent to waterways. As further mitigation, other "best management practices" would be established in cooperation with federal and state soil scientists.

Prime and Unique Farmlands. In general, there would be no significant adverse effect on prime or unique farmlands from alternative B. As was mentioned above, efforts to control exotic plant species would reduce erosion and other soil losses in these areas.

Water Resources. A tidal marsh inventory conducted by York County and the town of Poquoson suggests that Yorktown Creek may be subject to upstream nutrient loading caused by a sewer facility. The Park Service would take care to prevent further impacts on the tidal creek from a proposed walkway.

According to the survey conducted by the state's natural heritage division, several major creeks and ponds along Colonial Parkway, including Yorktown Creek, are candidates for designation as natural areas having special or significant resources. Therefore, potential effects on Yorktown Creek must be considered carefully in studies of the feasibility of building a walkway or bridge over the creek. To mitigate effects, the walkway should be designed to use minimal fill or no fill.

Floodplains and Wetlands. There would be some adverse effects on wetlands and floodplains under alternative B. However, adherence to executive orders and NPS guidelines would help to minimize adverse effects on these areas.

The fragile integrity of the unique pitch and tar swamp near the Jamestown visitor center would be protected by plans to minimize visitor traffic in that area.

If a walkway or bridge was built over Yorktown Creek, disturbance of the wetlands area along Yorktown Creek would be limited. Numerous approvals and permits from the state and the Corps of Engineers would be required before such a walkway could be built.

Erosion would be reduced in wetlands and ponds scattered throughout Yorktown battlefield by open-field management to prevent loss of native vegetation.

If bike trail construction involved filling of wetland areas where the trail would cross them, it could affect water quality and the integrity of fisheries habitat, which are in delicate balance in wetlands, tidal creeks, and brackish marshes crossed by the parkway. In addition, many sections of the parkway are in the 100-year floodplain zone. Floodplain values could be protected by avoidance of development in those areas, which is consistent with NPS policy for floodplain areas.

About 2,000 square feet of vegetated wetlands along Queen Creek would be removed for a boat ramp, and about 60 feet of floating piers and associated pilings would be installed in the channel. This would adversely affect the vegetated wetlands, but there would be no significant adverse effect on channel navigation. Although the developments would be in the 100-year floodplain of Queen Creek, there would be no adverse effects on overall floodplain values; the vegetated wetlands that would be removed for the ramp are relatively small compared to the overall wetlands on the opposite (north) bank of the channel and in other nearby areas. Mitigation of the loss of wetland habitat would be required, according to a "no net loss of wetlands" policy established by the Army Corps of Engineers, the Environmental Protection Agency, and the U.S. Fish and Wildlife Service.

Air Quality. Alternative B would have minimal effects on air quality. Development of an air quality management plan would ensure that actions would be taken to understand regional pollutant sources and to protect air resources in the park. Future impacts of regional air quality plans also would be considered. Increased

traffic in the park and especially along Colonial Parkway might degrade the air, but the proposed public transportation system on Jamestown Island would locally reduce automobile traffic and emissions. A bike trail would encourage visitors and residents to enjoy the parkway without vehicles; this also would benefit local and regional air quality by reducing automobile emissions.

Effects on the Socioeconomic Environment

Officials of the commonwealth of Virginia indicate that more boat launching facilities are needed in the area, so the addition of a launching ramp at the Cheatham Pond tract would be expected to benefit the local boating population.

Since no further access points would be allowed on the Colonial Parkway, use of that road by commuters would be limited.

The cost of implementing alternative B has been estimated at \$4,789,000. Approximately 15 years would be needed for full implementation; therefore, the annual contribution to the local economy would be roughly \$320,000 per annum. Given the scale of the regional economy, this would be a small effect. Additional economic opportunities would be realized from adaptive use of some Main Street shops in Yorktown for retail operations.

Effects on Visitors

Although alternative B would bring improvements to the visitor experience, it would not be expected to change the volume or pattern of visitation significantly. The single exception would be the Yorktown community, where successful implementation of proposed changes

would attract larger numbers of visitors who would stay for longer periods.

Development of a design theme for the park would tie together its disparate elements into a comprehensible, easily recognizable whole. Satellite information centers would improve dissemination of facts and materials, communicating the park's message.

Several actions of alternative B would improve the quality of visitors' experience at Colonial. New waysides at Jamestown would enhance public understanding of the history of that area. Introduction of a bus tour system, if feasible, would reduce congestion on the tour road. Provision of secure storage for artifacts would enable the Park Service to display the collection for visitor appreciation. The eventual move of the Jamestown visitor center from its current location near the townsite would remove a modern intrusion from the scene.

Updated interpretation of Jamestown according to its historiographical base also would strengthen visitors' experience. Expanded interpretive tours of the original townsite and educational programs for school groups would give more people a high-quality interpretive experience. New well-defined wayside exhibits would effectively communicate site-specific history in an updated context. A new film presentation would better explain the area's significance, bringing the interpretation into a modern historiographical focus.

Creation of a public transportation system for the island tour road would help to reduce congestion at interpretive waysides and heighten visitors' appreciation of Jamestown Island.

Upgrading of interpretive services and restrooms at the Glasshouse would im-

prove services for visitors; this would make for a better tourist experience.

Changes in the village of Yorktown would lead to a community more representative of colonial Yorktown; thus, visitors would get a more accurate feeling of the original community's size and vibrancy. Actions planned for the Poor Potter's site would strengthen interpretation of the period and animate the community, as would increased living history presentations and added retail shops on Main Street. Removal of traffic from Main Street would improve pedestrian use and heighten visitors' experience of Yorktown.

Display of archeological artifacts at Archer Cottage would add a new element for visitors to experience. This, along with additional attractions such as the Windmill and the pedestrian walkway, would expand the pattern of use beyond Main Street to Water Street.

Restoration actions at the Yorktown battlefield would enhance visitors' understanding of conditions at the time of the battle. The redesigned visitor center roof would improve the view of the surrounding scene. Living history presentations, if realized, would enliven visitors' experience. Traffic on the battlefield tour road would be decreased by rerouting of Virginia 238; thus, fewer modern intrusions would impair visitors' experience of the battlefield. Relocation of active recreational uses like kite flying away from the area between the first and second shot batteries likewise would reduce intrusions.

Provision of a bike trail along Colonial Parkway would improve safety for drivers and cyclists and reduce conflicts between recreationists and tour road traffic. Redesign of Five Points intersection would improve safety for parkway drivers. Possible facilitated recreational use at certain locations along the parkway would improve

conditions for recreationists. Comfort stations added at certain locations would detract slightly from the scenic drive, but the design standards of the existing parkway would otherwise be maintained.

ALTERNATIVE C: SUBSTANTIVE CHANGE

Effects on Cultural Resources

Effects on structures and cultural sites would be minimal under alternative C. Completion of surveys and updating of the data base and list of classified structures would ensure preservation of important cultural resources. Initiation of surveys for areas like Cheatham would be the first step in improved management of those resources. Completing National Register nominations for Jamestown and Yorktown and beginning the process for other areas would bring the park's inventories and documentary base up to the professional levels necessary for future planning decisions.

The Yorktown and Jamestown cultural collections would benefit from safe storage and administration at a central, coordinated facility and from coordination of programs of the National Park Service, Colonial Williamsburg, APVA, and the College of William and Mary by a central administrator and board.

The National Park Service would explore alternatives to complete reconstruction of the first shot battery; for example, marking the site by flag or pennant. Archeological resources could be compromised during reconstruction.

Acquisition of rights-of-way for expansion of Colonial Parkway might bring more archeological and other cultural sites into the park system. Additional survey work

would be needed for adequate documentation of resources in project areas.

Effects on Natural Resources

Under alternative C there would be no significant effects on topography or soils.

