

General Management Plan



COLONIAL
NATIONAL HISTORICAL PARK • VIRGINIA

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General Management Plan

September 1993

COLONIAL

National Historical Park • Virginia

SUMMARY

INTRODUCTION

The National Park Service has prepared this *General Management Plan* (GMP) to guide the management of Colonial National Historical Park in Virginia for the next 10 to 15 years. An environmental assessment was prepared to accompany the draft version of this document; this satisfied 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.

Three alternatives were considered in the environmental assessment: a no-action alternative, under which there would have been no changes in the present management direction, alternative B, involving refinement of existing conditions, which was preferred by the National Park Service, and alternative C, under which substantive change in management direction would have led to the park's becoming primarily one of resource protection. The environmental consequences of these alternatives were examined in detail in the *Draft General Management Plan/Environmental Assessment*.

Alternative B has been selected as the plan to be followed in the management of Colonial National Historical Park. Its provisions are described in this document. This plan replaces earlier plans for management of Colonial National Historical Park. 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 has been to provide for protection of the cultural and natural resources in the park while delin-

eating a course of action for future management, interpretation, and development.

THE PLAN

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

At *Jamestown and Jamestown Island*, visitor services will be improved, and sensitive interpretation will help visitors to experience the site's tranquility and sense its vitality. Historical interpretation will be updated to a modern historiographical focus, and improved management of cultural and natural resources will provide additional protection. Establishment of a public transportation system will be considered.

The Jamestown visitor center will be replaced by a facility situated away from the original townsite. Additional studies will be conducted to assess the possibility of leaving the center and its archeological collection on the island in the 100-year floodplain.

Various projects initiated in connection with the approaching Jamestown quadricentennial will enhance the management of the area's important cultural resources.

SUMMARY

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

At *Yorktown battlefield*, historical interpretation will be reassessed, and Virginia Highway 238 will be rerouted away from the battlefield. The visitor center roof will be redesigned, stabilized, and expanded to serve as an improved observation platform where interpretation of the first and second siege lines will be offered. An interpretive bus system will be developed to enhance the battlefield experience. A cultural landscape analysis will include evaluation of vegetation management alternatives on cultural and natural resources. Studies will 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 will be surveyed.

The "country road" character of *Colonial Parkway* will be retained. The roadway's historical significance will be reassessed, and studies will be made of visitors' impacts on various sites along the parkway. Traffic and safety will 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 will be divided into two parcels for possible lease by the U.S. Navy and York County. Swann's Point, Tindalls Point, Green Spring plantation site, and Cape Henry will be managed as detached units of the park. Management of the Green Spring plantation site will emphasize resource protection and archeological research. Some park properties having marginal historical or natural value will be considered for exchange with other entities, and additional properties might be acquired to protect the historic scene.

In overall park management, programs of national and international import will be initiated to highlight the significance of the European colonial experience in the New World and elsewhere in the 16th through 20th centuries.

The National Park Service will not enter into any leasing agreements or initiate any exchanges or divestiture of property before all necessary mitigation and compliance is accomplished.

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

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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 resources 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 for the preservation of the park's historic structures and remains for the benefit and enjoyment of the people. 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 successful 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 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.

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

INTRODUCTION

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

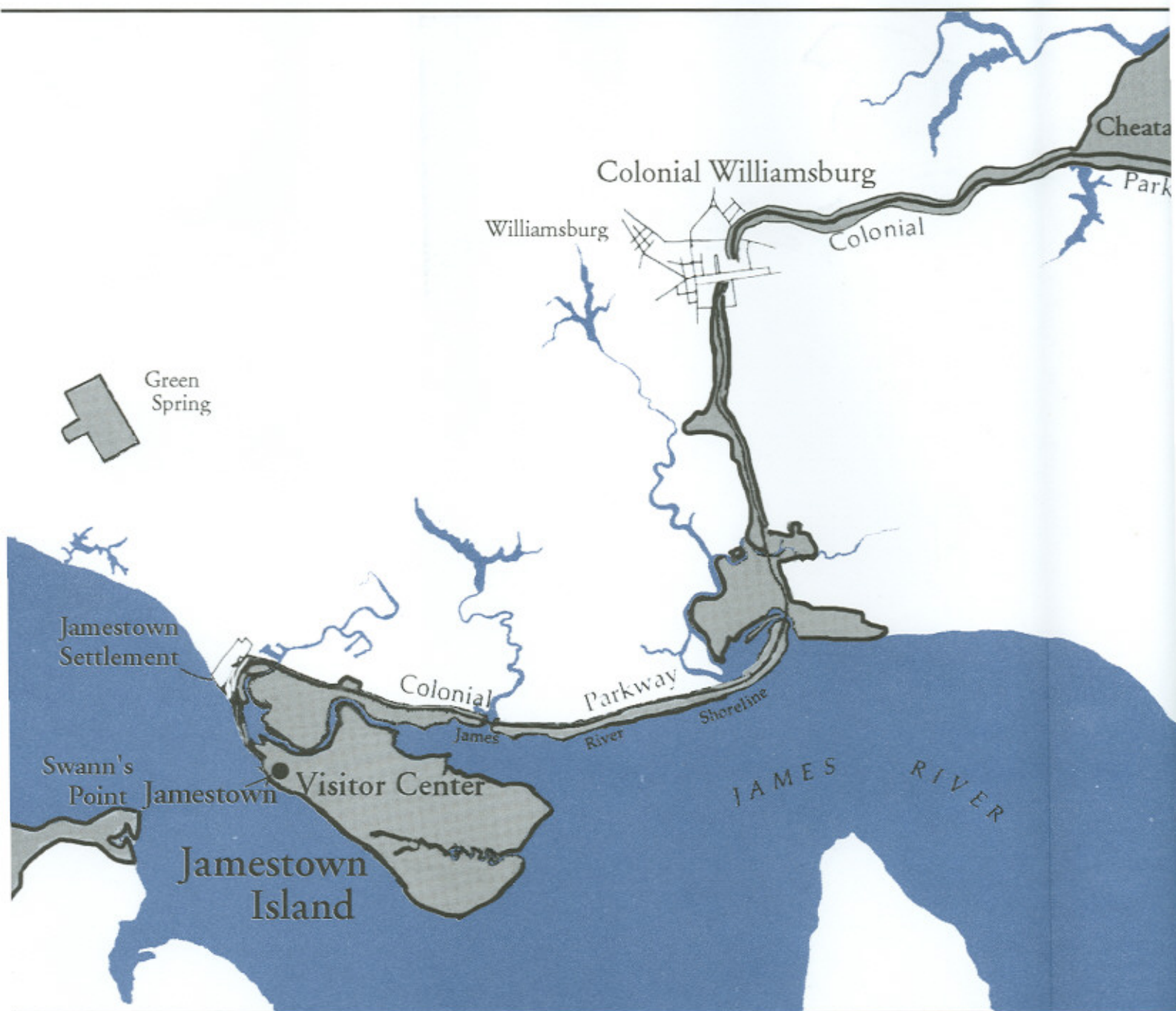
Natural resources in the park's 10,221 acres include marine and freshwater wetland habitats, pine and mixed hardwood forests, open fields, rivers, ponds, coastal bluffs, and ravines.

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.

Loblolly pine and various oaks are the predominant species in the battlefield's pine-oak forests. Soils in the battlefield are poorly drained. 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.





 Colonial National Historical Park

LOCATION COLONIAL

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

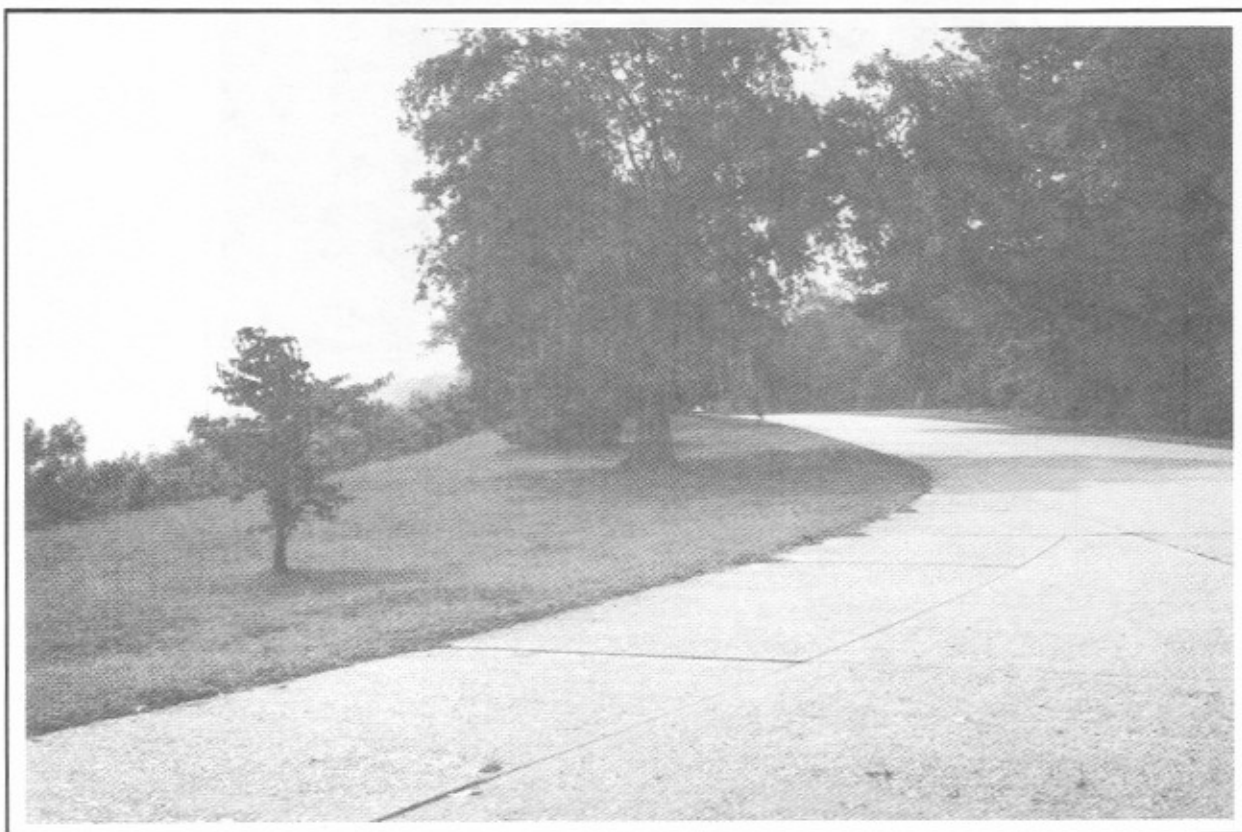
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An important feature of the park is the historic Green Spring plantation site north of Jamestown. William Berkeley, governor of Virginia in the mid-1600s, lived at Green Spring. The site comprises 196 acres in a hardwood forest area.