Wildlife and Vegetation. Effects on wildlife and vegetation from alternative C would be similar to those from alternative B; however, wildlife habitat on Jamestown Island would be enhanced because more acreage would be left for natural vegetation and managed as natural zones.

Increased interpretation of resource programs and natural resources would improve visitors' understanding of the fragile balance of the park's remaining resources in a growing urban area. This would help to reduce impacts on sensitive animal and plant populations and lead to further protection of these resources through public involvement.

Vegetation and wildlife habitat would benefit in areas managed for natural values. They also would benefit from proposed changes in vegetation along Colonial Parkway because natural diversity in the corridor would be increased. Effects from the proposed bike trail would be the same as those described for alternative B.

Rare, Threatened, or Endangered Species. Alternative C's effects on rare, threatened, or endangered species would be similar to those of alternative B. However, management of the Cheatham Pond area in a natural state would protect existing RTE habitats in the wooded tract, and RTE species would benefit from management of more land as natural zones. Reduction of recreational sites would reduce adverse impacts on RTE habitats in wetland and shoreline areas. Effects of the bike trail on

RTE species would be similar to those described for alternative B.

Prime and Unique Farmlands. The effects of alternative C on prime and unique farmlands would be similar to those of alternative B.

Water Resources. Effects on water resources in the park from alternative C would be similar to those from alternative B. Effects from water resource inventories and monitoring also would be similar to those described for alternative B.

Floodplains and Wetlands. Continuing management of wetland areas as natural resource areas would minimize effects on wetlands. Because unregulated recreational use of sensitive wetlands would not be allowed, recreational activities would not affect floodplains or wetlands. Alternative C would not adversely affect wetlands in the Cheatham Pond area, the York River, or at the Yorktown picnic area. However, the proposed bike trail addition could result in some adverse impacts, including filling or crossing of wetlands.

Air Quality. Effects on air quality under alternative C would be similar to those of alternative B. Colonial would continue to be a class II air quality area.

Effects on Socioeconomic Environment

Effects on the local population from alternative C would be the same as those described for alternative B.

Since this alternative would be less expensive to implement than alternative B, it would contribute less to the local economy. However, given the size and diversity of the local economy, effects from park construction and operation would be minimal in any case.

Effects on Visitors

Effects on visitors' experience from alternative C would resemble those of alternative B in many ways, but visitors' confusion would be reduced through coordination of various attractions to make the visitor experience more integrated. Public appreciation and understanding of the colonial period of American history would be enhanced. Removal of many visitor center functions from Jamestown Island would not be expected to inconvenience visitors very much, since those services would be available at the nearby Jamestown Settlement. Visitors' understanding of the area would be improved by the display of artifacts and interpretation of those artifacts.

Updating of general interpretive frameworks (with NPS personnel acting as consultants to cooperating agencies) would

bring interpretation of the park into a modern historiographical focus and combine the separate elements of Colonial into an understandable whole.

Increased interpretation of natural resources would enhance visitors' knowledge of local plants and animals and their connection to the Jamestown story and the Island's history.

Implementation of alternative C would not be expected to change the numbers of visitors to the park or the pattern of use at Colonial. As in alternative B, the single exception would be the village of Yorktown, where more visitors would be expected, and the average time a visitor could be expected to stay would increase.

TABLE 4: COMPARISON OF EFFECTS OF ALTERNATIVES

Alternative A: No Action	Alternative B: Refinement of Existing Conditions (preferred)	Alternative C: Substantive Change
<i>Jamestown/Jamestown Island</i>		
Few short-term effects on Jamestown artifact collection; long-term jeopardy because collection still housed in building in floodplain.	Professional protection and administration of Jamestown cultural collection ensured through move to new facility designed for artifact storage.	Collection protected through move to central, cooperatively managed facility.
—	Better protection of glass factory ruins would arrest ongoing deterioration.	Same as alternative B.
No bus system established; continuing traffic congestion.	If established, transportation system would reduce tour road congestion, protect cultural resources by decreasing vehicle emissions.	Same as alternative B.
No disturbance of plants or animals, but adverse effects from lack of mechanism to guide management; no actions to minimize invasion by exotic plant species.	Possible adverse effects on animals, plants in wetlands and woodland habitats by surface disturbance from construction; as mitigation, wetlands protected; as much as possible, surface disturbance kept to previously disturbed areas.	Effects on wildlife and vegetation similar to alternative B, but habitat enhanced by more acreage being left for natural vegetation, more natural zones.
—	Removal of present visitor center would allow natural revegetation; new disturbance of plants and animals minimized.	Same as alternative B.
Potential effects on rare, threatened, endangered (RTE) plants and animals (park's largest concentration is on Jamestown Island) because funding not ensured.	RTE species would benefit from inventory done by state, establishment of resource protection zones, identification of critical habitat.	Effects similar to alternative B, but more benefits to RTE species from alternative C with more natural zones, reduced recreation in sensitive areas.
—	Modern intrusion removed by placement of new visitor center away from townsite; visitor experience improved by upgraded interpretation, restroom improvements; traffic congestion reduced if bus system established.	Same as alternative B.
<i>Yorktown/Yorktown Battlefield</i>		
Management of Yorktown artifact collection unchanged.	New facility for artifact storage would benefit collection.	Yorktown artifact collection would benefit from safe storage, central administration at cooperative facility, coordination of programs between NPS and others.
No change from environmental consequences now occurring in Yorktown.	Designation of management districts could imply greater importance of some properties; as mitigation, district boundaries carefully selected, care taken not to compromise pivotal properties.	Same as alternative B.

Alternative A: No Action	Alternative B: Refinement of Existing Conditions (preferred)	Alternative C: Substantive Change
<i>Yorktown/Yorktown Battlefield (continued)</i>		
—	Extant historic structures and archeological resources not compromised by reconstruction because NPS policies and guidelines followed; activities pursued only if no adverse effects on cultural resources.	Minimal effects on structures, cultural sites.
Management as at present; same effects as at present.	Adaptive reuse effects depend on care taken to keep use suitable to building, avoid destroying historic fabric or compromising historic character; rebuilding could endanger archeological resources.	Same as alternative B.
Main Street not closed; no change in effects now occurring.	Closing part of Main Street would block long-standing right-of-way, but traffic jams and distractions curtailed, pedestrian safety improved, emissions damage to historic resources decreased, sense of history heightened by removal of modern intrusion; care taken in method of closure to avoid compromising historic fabric and setting.	Same as alternative A.
Construction of locally planned walkway monitored to keep effects on park property to a minimum.	Walkway construction handled so as to keep effects on park property to a minimum; trails and waysides carefully designed and located to minimize visual intrusion on historical scene.	Same as alternative B.
—	Possible adverse effects on vegetation, wildlife habitat from vista clearing, bike trail, walkway construction; care taken to keep disturbance minimal.	Same as alternative B.
—	Potential disturbance of Yorktown Creek wetlands area from walkway or bridge, but necessary approvals, permits would keep effects minimal.	Same as alternative B.
Little change in visitation at Yorktown.	Changes to Yorktown village, better interpretation, more presentations would enhance visitors' sense of history; visitation expected to increase.	Visitor experience similar to alternative B, but public understanding of area history enhanced under alternative C through interpretive coordination with other areas.
No change in effects on Yorktown battlefield.	Archeological resources could be compromised by reconstruction of first shot battery in battlefield, but care taken with appearance to avoid confusion with original earthwork elements.	To avoid compromising archeological resources, NPS would explore alternatives to reconstructing first shot battery.
Virginia Highway 238 not rerouted.	Rerouting of 238 monitored to avoid danger to cultural resources along new right-of-way; less traffic on battlefield tour road would decrease modern intrusions, enhance visitors' experience.	Same as alternative B.
Effects on battlefield from recreation would continue.	Battlefield possibly disturbed by active recreation; monitoring done to mitigate damage by keeping natural vegetation, "open field" conditions.	Recreational activities relocated away from battlefield, reducing impacts now occurring.
—	Open-field management would reduce loss of vegetation in wetlands and ponds on Yorktown battlefield.	Similar to alternative B; revegetation with native plants encouraged.
Little change in present interpretation; roof not rebuilt.	Visitors' understanding of battle history enhanced by roof reconstruction, improved view from roof, decreased intrusions from highway rerouting, reduction of recreational activities.	Same as alternative B.

Alternative A: No Action

Alternative B: Refinement of Existing Conditions (preferred)

Alternative C: Substantive Change

Colonial Parkway

No changes in present management of parkway; scenic drive still unimpaired.

Surveys made of cultural resources; parkway's National Register eligibility confirmed before recreational use expanded.

Same as alternative B.

No change to Five Points intersection.

Original design schemes, philosophies considered in plans to redesign Five Points intersection; safety improved after change.

Same as alternative B.

Parkway right-of-way not expanded.

Same as alternative A.

Same as alternative A.

No bike/pedestrian trail added.

Possible bike/pedestrian trail could adversely affect vegetation, RTE wildlife in wetland habitats; proposed routes extensively evaluated to limit disruption and erosion; routes planned to minimize disturbance.

Similar to alternative B, but planned changes in vegetation would increase natural diversity; benefiting wildlife habitat.

—

If wetlands filled where bike/pedestrian trail crossed them; water quality, fisheries habitat adversely affected; development avoided in parkway sections in 100-year floodplain.

Same as alternative B.

No change in effects of recreation on parkway areas.

"Limits of acceptable change" studies would provide data needed to manage recreational activity in sensitive areas along parkway.

Same as alternative B.

Little change in visitor experience along parkway.

Visitors would benefit from addition of comfort stations; possible facilitated recreational use in certain areas along parkway.

Visitors would benefit from improved access from parkway expansion, circular route; public understanding improved by interpretation coordinated with others, addition of neglected sites.

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Cheatham Pond Area

Detached areas, including Cheatham Pond area, would not benefit from surveys or from integration into general park scheme.

Recreational use of Cheatham Pond area would reduce pressure for recreation areas in park.

Management of Cheatham Pond tract retained by NPS; no change in demands for recreation elsewhere in park.

No transfer of Cheatham Pond area management.

Cheatham cultural and natural resources protected by surveys done before any transfer to identify significant cultural sites, RTE habitat.

Public understanding of Cheatham increased by interpretive changes to integrate detached properties into overall park story.

—

Extensive development could affect diverse wildlife species in Cheatham pond area; minimal development allowed along Queen Creek, none in wetlands and marl ravines; leases would include specific habitat protection measures. Shoreline development along Queen Creek is harming bald eagle habitat; possible designation of special interest areas to protect bald eagles.

Management of Cheatham Pond area in a natural state would protect RTE habitat.

Alternative A: No Action

Alternative B: Refinement of Existing Conditions (preferred)

Alternative C: Substantive Change

Cheatham Pond Area (continued)

—

If allowed, timber cutting, paving of surfaces, pesticide use could affect rare plants and animals in Cheatham areas recommended for special interest status; mitigation required in those areas, erodible shorelines, Queen Creek nursery areas; visitor access limited in some small parts of tract.

Management of Cheatham Pond area in a natural state would protect RTE habitat.

—

Addition of boat ramp at Cheatham would benefit local boaters.

Park General

Detached areas would not benefit from surveys; list of classified structures incomplete; all park cultural resources at risk because data base insufficient to make plans to protect.

Comprehensive cyclical maintenance programs established to protect cultural resources, which would also benefit from surveys and updated data base; surveys begun for detached areas; National Register nominations finished for Jamestown and Yorktown; started for other park areas.

Same as alternative B.

No change in management of detached areas.

Green Spring, other detached properties protected through NPS retention and better understood by public through research and updating of interpretation to integrate them into total park scheme.

Same as alternative B.

No significant short-term adverse effects on most natural resources, but planning, informed management impeded by lack of monitoring, surveys, and inventories.

More baseline information available for natural resource decisions; consultation with federal and local experts would advance efforts to control exotic plants, establish native cover, reduce erosion.

Same as alternative B.

No significant impact on air quality; park still managed as a class II air quality area.

Air quality effects minimal; management plan would ensure understanding of pollutants, protection of air; traffic increases could cause degradation, but this problem reduced by bus systems and bike/pedestrian trail.

Same as alternative B.

—

Disturbance of vegetation in public use areas could increase erosion, encourage exotic plants, raise upkeep costs; surface disturbance not allowed except where needed to stabilize eroding slopes or put in hardened paths; visitor disturbance of plants limited, especially in wetlands.

Same as alternative B.

No adverse effect on RTE species; monitoring would continue, but funding for further research not assured.

RTE species would benefit from establishment of resource protection zones, identification of critical habitat.

Effects similar to alternative B; further benefits to RTE habitat from management of Cheatham tract in a natural state, other areas as natural zones; RTE habitat impacts reduced by limits on recreation in wetlands and shoreline areas.

Erosion would continue to threaten historic resources, especially at Yorktown Bluffs and on Jamestown Island.

Adverse impacts on soils reduced by avoiding surface disturbance next to waterways, revegetating with native plants, establishing best management practices.

Same as alternative B.

Alternative A: No Action

Alternative B: Refinement of Existing Conditions (preferred)

Alternative C: Substantive Change

Park General (continued)

No prime and unique farmland would be converted to uses other than agricultural.

Floodplains and wetlands not significantly affected; wetlands inventoried, monitored; applicable laws observed.

—
—

Little change evident to local residents or in local economy.

Few changes in visitation or visitors' experience; possible visitor confusion from similarities in area interpretive programs, but impact not major.

No significant effects on prime and unique farmlands; control of erosion and exotic species would reduce erosion and other soil losses.

Some adverse effects on wetlands from walkway, bike trail, boat ramp, but effects minimized by mitigation required by NPS guidelines, other regulations; losses from boat ramp small part of total wetland acreage. Developments along Queen Creek would be in 100-year floodplain, but no adverse effect on overall floodplain values.

Yorktown Creek, several other creeks and ponds along Colonial Parkway suggested (after state survey) for designation as natural areas with significant resources; effects on these would be weighed carefully in plans for bridge or walkway.

Small effect on regional economy; some new economic opportunities from adaptive use of Yorktown shops for retail operations.

Visitors' experience improved, but visitation numbers or pattern unchanged except at Yorktown, where more visitors would be expected for longer periods; park design theme would tie disparate elements into recognizable whole.

Same as alternative B.

Impacts minimal because wetlands managed as natural resource areas, unregulated recreation in those areas not allowed, but possible adverse effects from bike trail filling or crossing wetlands. Floodplain effects similar to those of alternative B.

Same as alternative B.

Impacts on sensitive plants and animals reduced through more public involvement in their protection, resulting from greater public understanding of natural resources through increased natural resource interpretation. Vegetation and wildlife also would benefit in areas managed for natural values.

Local effects similar to alternative B, but less effect on economy.

Similar to alternative B, but no design theme; integration of all park elements into interpretation would improve visitors' understanding of effects of natural resources on historic events.

COMPLIANCE REQUIREMENTS

The general management plan for Colonial National Historical Park will comply with all applicable federal, state, and local legislation and orders. The National Park Service has consulted informally with appropriate federal, state, and local agencies during preparation of this document. The primary contact at the state level for natural resource compliance is the Virginia Council on the Environment. The council acts as a clearinghouse for state environmental review and coastal zone management consistency review.

Before disposition of any property, the Park Service would conduct inventories of cultural resources to determine the presence of significant cultural sites.