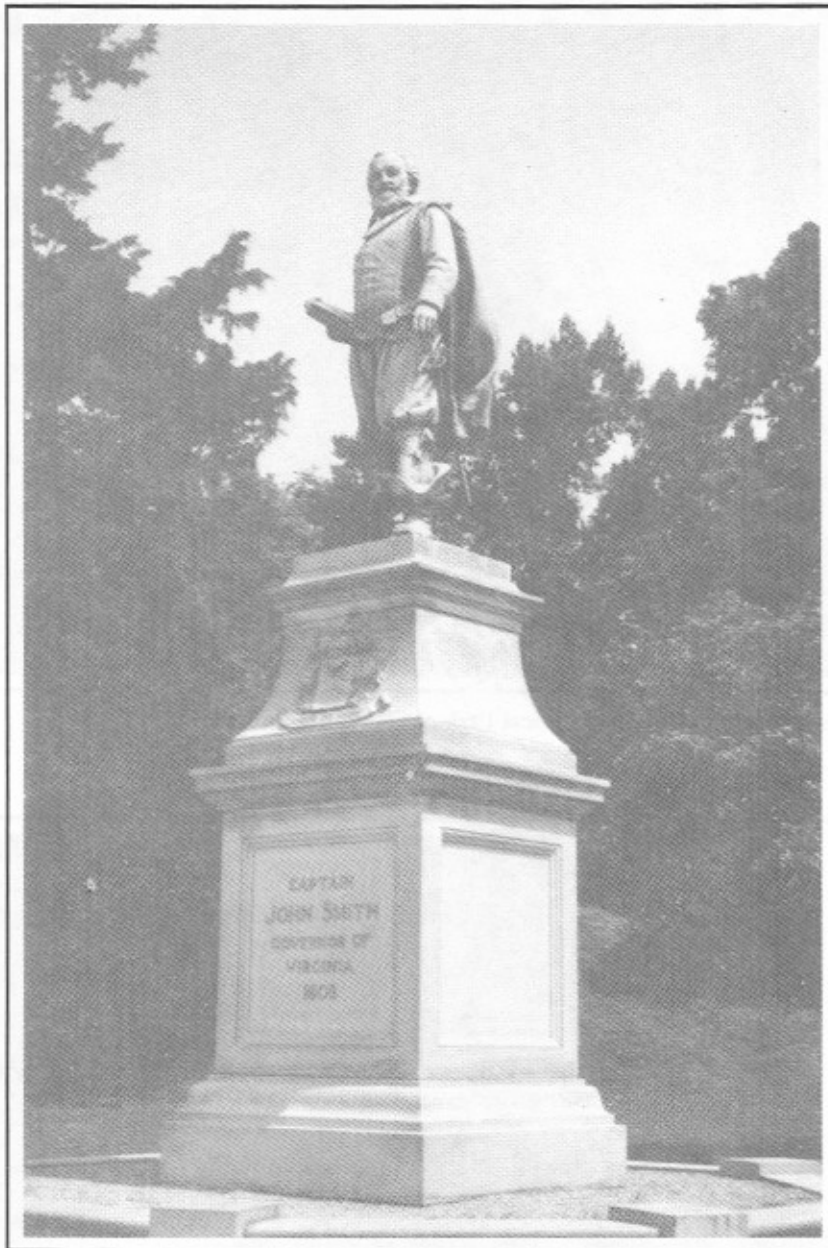
Another important feature is Swann's point, a 414-acre site in forested wetlands across the James River from Jamestown Island, which includes a historic cemetery. This area includes both fee simple and easement lands.



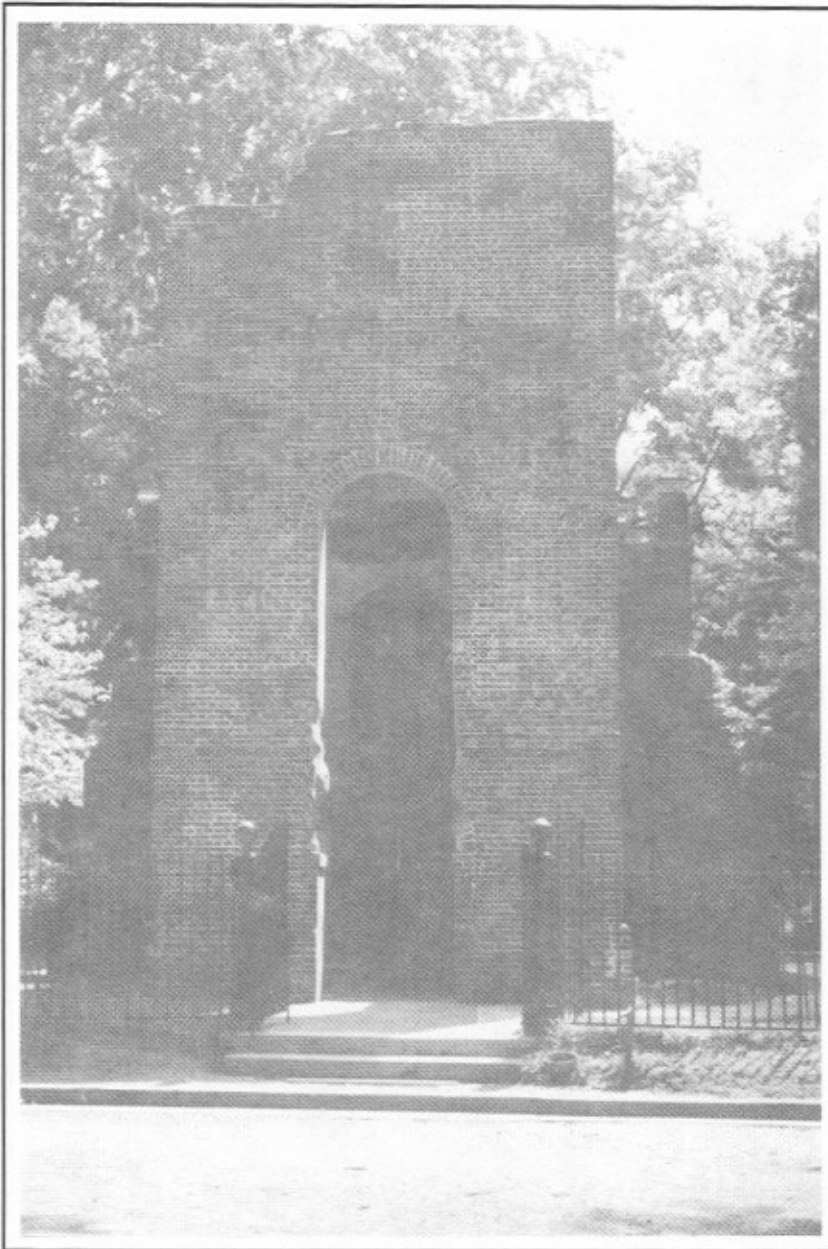
Typical wetlands of Colonial National Historical Park