The National Park Service will coordinate with the State Historic Preservation Office when required by the Archeological Resource Protection Act or by section 106 of the National Historic Preservation Act. The National Park Service operates under a programmatic agreement with the Advisory Council on Historic Preservation and the National Council of State Historic Preservation Officers. The agreement, which was implemented in August 1990, calls for periodic consultation with the advisory council and the state historic preservation officer throughout the planning process. It also allows either entity to participate fully, should they want to do so. In addition, the agreement contains a list of programmatic exclusions. Listed as exclusions are actions that, because of their nature and the minor effect they would have on the resources, do not require further review or consultation with the advisory council or the state historic preservation officer.

All actions of a plan other than those listed as programmatic exclusions must

receive additional review by the advisory council and the state historic preservation officer during the design stage, before implementation. Appendix D contains detailed information on section 106 requirements for each alternative.

In accordance with the Coastal Zone Management Act of 1972, a consistency determination will be filed with the commonwealth of Virginia to demonstrate that the proposed action complies with all state policies.

The National Park Service has sought information on endangered species and critical habitat through informal consultation with the U.S. Fish and Wildlife Service, U.S. Department of the Interior; the National Marine Fisheries Service, National Oceanic and Atmospheric Administration, U.S. Department of Commerce; and the Division of Natural Heritage, Commonwealth of Virginia. No action of the preferred alternative would cause significant adverse effects on endangered species. However, further consultation will be necessary during implementation of future actions as new information is obtained on critical habitats or species in the park through further studies of the park's flora and fauna. Before disposition of any property, inventories would be conducted to identify any potential habitat for threatened or endangered species.

Consultation with the Virginia Council on the Environment during the NEPA compliance process will ensure compliance with all state water quality requirements. Permits from the Army Corps of Engineers will be needed for development, dredging, or fill of wetlands or tidal areas in wetlands or other water bodies in the park.

All actions in floodplains or wetlands in the park will comply with Executive Orders 11988 and 11990 (floodplain management and wetlands protection) and with the state-approved Chesapeake Bay regulations. The National Park Service will obtain appropriate approvals and permits during design and construction of projects. Additional environmental assessments that are more detailed may be necessary so that the effects from developments on wetlands, floodplains, or undisturbed lands can be assessed.

Colonial National Historical Park is a class II air quality area. This means that under Virginia's implementation plan to achieve national ambient air quality standards (NAAQS), the state may allow a moderate amount of new air pollution in and around the park but cannot allow levels to

exceed those specified in the NAAQS or the maximum allowable increments over established baseline concentrations.

All park facilities and programs will be accessible to visitors with disabilities.

After a 30-day public review of the environmental assessment, a determination will be made as to the environmental consequences of the proposed action. At that time, if no significant adverse effects from the proposed action are identified, a finding of no significant impact will be prepared. This would conclude the compliance process for the National Environmental Policy Act.

Appendix E contains a partial list of laws, regulations, and policies that pertain to the general management plan.

CONSULTATION AND COORDINATION

During the planning effort, National Park Service personnel have met with people from other land managing agencies and

government agencies and with other interested parties, including the following.

Fish and Wildlife Service, U.S. Department of the Interior
Fort Eustis, U.S. Department of the Army
Soil Conservation Service, U.S. Department of Agriculture
National Marine Fisheries, U.S. Department of Commerce
Naval Weapons Station, U.S. Department of the Navy
U.S. Coast Guard Reserve Training Center

Gloucester County
James City County
Surry County
York County
York County Board of Supervisors

Commonwealth of Virginia
Council on the Environment
Department of Conservation and Recreation
Department of Game and Inland Fisheries
Department of Historic Resources
Department of Transportation
Marine Resources Commission

City of Virginia Beach
City of Williamsburg
Yorktown Board of Trustees
Yorktown residents and landowners
Yorktown Steering Committee

Association for the Preservation of Virginia Antiquities
College of William and Mary
Colonial Williamsburg Foundation
Fifes and Drums of Yorktown
Historic River Lands Conservancy
James River Institute
Jamestown-Yorktown Foundation

Lower James River Association
On-the-Hill Arts Center
Preservation Alliance of Virginia
Virginia Institute of Marine Science
Virginia Research Center for Archeology
Watermans Museum
Williamsburg Chamber of Commerce
Yorktown Day Association

At scoping meetings early in the project, members of the public were invited to share their concerns about the future of Colonial National Historical Park. The

meetings revealed that the greatest concern was for the future of Yorktown, given the ongoing master plan for the community that was recently prepared.

APPENDIX A: COST ESTIMATES BY ALTERNATIVE

The cost estimates in the following table include planning and construction costs, as well as operational budgeted estimates for each alternative. Some proposed actions involve studies, the costs of which could not be estimated at this time.

Action	Alternative A: No Action			Alternative B: Refinement of Existing Conditions			Alternative C: Substantive Change		
	Construction Costs	Planning Costs	Total Cost	Construction Costs	Planning Costs	Total Cost	Construction Costs	Planning Costs	Total Cost
<u>Jamestown</u>									
Demolition of present visitor center	—	—	—	\$ 150,950	\$ 26,039	\$ 176,989	\$ 150,950	\$ 26,039	\$ 176,989
Land reclamation	—	—	—	66,000	11,385	77,385	66,000	11,385	77,385
Landscaping	—	—	—	15,196	2,622	17,818	—	—	—
Construction of new visitor center/curatorial collections facility	—	—	—	5,240,000	904,000	6,144,000	—	—	—
Furnishings for new visitor center	—	—	—	22,597	3,898	26,495	—	—	—
Upgrading of Glasshouse ruins; construction of comfort station	—	—	—	166,732	28,762	195,494	166,732	28,762	195,494
Transportation system	—	—	—	300,000	51,750	351,750	—	—	—
Construction of new reception center	—	—	—	—	—	—	750,000	129,375	879,375
Completion of cultural resource survey and National Register forms	—	—	100,000	—	—	100,000	—	—	100,000
<u>Yorktown</u>									
Development of Poor Potter's Site	—	—	—	517,500	89,269	606,769	517,500	89,269	606,769
Construction of Yorktown Creek boardwalk	—	—	—	250,000	43,125	293,125	250,000	43,125	293,125
Construction of exhibits on Yorktown Pier	—	—	—	34,500	5,952	40,452	34,500	5,952	40,452

Action	Alternative A: No Action			Alternative B: Refinement of Existing Conditions			Alternative C: Substantive Change		
	Construction Costs	Planning Costs	Total Cost	Construction Costs	Planning Costs	Total Cost	Construction Costs	Planning Costs	Total Cost
<u>Yorktown</u> (continued)									
Curatorial collections facility	—	—	—	2,292,500	437,500	2,730,000	1,310,000	250,000	1,560,000
Development concept interpretive plan for Yorktown	—	—	—	—	—	150,000	—	—	150,000
Redesign of visitor center roof	—	—	—	27,600	4,761	32,361	27,600	4,761	32,361
Reconstruction of first shot battery	—	—	—	60,000	10,350	70,350	—	—	—
Transportation system	—	—	—	207,600	35,811	243,411	207,600	35,811	243,411
Realignment of park portion of Virginia Highway 238	—	—	—	1,380,000	238,050	1,618,050	1,380,000	238,050	1,618,050
Completion of cultural resource survey and National Register forms	—	—	75,000	—	—	75,000	—	—	75,000
<u>Colonial Parkway</u>									
Stabilization of Ringfield plantation site	—	—	—	40,000	6,900	46,900	40,000	6,900	46,900
Redesign of Five Points intersection	—	—	—	80,000	13,800	93,800	80,000	13,800	93,800
Construction of bicycle path	—	—	—	2,300,000	396,750	2,696,750	2,300,000	396,750	2,696,750
Completion of cultural resource survey and National Register forms	—	—	100,000	—	—	100,000	—	—	100,000
<u>Park General</u>									
Satellite information stations	—	—	—	162,000	27,945	189,948	—	—	—
Construction of central curatorial facility	—	—	—	—	—	—	1,700,000	293,250	1,993,250
Development totals	—	—	\$ 275,000	—	—	\$16,076,844	—	—	\$10,979,111
Park operations and staffing (annual)	—	—	\$3,500,000	—	—	\$4,200,000	—	—	\$ 4,100,000

APPENDIX B: CULTURAL RESOURCES

The cultural resources of Colonial National Historical Park consist of buildings and archeological sites as well as thousands of separate items that make up large archeological, archival, photographic, and furnishings collections. Most of the items date from the 17th through 20th centuries. Also in the park are several house museums with collections related specifically to the historic uses of the structures. Among the park's most unusual cultural resources are military earthworks and redoubts from both the American Revolution and the Civil War.

Hundreds of identified and unidentified cultural sites exist within park boundaries. A complete inventory of the park's cultural resources is not available at present. The park staff began in 1983 to conduct a comprehensive inventory of all cultural resources. The inventory, which is due to be finished in 1995,

is an *in toto* compilation. Separate listings for each individual park site are not available now but will be available at the end of the process. The park curator should be contacted for information regarding specific cultural resources and their significance.

Two other areas of inquiry that will be explored in the near future are ethnographic studies and inventory of cultural landscapes.

Some of the important cultural resources in Colonial National Historical Park are listed below by area. Many of the sites are on the park's current list of classified structures; most are also listed in the classified structures field inventory report of October 2, 1990. In accordance with NPS policy, no specific listings of locations of archeological sites have been included in this document.

JAMESTOWN

Backfilled country house ruins
Backfilled foundation ruins
Backfilled multi-family residential ruins
Confederate earthwork
Glass house ruins

Great road trace
Jacquelin-Amber house ruin
Jamestown 300th anniversary monument
Travis graveyard
Yeoman's house

YORKTOWN

American battery no. 4 (2nd siege parallel)
Archer cottage
Archer cottage: privy
Ballard house
Ballard house: smokehouse
Batteries nos. 1, 2, 3, and 5
(Grand French battery)
British-Confederate earthworks nos. 1-9
Burcher cottage
Cemetery (19th century)
Confederate earthworks around Yorktown
Confederate earthworks in Yorktown
Digges house
Digges house: granary
Digges house: outside kitchen
Digges house: smokehouse
Digges house: wellhead
Epaulement (2nd siege parallel)
First and second allied siege parallels
Franco-American redoubt (2nd siege parallel)

French cross
French batteries nos. 6 and 7 (2nd siege parallel)
Fusiliers redoubt
Grand American battery (2nd parallel siege line)
Great Valley road trace
Longneck redoubt
Medical shop
Monument to victory and alliance
Moore house
Moore house: cemetery
Moore house: ice house
Moore house: outside kitchen
Moore house: wellhead
National cemetery: graves and wall
National cemetery: lodge
Nelson house
Nelson house: carriage house
Nelson house: formal garden
Nelson house: garden wall
Nelson house: stable

APPENDIX B: CULTURAL RESOURCES

Nelson house: wisteria cottage
Pate house
Pigeon Hill redoubt
Poor Potter's workshop ruins
Redoubts nos. 9 and 10
Redoubt (Grand French battery)
Smith house
Sommerwell house

Swan Tavern
Swan Tavern: outside kitchen
Swan Tavern: privy
Swan Tavern: smokehouse
Swan Tavern: stable
Swan Tavern: wellhead
Wormley Pond dam
York-Warwick road trace

COLONIAL PARKWAY

Bellfield cemetery
Bellfield second house ruins
Ringfield ruins (an important archeological site in the interpretation of plantation economy in tidewater Virginia in the 17th through 19th centuries)

Confederate earthwork on Colonial Parkway (one of the many Civil War fortifications in Colonial for which there is no adequate interpretation or cyclical maintenance)
Colonial Parkway right-of-way

GREEN SPRING

Green Spring plantation ruins
Green Spring: springhouse

[Note: The two sites above are included in the park's list of classified structures and in the classified structures field inventory report of October 2, 1990. Those listed below are not included in either list.]

Old manor house (structures "A" through "S")
Mansion house
Pottery kiln
Greenhouse/nursery
Spring House

Kitchen
Landscaping
Catch Basin
Gallery
Stairways

OTHER SITES

Swann's Point
Cape Henry: Memorial cross
Tindalls Point
Gloucester Point
Cheatham Pond area.

A copy of a recent collections management report from the park appears on the next page.

U.S. Department of the Interior
NATIONAL PARK SERVICE
COLLECTIONS MANAGEMENT REPORT

I. Calendar Year FY1990 Jan-Sep only

Region MARO

Park GOLO

Center (if applicable) _____

(SEE REVERSE FOR INSTRUCTIONS)

NOTE: Use () around any figures that are estimates

	NUMBER OF TRANSACTIONS IN YEAR	NUMBER OF ITEMS IN TRANSACTIONS							ITEM TOTAL
		ARCH*	ETHN*	HIST*	ARCHV*	BIOL*	PALEO*	GEOL*	
II. ACCESSIONS									
1. Gifts	5	-	-	14	1	-	-	-	15
2. Exchanges	-	-	-	-	-	-	-	-	-
3. Purchases	1	-	-	1	-	-	-	-	1
4. Field Collections	9	29642	-	360	-	-	-	-	30002
5. Transfers from other NPS units	-	-	-	-	-	-	-	-	-
6. Transfers from other Federal Institutions	-	-	-	-	-	-	-	-	-
7. Incoming loans	-	-	-	-	-	-	-	-	-
8. TOTAL ACCESSIONS	15	29642	-	375	1	-	-	-	30018
DEACCESSIONS									
1. Exchanges	-	-	-	-	-	-	-	-	-
2. Transfers to other NPS units	-	-	-	-	-	-	-	-	-
3. Losses, excluding thefts (Describe in COMMENTS)	-	-	-	-	-	-	-	-	-
4. Theft	-	-	-	-	-	-	-	-	-
5. Return of Incoming loans	1	1	-	-	-	-	-	-	1
6. Other (Describe in COMMENTS)	-	-	-	-	-	-	-	-	-
7. TOTAL DEACCESSIONS	1	1	-	-	-	-	-	-	1
CATALOGING (Form 10-254)									
1. Forms completed, Registration Data only	-	-	-	-	-	-	-	-	-
2. Forms completed, Registration and Catalog Data	32270	68884	-	-	-	-	-	-	68884
3. Forms completed, Catalog Data only	-	-	-	-	-	-	-	-	-
4. Recataloging: forms completed	-	-	-	-	-	-	-	-	-
CONSERVATION									
1. Collection Condition Survey	-	-	-	-	-	-	-	-	-
2. Treatments	-	-	-	-	-	-	-	-	-
a. Treatments by NPS Center/Region	-	-	-	-	-	-	-	-	-
b. Treatments by park staff	-	-	-	-	-	-	-	-	-
c. Treatments by contractor	-	-	-	-	-	-	-	-	-
3. TOTAL CONSERVATION TREATMENTS	-	-	-	-	-	-	-	-	-
III. CATALOGING SUMMARY ALL YEARS									
1. Forms completed, Registration Data only	-	-	-	-	-	-	-	-	-
2. Forms completed, Registration and Catalog Data	47538	(193884)	-	241	-	-	-	-	(194125)
3. TOTAL FORMS COMPLETED	47538	(103884)	-	241	-	-	-	-	(194125)
4. Backlog to be cataloged	(87730)	(831116)	-	(5000)	(130000)	-	-	-	(966116)
5. TOTAL COLLECTION SUMMARY	(135268)	(1025000)	-	(5241)	(130000)	-	-	-	(1160241)