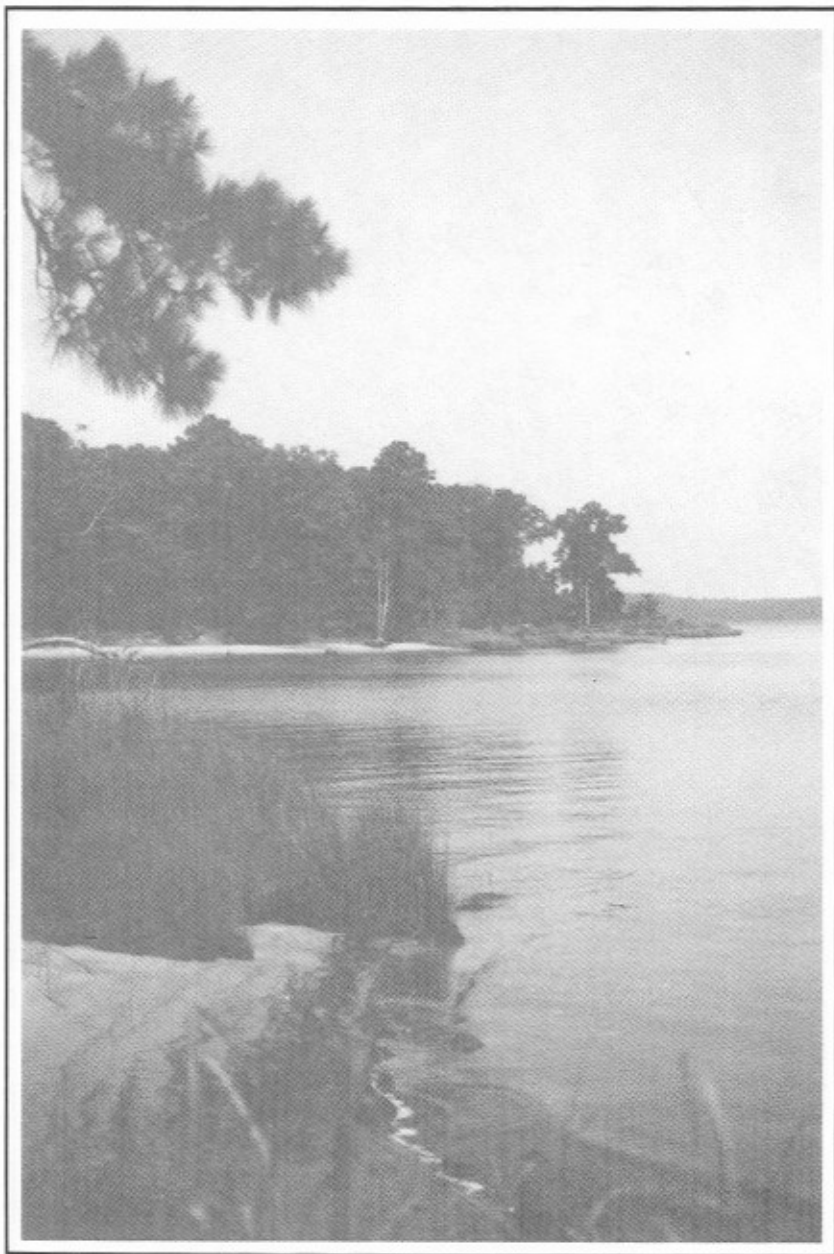
A portion of the Colonial Parkway



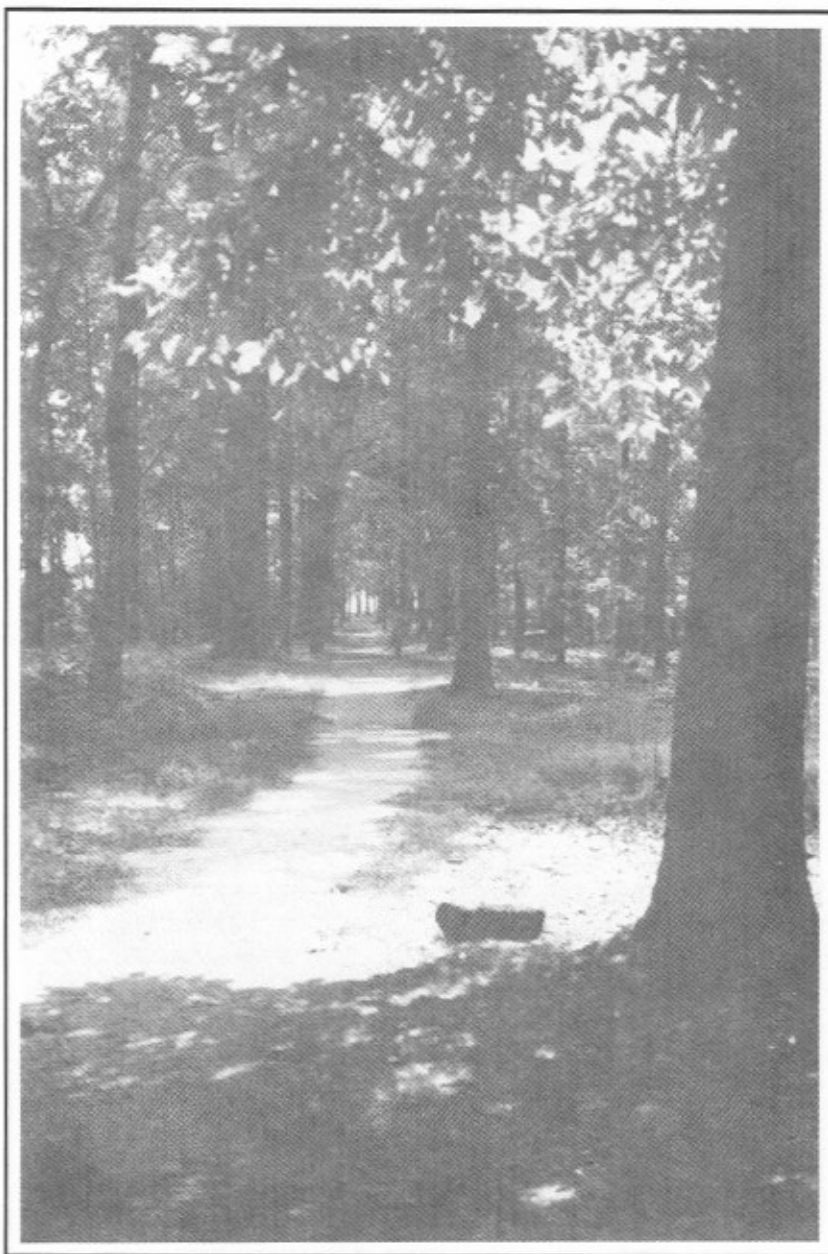
Commemorative bronze statue of Captain John Smith, President of the Virginia Council, 1608-1609. The statue is owned and maintained by the Association for the Preservation of Virginia Antiquities.



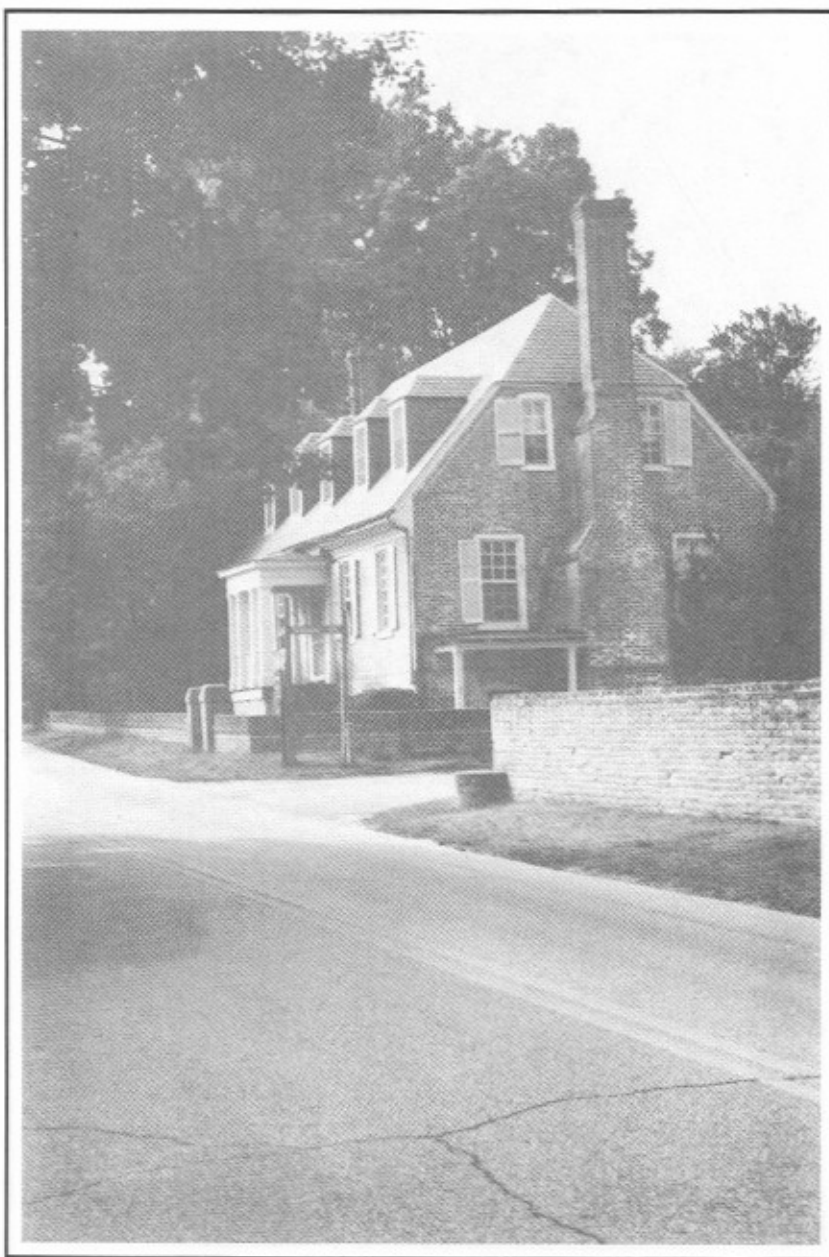
The Church Tower, the only 17th century Jamestown structure still standing, was added to the first brick church, which was built in 1639. The Memorial Church later attached to the tower was built by the Colonial Dames in 1907, during Jamestown's 300th anniversary. The site is owned and maintained by the Association for the Preservation of Virginia Antiquities.