IV. FIREARMS:

1. Total number of firearms in museum collection	12
2. Total number of firearms acquired this year	-

V. USE:

1. Total number of outgoing loans	28
2. Total number of items in outgoing loans	21715
3. Total items from park collections in park exhibits	1138
4. Total number of collections research requests (in park)	111
5. Total number of collections research requests (outside)	306

VI. PLANNING:

Date(s)
SOC 1979
CMP 1982
CSP -
CCS -
HFR 1986 (Moore)
EP 1974 (Jamestown & Yorktown)

VII. FUNDING:

\$ (70000)
FTE 3.0
+contracts

*ARCH = Archeology
*ETHN = Ethnology
*HIST - Includes History, Fine Arts, Photographs, Architectural Specimens
*ARCHV = Archives
*BIOL = Biology
*PALEO = Paleontology
*GEOL = Geology

VIII. NOTEWORTHY ACCESSIONS AND DEACCESSIONS AND OTHER COMMENTS:

Modifications in totals are based on revised estimates derived via cataloging. Additional archeological and archival material has been cataloged but will be finished and reported in subsequent reports.

IX. FORM COMPLETED BY: David F. Riggs Museum Curator (804) 220-1498 March 19, 1991
(Name) (Title) (Phone No.) (Date)

APPROVAL:

(Superintendent for Park reports; Manager for center reports; Regional Director for Regional Summary)



APPENDIX C: PLANT AND ANIMAL SPECIES

RARE, THREATENED OR ENDANGERED SPECIES

[STATUS CODES: FC1 = federal category 1 candidate species¹; FC2 = federal category 2 candidate species²; FC3 = former federal candidate species; FLE = federally listed endangered; FLT = federally listed threatened; VC = Virginia, candidate species; VLE = state-listed as endangered; VRE = state-recommended as endangered; VRSC = state-recommended for special concern; VRSU = state-recommended for status undetermined; VSU = Virginia status uncertain.]

Plants

SPECIAL STATUS PLANT SPECIES IN AND NEAR COLONIAL NATIONAL HISTORICAL PARK			
Common Name	Scientific Name	Federal Status	State Status
[NOTE: The following plant species are known to exist in Colonial National Historical Park. Data from Division of Natural Heritage, Commonwealth of Virginia.]			
False hop sedge	<i>Carex lupuliformis</i>	none	VRSC
Loesel's twayblade	<i>Liparis loeselii</i>	none	VRSC
Southern twayblade	<i>Listera australis</i>	none	VRSC
Florida adder's-mouth	<i>Malaxis spicata</i>	none	VRSC
Shumard's oak	<i>Quercus shumardii</i>	none	VRSC
Mountain camellia	<i>Stewartia ovata</i>	none	VRSC
Spanish moss	<i>Tillandsia usneoides</i>	none	VRSC
Virginia least trillium	<i>Trillium pusillum</i> , var. <i>virginianum</i>	FC2	VRSC
Fibrous bladderwort	<i>Utricularia fibrosa</i>	none	VRSC

[NOTE: The following plant species have not been recorded in Colonial National Historical Park but may exist there. Data from U.S. Fish and Wildlife Service, White Marsh, Virginia.]			
Parker's pipewort	<i>Eriocaulon parkeri</i>	FC3	VRSC
Small whorled pogonia	<i>Isotria medeoloides</i>	FLE	VLE
<ol style="list-style-type: none"> 1. The U.S. Fish and Wildlife Service classifies as a "candidate species" any taxonomic group or species of plant or animal being considered for listing as either threatened or endangered under the Endangered Species Act of 1973, as amended. Category 1 refers to species or taxonomic groups for which the has on file substantial information on biological vulnerability and threat(s) to support the appropriateness of proposing to list them as endangered or threatened. Data are being gathered on category 1 species concerning precise habitat needs and, for some, the precise boundaries for critical habitat designation. 2. Category 2 refers to species or taxonomic groups for which information in possession of the FWS indicates that listing them as endangered or threatened is appropriate, but for which substantial data on biological vulnerability or threat(s) are not known or on file. Further research and field study usually will be necessary to ascertain the status of category 2 species: some will be found not to warrant listing; others will be found to be in greater danger of extinction than some in category 1. 			

Animals

SPECIAL STATUS ANIMAL SPECIES IN AND NEAR COLONIAL NATIONAL HISTORICAL PARK			
Common Name	Scientific Name	Federal Status	State Status
[NOTE: The following animal species have been recorded in Colonial National Historical Park. Data from Divisions of Natural Heritage and Game and Inland Fisheries, Commonwealth of Virginia, and from U.S. Fish and Wildlife Service.]			
Invertebrates, Snails, Reptiles, and Amphibians			
Loggerhead sea turtle	<i>Caretta caretta caretta</i>	FLT	VSU
Northern spring amphipod	<i>Gammarus pseudolimnaeus</i>	unknown	unknown
Ridley turtle	<i>Lepidochelys kempfi</i>	FLE	VRSC
Birds			
Great blue heron	<i>Ardea herodias</i>	none	VRSC
Great egret	<i>Casmerodius albus</i>	none	VRSC
Bald eagle	<i>Haliaeetus leucocephalus</i>	FLE	VLE
Least bittern	<i>Ixobrychus exilis</i>	none	VRSC

CHEATHAM ANNEX INVENTORY LISTS

The Virginia Division of Natural Heritage reported rare species found during an inventory of Cheatham Annex. The following lists were taken from that agency's *Rare Species Inventory Report*.

Reptiles and Amphibians

REPTILES AND AMPHIBIANS ENCOUNTERED DURING INVENTORY OF CHEATHAM ANNEX

Common Name	Scientific Name
<u>Reptiles</u>	
<i>Turtles</i>	
Spotted turtle	<i>Clemmys guttata</i>
Common snapping turtle	<i>Chelydra serpentina</i>
Painted turtle	<i>Chrysemys picta</i>
Yellow-bellied slider	<i>Trachemys scripta</i>
Red-bellied turtle	<i>Pseudemys rubriventris</i>
Eastern mud turtle	<i>Kinosternon subrubrum</i>
Eastern box turtle	<i>Terrapene carolina</i>
Musk turtle (stinkpot)	<i>Sternotherus odoratus</i>

Common Name	Scientific Name
<u>Reptiles (continued)</u>	
<i>Snakes</i>	
Worm snake	<i>Carphophis amoenus</i>
Black racer	<i>Coluber constrictor</i>
Ringneck snake	<i>Diadophis punctatus</i>
Northern water snake	<i>Nerodia sipedon</i>
Black rat snake	<i>Elaphe obsoleta</i>
Rough green snake	<i>Opheodrys aestivus</i>
Smooth earth snake	<i>Virginia valeriae</i>
Rough earth snake	<i>Virginia striatula</i>
<i>Lizards</i>	
Five-lined skink	<i>Eumeces fasciatus</i>
Fence lizard	<i>Sceloporus undulatus</i>
Ground skink	<i>Scincella lateralis</i>
<u>Amphibians</u>	
<i>Salamanders</i>	
Red-backed salamander	<i>Plethodon cinereus</i>
Coastal Plain slimy salamander	<i>Plethodon chlorobryonis</i>
Four-toed salamander	<i>Hemidactylium scutatum</i>
Red-spotted newt	<i>Notophthalmus viridescens</i>
<i>Frogs</i>	
Southern toad	<i>Bufo terrestris</i>
Gray treefrog	<i>Hyla chrysoscelis</i>
Green treefrog	<i>Hyla cinereus</i>
Upland chorus frog	<i>Pseudacris triseriata</i>
Spring peeper	<i>Pseudacris crucifer</i>
Eastern narrow-mouthed toad	<i>Gastrophryne carolinensis</i>
Bullfrog	<i>Rana catesbeiana</i>
Green frog	<i>Rana clamitans</i>
Leopard frog	<i>Rana utricularia</i>
Pickerel frog	<i>Rana palustris</i>
Northern cricket frog	<i>Acris crepitans</i>