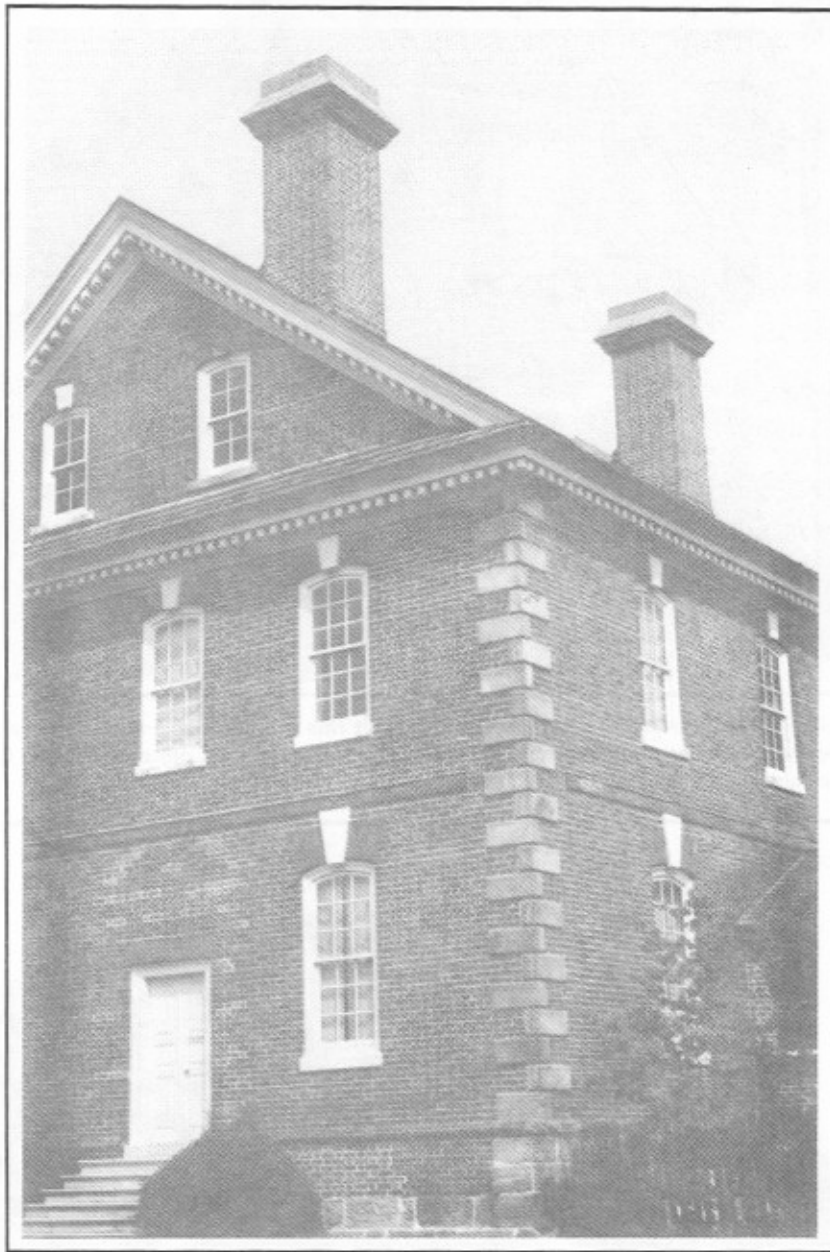
Shoreline at Jamestown Island



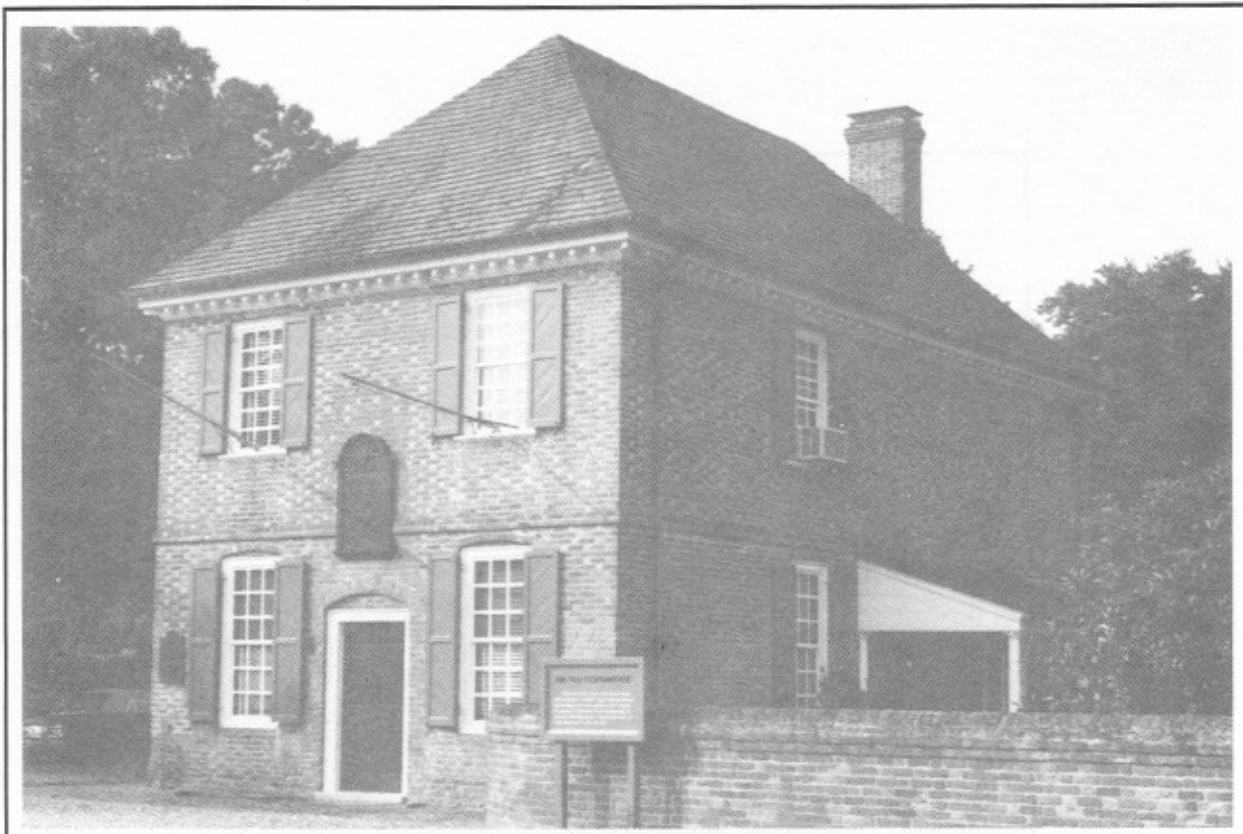
Pathways on Jamestown Island



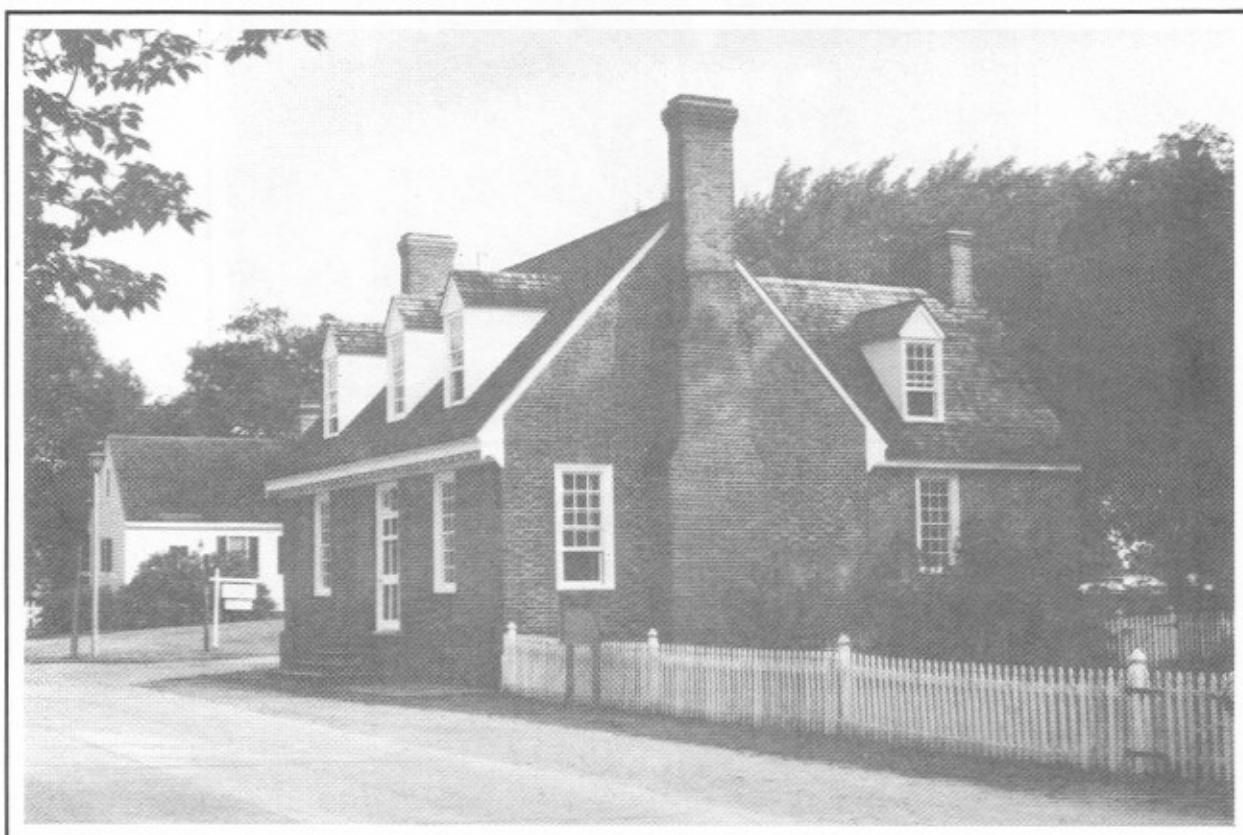
Sessions House, Main Street, Yorktown. This building, built by Thomas Sessions in 1692, survived the 1781 siege. It is reputed to be the oldest house in Yorktown. (Privately owned)



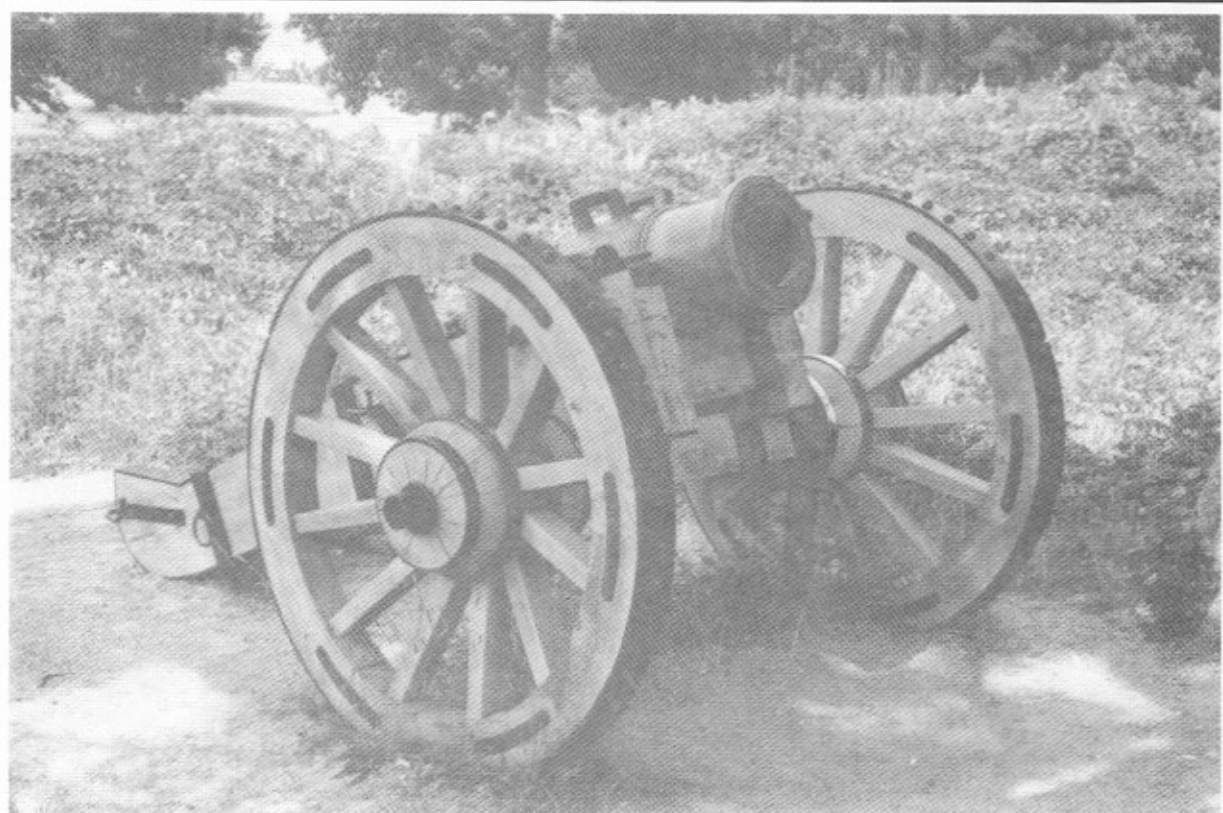
Nelson House, Main Street, Yorktown. Thomas Nelson, Jr., a signer of the Declaration of Independence, lived in this Georgian residence, which had been built by his grandfather in the early 18th century.



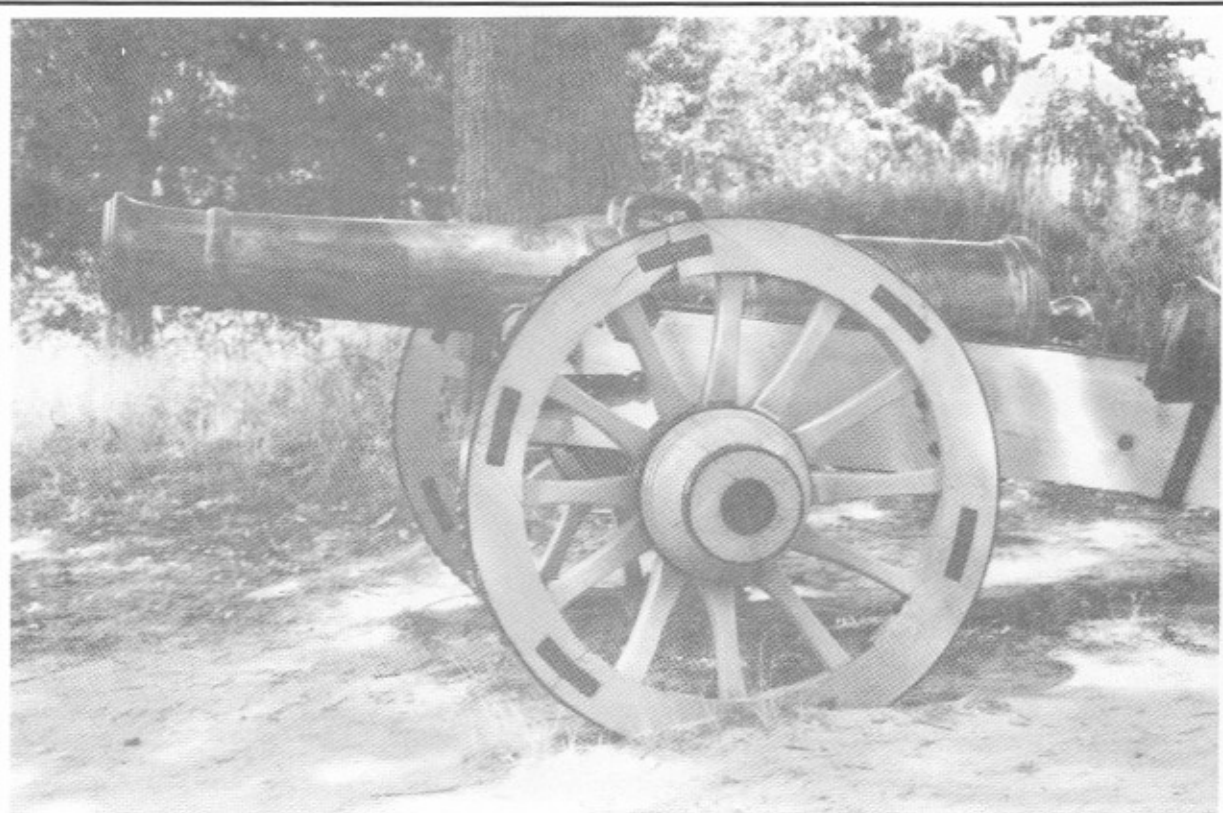
Customs House, Main Street, Yorktown. Richard Ambler built this structure as a warehouse and used it as office space during his tenure as collector of customs for Yorktown. (Owned by Comte de Grasse Chapter, Daughters of the American Revolution)



Somerwell House, Main Street, Yorktown. Home of ferryman Mungo Somerwell, this house survived the 1781 siege.



Howitzer with gun carriage, Yorktown Battlefield. Howitzers fired shells, unlike cannons, which fired solid projectiles.



Field cannon with gun carriage, Yorktown Battlefield. Cannons such as these fired solid projectiles of varying weights.



Earthworks: Redoubt with fraises, Yorktown Battlefield. Fraises, the sharpened sticks protruding from the earthen redoubts, were a more sophisticated version of *abatis*, or felled trees whose sharpened limbs were pointed toward the enemy, which were sometimes used in the 18th century.



Battery earthworks with mortars, howitzers, and cannons, Yorktown Battlefield. Mortars fired time-fused projectiles designed to explode in the air.

PURPOSE OF AND NEED FOR THE PLAN

The National Park Service developed this *General Management Plan* to update the management of Colonial National Historical Park. The purpose of the plan is to guide the long-range future of the park and the changes 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 have been 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 implemented 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. 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 need to be examined.

PURPOSE AND NEED

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 areas — 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 must 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. The National Park Service must determine what types and levels of recreational use are appropriate. 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 and high-quality 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.

Provide for compatible recreational uses such as walking, jogging, and bicycling when those uses do not conflict with the primary goals of resource protection and interpretation of the historical themes.

Interpret the history of the park as a continuum, highlighting other important events such as the Civil War, Colonial National Historical Park as an early example of the American historic preservation movement, and the history of the park as a focus for commemorative events. Emphasize past celebrations or commemorations that have taken place on the site.