Mammals

MAMMALS ENCOUNTERED DURING INVENTORY OF CHEATHAM ANNEX

Common Name	Scientific Name
Southeastern Shrew	<i>Sorex longirostris longirostris</i>
Pygmy shrew	<i>Sorex hoyi</i>
Short-tailed shrew	<i>Blarina carolinensis</i>
Least shrew	<i>Cryptotis parva</i>

Common Name	Scientific Name
Mammals (continued)	
Eastern mole	<i>Scalopus aquaticus</i>
Big brown bat	<i>Eptesicus fuscus</i>
Eastern cottontail rabbit	<i>Sylvilagus floridana</i>
Eastern gray squirrel	<i>Sciurus carolinensis</i>
Red squirrel	<i>Tamiasciurus hudsonicus</i>
Southern flying squirrel	<i>Glaucomys volans</i>
Rice rat	<i>Oryzomys palustris</i>
Harvest mouse	<i>Reithrodontomys humulus</i>
White-footed mouse	<i>Peromyscus leucopus</i>
House mouse	<i>Mus musculus</i>
Meadow vole	<i>Microtus pennsylvanicus</i>
Pine vole	<i>Microtus pinetorum</i>
Norway rat	<i>Rattus norvegicus</i>
Muskrat	<i>Ondatra zibethica</i>
Gray fox	<i>Urocyon cinereoargenteus</i>
Red fox	<i>Vulpes vulpes</i>
Raccoon	<i>Procyon lotor</i>
Opposum	<i>Didelphis virginianus</i>
White-tailed deer	<i>Odocoileus virginiana</i>

Birds

Like the above lists of reptiles, amphibians, and mammals, the bird list on the following pages was taken from the *Rare Species Inventory Report* prepared by the Division of Natural Heritage, Commonwealth of Virginia. The situations represented by the North American breeding bird codes following the bird names are defined at the beginning of the list.

North American Breeding Bird Codes

Possible Nesting

(blank) Seen in suitable nesting habitat

Probable Nesting

- P Pair observed in suitable habitat
- A Agitated behavior
- S Permanent territory presumed through song at same location 7 or more days apart
- T Permanent territory presumed through defense of territory

Miscellaneous Codes

- O Observed, but no evidence of breeding
- W Winter resident
- M Fall or spring migrant

Confirmed Nesting

- CN Carrying nesting material
- FL Recently fledged young
- ON Occupied nest
- CF Carrying food
- FY Feeding young
- NY Nest with young

BIRDS ENCOUNTERED DURING INVENTORY OF CHEATHAM ANNEX			
Double-crested cormorant	O	Common tern	O
Great blue heron	O	Forster's tern	O
Great egret	O	Rock dove	
Green-backed heron		Mourning dove	FL
Pied-billed grebe	M	Yellow-billed cuckoo	S
Mute swan		Eastern screech owl	
Canada goose		Barred owl	
Wood duck	FL	Great horned owl	
Mallard		Chimney swift	
Black vulture	O	Ruby-throated hummingbird	
Turkey vulture	O	Belted kingfisher	FL
Osprey	NY	Red-bellied woodpecker	FL
Sharp-shinned hawk	CF	Downy woodpecker	FL
Red-shouldered hawk		Hairy woodpecker	FL
Red-tailed hawk	P	Northern flicker	FL
American kestrel	FL	Pileated woodpecker	P
Wild turkey	FL	Eastern wood pewee	FL
Northern bobwhite		Acadian flycatcher	FL
American woodcock	M	Eastern phoebe	FL
Clapper rail	A	Great crested flycatcher	FL
Killdeer	FL	Eastern kingbird	FL
Laughing gull	O	Purple martin	FL
Herring gull	O	Northern rough-winged swallow	CN
Great black-backed gull	O	Barn swallow	FL
Royal tern	O	Blue jay	FL

APPENDIX C: PLANT AND ANIMAL SPECIES

American crow	FL	Ovenbird	S
Fish Crow	CF	Louisiana waterthrush	S
Carolina chickadee	FL	Kentucky warbler	S
Tufted titmouse	FL	Common yellowthroat	S
White-breasted nuthatch		Hooded warbler	S
Brown-headed nuthatch		Yellow-breasted chat	S
Carolina wren	FL	Summer tanager	S
House wren		Scarlet tanager	S
Blue-gray gnatcatcher	FL	Northern cardinal	FL
Eastern bluebird	FL	Blue grosbeak	CF
Wood thrush	A	Indigo bunting	T
Hermit thrush	M	Rufous-sided towhee	S
American robin	FL	Chipping sparrow	FL
Gray catbird		Field sparrow	S
Northern mockingbird	FL	Song sparrow	S
Cedar waxwing		White-throated sparrow	M
European starling	FL	Slate-colored junco	W
White-eyed vireo	FL	Red-winged blackbird	FL
Yellow-throated vireo	S	Eastern meadowlark	S
Red-eyed vireo	FL	Common grackle	FL
Northern parula warbler	S	Brown-headed cowbird	FL
Yellow-throated warbler	FL	Orchard oriole	S
Pine warbler	S	House finch	FL
Prairie warbler	FY	American goldfinch	
Prothonotary warbler	S	House sparrow	FL

APPENDIX D: ACTIONS REQUIRING FURTHER CULTURAL CONSULTATION

Major actions of each alternative are listed below, with symbols indicating the need of further consultation with or review by the Virginia state historic preservation officer (SHPO) and the Advisory Council on Historic Preservation (ACHP) under section 106 of the National Historic Preservation Act of 1966, as amended, or by a 1991 programmatic memorandum of agreement among the National Park Service and the other two parties. An asterisk (*) indicates that further SHPO/ACHP consultation or review would be required; a dagger (†) indicates that such consultation or review would not be required. Adequate time for review of information by the Virginia state historic preservation office and the NPS advisory council will be an important part of each scheduled action. Adequate documentation, including maps, plans, specifications, and other relevant supporting materials will be submitted as a matter of course for each proposed action. Review periods, documentation, and coordination will be observed as provided for under 36 CFR 800 and the 1990 servicewide programmatic agreement among the National Park Service, the Advisory Council on Historic Preservation, and the National Council of State Historic Preservation Officers.

Alternative A: No Action	Alternative B: Refinement of Existing Conditions (preferred)	Alternative C: Substantive Change
<i>Jamestown/Jamestown Island</i>		
No change in management; walking and auto tours would continue.†	New visitor center built near present parking area, out of center of original community; aboveground storage for artifacts included.* Exhibits and audiovisual production improved; interpretive services increased; restrooms improved.† Additional artifact displays for visitor center.† Additional protection for ruins of original Jamestown glass factory (Glasshouse) to prevent further maritime deterioration.* Public transportation system initiated.† Expansion of interpretive tours, character interpretation, and educational programs at townsite; update of film interpretation.† Reassessment of Jamestown's historical significance.† Archeological survey; inventory of cultural resources.* In cooperation with other agencies, compilation of previous research; development of computerized biographical data base; cataloging and computerization of archeological collection.† Nomination of Jamestown to National Register of Historic Places.*	Visitor center removed; new visitor center built; artifacts moved to central curatorial facility.† Exhibits and interpretation redesigned.† Cooperative programs with other agencies; additional archeological displays for visitor center.† Same Glasshouse protection as in alternative B.* Bus tour of Jamestown Island added to visitors' options.† Update of film interpretation.† Cooperative agreement among National Park Service, Jamestown Settlement Park, and Association for the Preservation of Virginia Antiquities (APVA).* Same as alternative B.* Same as alternative B.† Nomination of Jamestown to National Register.*
<i>Yorktown/Yorktown Battlefield</i>		
No change in management; walking and auto tours continued; community's master plan to be implemented (memorandum of agreement with Yorktown needed).*	Establishment of five management districts in Yorktown.*	Same as alternative B.*