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

Provide friendly, courteous service and accurate information for visitors.

Jamestown

Interpret the 17th century history of Jamestown, with emphasis on the first settlement, the beginnings of representative government, the people who played various roles in the development of Jamestown, and the historical and archeological resources that remain.

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 Europeans experienced in 1607.

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

Interpret the winning of American independence at Yorktown in its historical context. Emphasize the significance of the battle of Yorktown, discuss people who played important roles in the battle, and describe the cultural resources that remain.

PURPOSE AND NEED

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.

THE PLAN AND THE MISSION

The purpose of Colonial National Historical Park is to preserve the park resources for the benefit and enjoyment of the public. This plan affirms the general direction take by the National Park Service at the park since 1930. That direction has been a successful integration of preservation/restoration and visitor use goals.

Colonial has historic, natural, and recreational resources of national and international significance. The visiting public gains education, inspiration, and enjoyment by coming in contact with the park resources and the park story.

The challenge for today and for the future at Colonial National Historical Park is to improve the quality of resource management, protection, maintenance, and restoration and the quality of interpretation. To meet this challenge, it is vital that the National Park Service, cooperating agencies, neighbors, and citizens work hard, work smart, and work together.

MANAGEMENT EMPHASIS

The primary emphasis of this plan is to clarify and strengthen the park's goals of conservation and visitor understanding and enjoyment. Cultural, natural, and recreational resources must be protected, preserved, and restored if the integrity of these national treasures is to be retained. Expanded and upgraded resource management and research programs are essential if park resources are to remain unimpaired for present and future generations. Improvement of interpretive, educational, and visitor use programs is vital if the park is to fulfill its potential for U.S. and international visitors. Costs of implementing the plan are shown in appendix A.

Cooperation and support from neighbors, visitors, organizations and agencies is essential.

For Colonial National Historical Park to accomplish its mission, emphasis will 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, the Eastern Park and Monument Association, neighbors, volunteers, and interested nonprofit organizations.

Visitors' enjoyment of the park will be enhanced, especially at Jamestown, Jamestown Island, the Colonial Parkway, Yorktown, and the Yorktown battlefield. The results of all actions will be closely monitored so that protection of the park's cultural and natural resources will be ensured.

JAMESTOWN

The changes in management of the Jamestown area described in this section will be carried out to improve visitors' experience and ensure long-term protection of prehistoric and historic resources.

New buildings will not be placed in the island's extensive wetland areas, so floodplain values will not be affected. To avoid adverse effects on wetlands, the National Park Service will perform detailed analysis of potential changes in each wetland area 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 will be continued and strengthened. The joint entrance fee with APVA will continue.

Sense of Place

Few aboveground resources from the 17th century remain at Jamestown, but through sensitive management and interpretation, visitors will be able to experience the tranquil, contemplative quality of this historic site while sensing its vitality. In addition to telling Jamestown's 17th-century history, interpretation will 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. Erosion problems on Jamestown Island threaten these resources and experiences.

Visitor Center; Jamestown Collections

In keeping with the objective of promoting the historic isolation of the townsite, the visitor center will be removed from its present location. The Jamestown museum collections will be housed in the new visitor center, or possibly in a separate building. Alternative locations on or off the island for a new visitor center and a collections building will be considered, as will the possibility of locating the visitor center in the southeast part of the present parking lot.

A preliminary design study will be needed to identify the feasibility of and locations for the new building or buildings. Engineering studies will be conducted to determine the feasibility of constructing a new visitor center and curatorial facility on Jamestown Island that would withstand a hurricane force storm and would safely protect the archeological collection. In the event such a building cannot be built, the visitor center and the archeological collection will be located off Jamestown island to ensure protection of these valuable resources.

The collections will be housed in their entirety in a new visitor center/collections building or a separate building. If space requirements

preclude storing all artifacts in a visitor center/collections building on the island, another facility will 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 will be preserved in the event of a catastrophe at Jamestown. Artifacts will be moved from the present basement storage area (where flood-water could cause serious damage) to an above-grade area of a new visitor center specifically designed for artifact storage.

Additional artifact displays will be provided at the visitor center. Exhibits and audiovisual productions will be improved and interpretive services increased. A new movie will be developed to replace the present outdated one.

The pitch and tar swamp near the present Jamestown visitor center will be protected. Erosion and sedimentation will 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 will be managed and monitored to minimize impacts on the swamp.

Glass Works

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

Transportation

If feasible, a public transportation system will 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 will work with a cooperating organization to provide

this service or, if funding permits, the Park Service will operate the interpretive transportation system.

Interpretation

To offer more people a high-quality interpretive experience, the Park Service will 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 will effectively relate updated site-specific history. A new film will better explain the site's significance and bring interpretation into a modern historiographical focus. Linkages between natural and cultural resources will be integrated into the visitor experience. Resources at Jamestown will 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 will work with other agencies to plan for that anniversary. Objectives for 2007 will include research, preservation of 17th century resources, education and interpretation, improved visitor facilities and services, and state, national, and international tourism. The settlement at Jamestown and 17th century history will be emphasized, but the scope of the observation should include the total American colonial experience, with Williamsburg and Yorktown also playing important roles.

In preparation for celebration of the Jamestown quadricentennial in 2007, the National Park Service and the APVA will consult with the Jamestown/Yorktown Foundation to develop the best possible methods of orienting visitors to Jamestown, Jamestown Island, and the Jamestown Settlement. A joint management plan and memorandum of agreement for the townsite covering preservation,

interpretation, visitor use, and visual resources will be accomplished between the National Park Service and the APVA.

Several research projects will be finished before the quadricentennial; this will 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 archaeological collection. The complete archaeological 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 archaeological 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 will be documented and forms submitted to the National Register of Historic Places.

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 will 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.

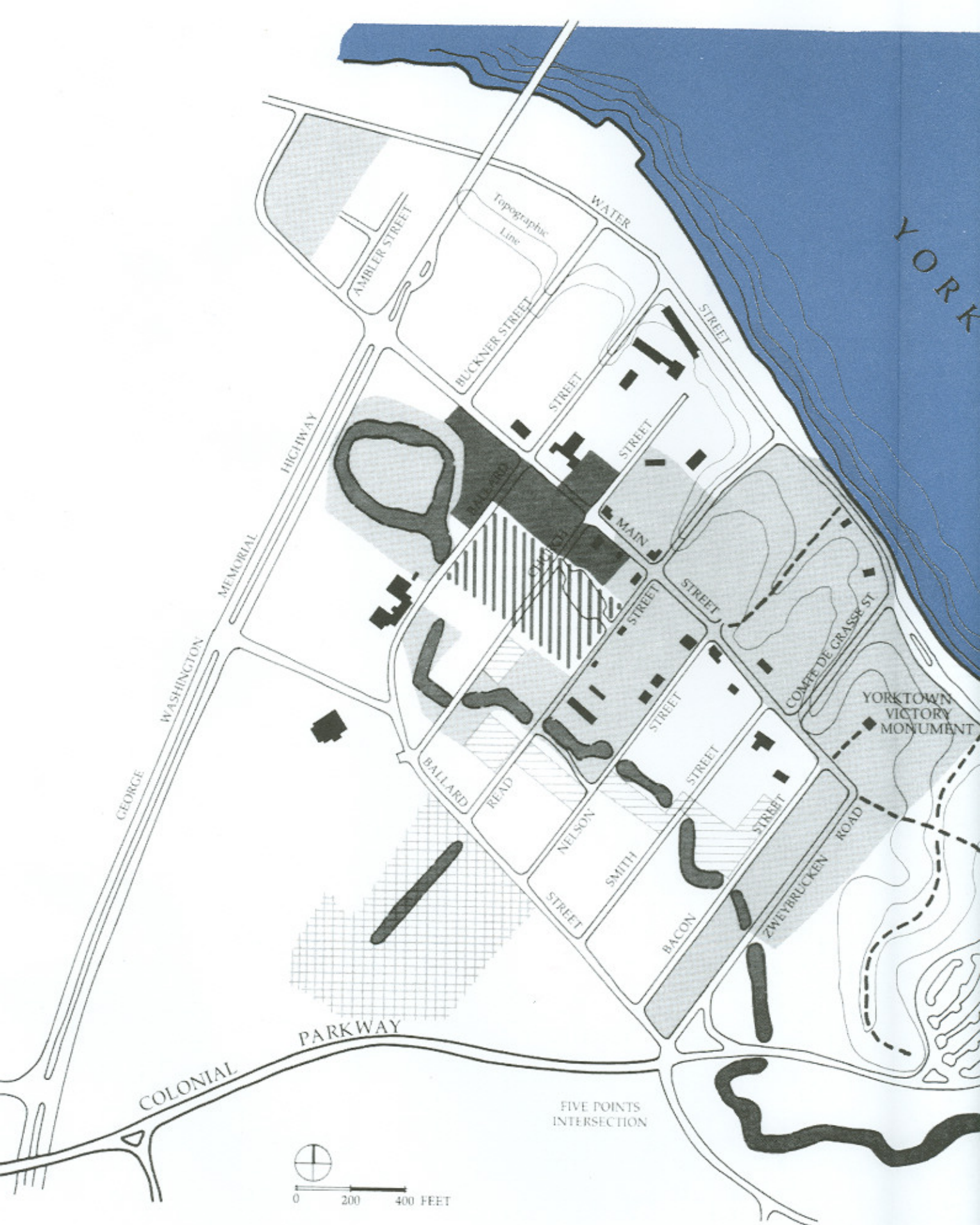
National Park Service management and planning staff developed the concept of manage-

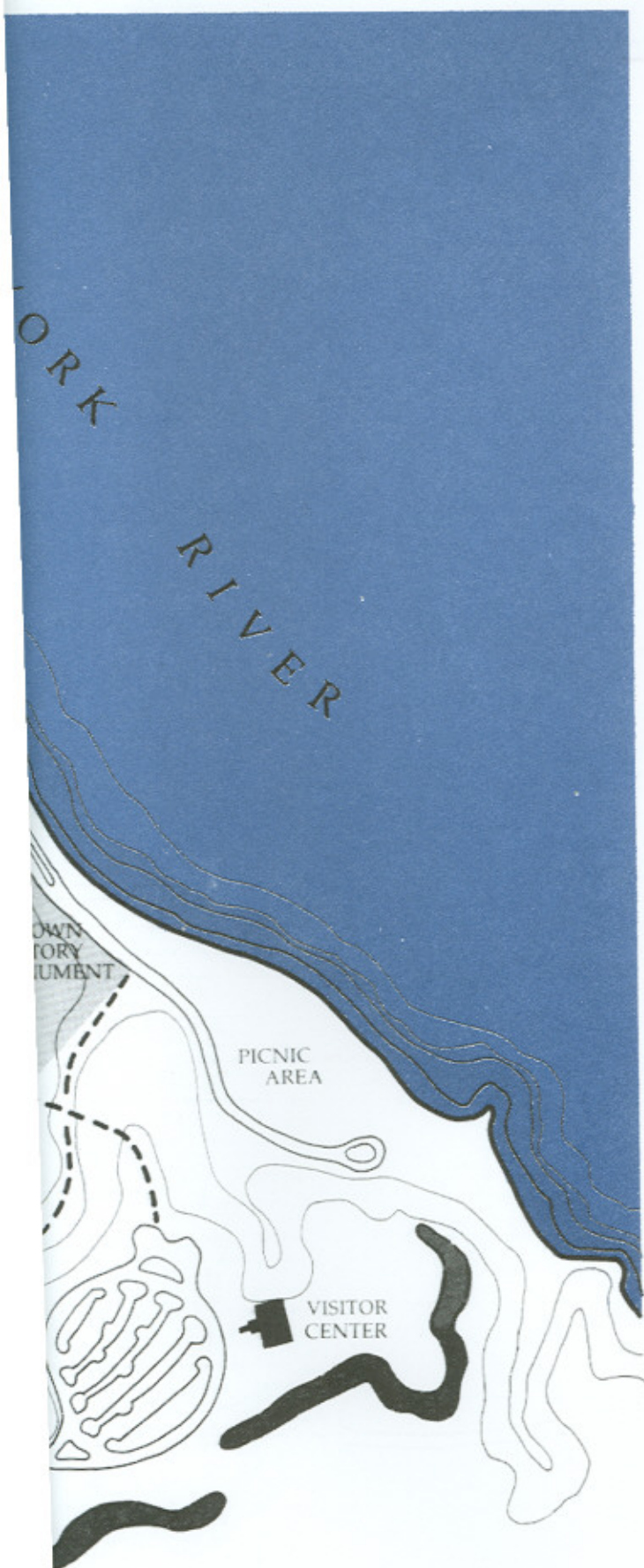
ment districts for Yorktown to protect resources while allowing for dynamic use of the town rather than as a static museum display of period structures and memorials. While the protection and conservation of above- and below-grade cultural resources are undeniably important, it is also true that a town is not a town without viable populations that give animation to its environs and stability to its community.

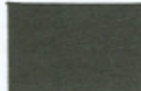
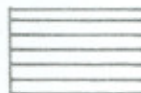
To achieve the objectives of both resource protection and community viability, five management districts are proposed: a preservation district, two adaptive use districts, a residential district, and a support district. The National Park Service will not initiate this district program without first assuring that all cultural and natural resource considerations have been assessed and provided for, including the completion of all necessary surveys and archeological excavations. The functions of each district are described in the following paragraphs.

So that the significant federally owned historic districts in Yorktown and adjacent areas are protected from inappropriate development and so that resources in those areas will be properly provided for, historic Yorktown's buildings and landscape will be managed as the *central preservation and interpretation district*. The aim will be to preserve the historic fabric and impart a sense of 18th century Yorktown. Some historic buildings will be used for interpretation of historical themes; others will be adaptively reused. Archeological resources will be preserved and interpreted as appropriate. To avoid too open and parklike an appearance on vacant lots, the Park Service will consider increased use of fences, foundation markings, and landscaping with hedges and flowers, as well as interpretive media based on historical research.

A survey of cultural and natural resources will be initiated. This will be followed by development of appropriate measures for conservation, interpretation, and mitigation, depending on the results of the studies.





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

MANAGEMENT DISTRICTS IN YORKTOWN

(Does not reflect all NPS properties)

COLONIAL

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

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

Any new buildings will 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 blend with, rather than duplicate or mimic, historic structures. Thorough archeological surveys will be needed, and in some cases mitigation will be required before new construction can begin.

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

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

The *residential district* will include certain properties in the residential area of Yorktown that the National Park Service either owns or has easements for. Residential use will continue, but the Park Service does not propose to construct more housing on vacant properties. "Bed and breakfast" use on a modest scale will be acceptable, but houses cannot be enlarged for that purpose.

Actions needed to carry out the "districts" concept will be detailed in a development concept/interpretive plan, which the Park

Service will prepare in conjunction with the Yorktown master plan prepared by York County and other Yorktown groups. The Park Service will actively cooperate with local and state officials to implement these concepts and plan for a revitalized Yorktown.

Reassessment of Historical Significance

Studies will be initiated to reassess Yorktown's overall historical significance, with emphasis on its status 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 will be taken as soon as possible to achieve management objectives:

The Poor Potter's site will be preserved and developed according to the approved interpretive plan. Besides interpretation, pottery-making demonstrations may 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 will be considered and, if necessary, mitigated. The Park Service will study the feasibility of building a walkway across Yorktown Creek past Windmill Point to tie in to the riverwalk on the west side of town. Another study will 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 will offer technical

assistance to York County for placement of exhibits on the York County pier.

Methods of stabilizing Cornwallis Cave will be sought. To improve safety and visitors' enjoyment of this cave and the Archer Cottage area, the area will be closed to vehicular traffic. Landscaping and interpretation need to be improved. The cave will be connected to the proposed waterfront boardwalk described above and to the existing Great Valley trail. The Park Service will 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 will be increased to meet visitor demand, and interpretive walks and living history presentations will 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 demolition or relocation 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 will 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 will 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 will be open as retail shops or as establishments offering suitable activities for visitors. The Park Service will 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 will 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 will work with York County and others to provide shoreline protection.

The National Park Service has no plans for the NPS wharf or the wharf building now occupied by a post office. The property will revert to the Yorktown Trustees once it is not needed by the Park Service or the Postal Service. The Park Service will cooperate with the Postal Service, the Yorktown Trustees, York County, and other interested parties to determine the best long-range plans for this property. The National Park Service will recommend that, if possible, the wharf building be preserved at its present location or at a location nearby because of its historical and local architectural significance.

Development Concept/Interpretive Plan

The Park Service will 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 will 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 will be evaluated.

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

After consulting with interested parties, the National Park Service will 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 may 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 will be considered. All possibilities will be explored for private sector cooperation in development of this part of Yorktown.

All plans and proposals will adhere to strict design standards and resource protection criteria. Necessary historical studies, archeological surveys, and mitigation will have to be done before any development can begin. Some lots with high cultural values may be targeted for preservation with no development. New construction and adaptive use of current buildings will 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* will be evaluated in the DCIP. A new ranger headquarters building is needed to house ranger functions now in three buildings on Read Street; this would free 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 will include consideration of this concept.

Yorktown Collection

The Yorktown museum collection, now stored in three unsuitable buildings, will be moved to a new facility, probably in the adaptive use district or the support district. The new facility is to 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 will be taken in that area.

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. Consideration also needs to be given to other aspects of Yorktown history; for example, the role of Yorktown in the Civil War and the use of the revolutionary war defenses in that conflict.

As funding permits, the Park Service will 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 National Park Service will 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 will be evaluated, as will effects of the road network on the historic scene. The views from Surrender Field and the area between the first and second siege lines will receive close attention in this study.

Cooperative Efforts

Colonial National Historical Park will 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 will be redesigned and stabilized for structural safety and expanded for use as an all-weather observation platform. It may then be used for improved presentation of interpretation of the first and second siege lines. This should improve visitors' understanding of the battlefield.

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

be examined to determine methods of preservation and interpretation.

Interpretation

An interpretive plan based on current historiography will be devised. New wayside and museum exhibits and a new film presentation will be developed to tell the story of the battle. Broader interpretation of the battle will include mention of all participant groups, including Hessian and Irish mercenaries of British and French forces, Spanish financiers behind American forces, and blacks who participated. More in-depth interpretation also is needed about people who played various roles in the battle of Yorktown.

The battle of Yorktown should be understood not only as a military event in the American Revolution but also within the international political arena. A program also may be created that would place the battle within the context of the history of warfare, with concentration on technical aspects. Yorktown's role in the Civil War needs to be a part of the park's interpretation as well, with emphasis on the strategic position of Yorktown and the use of the 1781 emplacements as a base for later defenses.