Alternative A: No Action

Alternative B: Refinement of Existing Conditions (preferred)

Alternative C: Substantive Change

Yorktown/Yorktown Battlefield (continued)

Design and construction of a new curatorial/archeological building for Yorktown collection.*	Transfer of Yorktown archeological collection to a central curatorial facility.*
Preparation of development concept/interpretive plan for Yorktown; plan to describe actions needed to achieve NPS objectives in each management district.*	—
Living history programs, costume interpretation, walking tours added at Yorktown; more performances at Nelson House.†	Updating of interpretation; cooperative programs with Yorktown Victory Center.†
Closing of a section of Yorktown's Main Street to vehicular traffic.*	Main street not closed.†
Development and interpretation of Poor Potter's site.*	Same as alternative B.*
Establishment of exhibits at Archer Cottage.*	Same as alternative B.*
Conversion of Pate House, Fife and Drum Museum, Medical Shop, Burcher Cottage to retail establishments/visitor service facilities.*	Same as alternative B.*
Transfer of federal wharf property to Yorktown trustees.*	Same as alternative B.*
Placement of exhibits on York County pier.†	Same as alternative B.†
Construction of boardwalk to Windmill Point.*	Same as alternative B.*
Development of interpretation and transportation systems.†	Same as alternative B.†
Construction of trail for cyclists and pedestrians.*	Same as alternative B, but more emphasis on careful attention to natural resource considerations.*
Reassessment of historical significance of Yorktown and Yorktown battlefield.*	Same as alternative B.*
Cultural landscape analysis of Yorktown battlefield.*	Same as alternative B.*
Removal of active recreation from historic areas in battlefield.†	Same as alternative B.†
Rerouting of Virginia Highway 238 out of Yorktown battlefield; construction of new connecting route between Coast Guard training center and U.S. 17.†	Same as alternative B.†
Redesign and construction of observation deck atop visitor center for better view of battlefield.†	Same as alternative B.†
Reconstruction of first shot battery earthwork; examination of other earthworks for maintenance and preservation needs.*	Same as alternative B.*
National Register nomination for Yorktown/Yorktown battlefield.*	Same as alternative B.*

Alternative A: No Action

Alternative B: Refinement of Existing Conditions (preferred)

Alternative C: Substantive Change

Colonial Parkway

No change in management.†

Preparation of landscape management and maintenance plan for Colonial Parkway.†

Same as alternative B, but more emphasis on careful attention to natural resource considerations.†

Reassessment of historical significance of Colonial Parkway.†

Same as alternative B.†

Study of recreational possibilities along parkway: more comfort stations, trail improvement, access stairs, improvement or removal of Indian Creek parking.*

Study of recreational possibilities along parkway as in alternative B, with emphasis on protection of resources.*

Development of bicycle/pedestrian trail adjacent to parkway.*

Same as alternative B.*

Redesign of Five Points intersection.*

Same as alternative B.*

Preparation of development plan for Ringfield plantation site.*

Same as alternative B.*

National Register nomination for Colonial Parkway.*

Same as alternative B.*

Cheatham Pond Area

No change in management.†

Cheatham Pond tract would be divided between York County and U.S. Navy.*

Cheatham Pond area retained and interpreted by NPS.†

Park General

No change in management of detached units.†

Possible exchange of Ballard Street property for land in Yorktown battlefield.*

NPS would retain detached units; interpretation enhanced and management integrated into overall park scheme.†

Ongoing comprehensive inventory of cultural resources would continue.*

Park's cultural resources inventoried, data entered into list of classified structures and cultural GIS.*

Same as alternative B.*

No changes in landownership.†

Possible acquisition of Sessions/Shields property and other key properties.†

Same as alternative B.†

No changes in storage of archeological collections.

Museum collections managed in accordance with procedures in NPS *Museum Handbook*.*

Transfer of Jamestown and Yorktown collections to a central curatorial facility operated jointly by NPS, APVA, Williamsburg, Jamestown and Yorktown Foundation, and College of William and Mary.*

—

Colonial National Historical Park's identity enhanced by development of satellite visitor stations and addition of a design theme/logo.†

—

—

National Park Service would prepare landscape/vista protection studies.*

Same as alternative B.*

APPENDIX E: PERTINENT LAWS AND REGULATIONS

The following is a partial list of laws, regulations, and policies that pertain to the general management plan and to compliance actions necessary during plan implementation.

FEDERAL LEGISLATION

Antiquities Act of 1906 (16 USC § 470 aa *et seq.*)
Archeological and Historic Preservation Act of 1974 (16 USC § 469a-1)
Archeological Resources Protection Act of 1979 (16 USC § 470)
Architectural Barriers Act of 1968 and Rehabilitation Act of 1973
Bald Eagle Act (16 USC § 668)
Clean Air Act, as amended, (42 USC § 7401 *et seq.*)
Clean Water Act, (33 USC § 1251 *et seq.*)
Coastal Zone Management Act of 1972 (16 USC § 1451 *et seq.*)
Enabling Legislation, Colonial National Historical Park (1930)
Endangered Species Act of 1973, as amended (16 USC § 1531 *et seq.*)
Estuary Protection Act (16 USC § 1221)
Fish and Wildlife Coordination Act (16 USC § 661, 662)
Historic Sites Act of 1935 (P.L. 74-292; 49 Stat. 666; 16 USC)
Marine Mammal Protection Act (16 USC § 1361 *et seq.*)
Marine Protection, Research, and Sanctuaries Act of 1972 (16 USC § 1431 *et seq.*)
National Environmental Policy Act of 1969 (42 USC § 4321 *et seq.*)
National Historic Preservation Act of 1966, as amended. (16 USC § 470f); Amended 1980; P.L. 96-515; 94 Stat. 2997)
National Park Service Organic Act (16 USC § 1 *et seq.*)
Navigable Waters (33 CFR 329)
Parks, Forests, and Public Property (36 CFR 13)
Prime and Unique Agricultural Lands and NEPA (*Federal Register* 45: 59189)
Safe Drinking Water Act of 1974 (42 USC § 300 f-*j*)
Waters of the United States (33 CFR 323.2(a))

EXECUTIVE ORDERS

Executive Order 11593, "Protection and Enhancement of the Cultural Environment"
Executive Order 11988, "Floodplain Management"
Executive Order 11990, "Protection of Wetlands"

POLICIES AND REGULATIONS

National Park Service, U.S. Department of the Interior, *Management Policies*, (N.p., 1988)

LAWS OF THE COMMONWEALTH OF VIRGINIA

Wetlands Protection Act
Chesapeake Bay Regulations

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PREPARERS

Colonial National Historical Park

Alex Gould, Superintendent
James Haskett, Assistant Superintendent
Chuck Rafkind, Resource Management Specialist

Mid-Atlantic Regional Office

Joe DiBello, Chief of Park Planning
Keith Everett, Regional Architect
Robert Gift, Chief of Environmental Quality

Washington Office

Dave Moffitt, Associate Director for Visitor Services

Denver Service Center

Bill Koning, Team Captain
Denver Service Center staff

Consultants

Bill Everhardt, Interpretation
Ross Holland, Cultural Resources
Ben Zerbey, Operations



As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural and cultural resources. This includes fostering wise use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people. The department also promotes the goals of the Take Pride in America campaign by encouraging stewardship and citizen responsibility for the public lands and promoting citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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