The Park Service will 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 will save energy and enhance the interpretive experience.

The Park Service will sponsor or encourage volunteer efforts to enliven the 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 will contribute to visitors' understanding of the significance of the Yorktown battlefield.

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. If this plan is implemented, it will remove a major intrusion between the British line and the second American siege line. It also will allow a one-way tour road to connect the Grand French Battery to the existing tour road to Redoubts 9 and 10 and Wormley Pond. In planning this project, the National Park Service will consult with the Virginia Department of Transportation, the U.S. Coast Guard, the U.S. Navy, residents of the Moore House subdivision, and other nearby residents and interested parties.

Recreation

To ensure safety, protect resources, and enhance visitors' experience, the Park Service will 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

The "country road" character of Colonial Parkway will be retained. The following actions will be taken in management of the parkway.

Reassessment of Historical Significance

Studies will 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 will initiate the necessary steps leading to a national register nomination for the parkway; these efforts will be coordinated with projects such as the George Washington Parkway study, which was 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 will be taken to give better support to recreation.

The National Park Service will 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 will determine optimal levels of recreational use consistent with public health, resource protection, and desired visitor experiences. On the basis of study results, actions will 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 reveal unacceptable impacts, actions may be taken for better management of public use (for example, limiting parking). The Indian Field Creek overflow parking will be improved or removed.

A landscape management and maintenance plan will be prepared for the parkway. The plan will identify desired vistas and cultural and natural scenes along the way. Erosion and wetland concerns will be addressed. Native trees and shrubs will 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 will be done, and the exposed foundation will be protected from the elements and from casual visitor use.

Traffic and Safety

To retain the integrity of Colonial Parkway's original design and continuing nature as a parkway, and to maintain a high-quality visitor experience, access points along the parkway will be limited to the present number or reduced if possible. Because the Colonial Parkway is best enjoyed as a scenic roadway with low to moderate traffic levels and little or no congestion, the National Park Service will continue to work with state and local governments to reduce commuter traffic and to protect park visitors. At present, commercial vehicle use of the parkway is prohibited or restricted; that regulation will continue.

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

Increasing bicycle, pedestrian, and jogger traffic along the parkway indicates a need for a separate bicycle/pedestrian trail in the parkway corridor. The feasibility and desirability of such a trail will be studied. If found to be appropriate, the trail will 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.

The National Park Service will not enter into any agreements or initiate developments or other actions, singly or in concert or cooperation with an other agency or individual, at the Cheatham Pond area until all necessary natural and cultural resource mitigation is completed. This includes archeological surveys, excavation, surveys for rare, threatened or endangered species, and other appropriate actions.

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 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 Cheatham Pond area.

- 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 in the Environmental Consequences chapter. The recommendation 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 will be taken.

Visitor Awareness

A new design theme and logo will 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 will be used on road signs, maps, exhibits, park literature, publications, and other materials related to Colonial National Historical Park. The Park Service will work closely with the APVA on a design theme for Jamestown.

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

Bikeways and Trails

The National Park Service supports the establishment of bikeways and walking and jogging trails in Colonial National Historical Park and along the Colonial Parkway corridor in conjunction with state and local programs. Generally, recreational bikeways and trails are preferred; the Park Service does not support the use of such routes for racing or professional sports competition.

Protection of Land and Views

The National Park Service will 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 may 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 should be done for lands in Surry County, across the James River from Jamestown.

The Park Service will 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 will be installed underground. For economic, health, and safety reasons, municipal water lines will be extended to Jamestown Island.

Only a few land protection measures will be needed. The Sessions/Shield property in Yorktown will be acquired only if the owners wanted to sell or if resource damage is 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 expresses a desire to sell an easement to ensure that a property will perpetually be a single-family residence, the National Park Service will be prepared to purchase the easement.

To protect the historic scene, the park will seek ultimate acquisition (possibly through land exchange) of 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 will 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 will be prepared that will fully evaluate the need for additional measures.

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 will be coordinated with Gloucester County, which owns an adjacent park. Limited clearing of vegetation on the

earthwork will be maintained so that the earthwork can be seen by visitors.

Swann's Point and Cape Henry, which were originally acquired because of their scenic, memorial, and historical strategic importance to the Yorktown and Jamestown regions, will be managed as detached units. The Park Service will continue to manage these properties as scenic and memorial overlooks, with interpretation centered on their general importance and their relationship to river navigation and defense. 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 will 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 will be developed for Green Spring, including level I level II archaeological surveys 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 becomes available, a plan will be prepared to provide for long-range management, protection, interpretation, and visitor use at Green Spring. Another management goal for the near future is to keep open the existing fields through an agricultural lease or other appropriate means after appropriate survey and mitigation.

The National Park Service supports the concept of a scenic state connector road and greenbelt between Green Spring and the Colonial Parkway. If requested, the National Park Service could offer technical assistance

to state and county officials in planning for upgrading Virginia Highway 614 to provide a more scenic drive with better protection for historic, archeological, natural, and scenic resources along the way.

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

Existing monuments will be maintained, but the addition of other monuments will 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 will be closed and tables will 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 National 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 following actions will be taken to manage the park's cultural resources.

Comprehensive identification, inventory, and evaluation of all cultural resources in the park. As appropriate, data from the inventory will be entered into the List of Classified Structures and the geographic information system (GIS) to be developed for cultural resources (see page 37).

Use of data from the inventory mentioned above to assign priorities to individual cultural resources or groups of cultural resources. The priorities, which will guide management strategies and project funding, will 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) and American Museum Association standards.

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

Development of a cultural GIS for the park.

Formulation of a cyclical maintenance program and guidelines for the park's cultural resources.

If a facility for archeological storage and research cannot be built on Jamestown Island that will adequately protect the archeological collection from hurricane force storms and periodic flooding, con-

sideration will be given to combining the Yorktown and Jamestown archeological collections in one specially built facility in the Yorktown area.

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 (RTE) plants and animals. Natural resource management will include the following actions.

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

The present air and water quality will be maintained.

Rare, threatened, and endangered species and their habitats will be protected through development of subzones within historic zones for protection and management of these species and habitats. Development of subzones will be based on recommendations from recent surveys of RTE species and communities. Subzones will include buffer areas for protection of rare or significant natural communities.

Wetlands and floodplains will be protected. As necessary, the National Park Service will consult 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.

The National Park Service will comply with Chesapeake Bay regulations.

Best management practices will be adopted for open fields. Where appropriate, the revised mowing techniques the park has already implemented will be continued. The reduced mowing rotation is intended to restore native vegetation; this, in turn, will decrease erosion and the invasion of exotic species.

Hazardous waste management will be carried out, and materials will be recycled as much as possible.

An up-to-date inventory and data base of natural resources will be developed.

An active resource monitoring program will be developed.

The Park Service will 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 may include sharing of data and resource inventory/monitoring projects such as development of data bases for GISs (see GIS discussion below).

The National Park Service will 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 will fully endorse and support efforts to increase understanding and protection of natural resources. Management will be consis-

tent 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 will be used in continued inventory, monitoring, and management programs. Support will 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 plan under revision during the GMP process will continue to guide all fire management activities. The plan will 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. Jamestown Island traditionally has been subject to significant erosion problems that continue to threaten both cultural and natural resources. Erosion and soil loss in all areas of the park will be monitored and suitably managed. Future actions may include addition of fencing, revegetation, obliteration of illegal trails that are causing erosion, and repair of fences where needed.

The Park Service will continue efforts already in effect to control soil loss from excessive

erosion of sensitive bluffs along the York River. Care will be taken to avoid soil loss from sedimentation of creeks, wetlands, and tidal rivers. Areas of erosion and other soil problems will be identified so that adverse impacts can be reduced or mitigated. All construction actions will 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 will 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 will be pursued where appropriate.

A water resource management plan will be developed under a cooperative agreement with the Virginia Institute of Marine Science. After literature review, nontidal wetlands will be delineated and a hydrographic overview of the park prepared. Plans will include inventory and monitoring as needed, and regulatory requirements and actions for the park will be determined. Park management will 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 will be considered. To avoid adverse effects on wetlands, detailed analysis of potential changes in each wetland area will be completed as part of feasibility planning.

An air quality management plan will be implemented. The plan will 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 will continue to be managed as a class II air quality area.

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 non-contiguous 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.

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, 19th, and 20th 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.

Historic structures at Colonial National Historical Park will be reevaluated through the update and completion of the park's List of Classified Structures. New resources are constantly being discovered and added to the list. Because of the evolutionary nature of the park's cultural resource base, the List of Classified Structures, the cultural landscape and

cultural sites inventories, and other appropriate inventories should be consulted regularly before actions are initiated to ensure resource protection.

Cultural resources in Colonial are briefly described below. The National Park Service will complete a comprehensive cultural resource inventory as a part of this *General Management Plan*.

Jamestown

Jamestown is the site of the first permanent English settlement in North America, which was established in 1607. Resources in this area are primarily archeological sites of the 17th and 18th centuries.

Yorktown/Yorktown Battlefield

Yorktown battlefield is the site of the last major land conflict of the revolutionary war. The conflict began on August 30, 1781, with the blocking of Yorktown by the French fleet. American and French troops under General George Washington and Comte de Rochambeau, along with the French naval forces of Comte de Grasse, battled the army of British General Lord Cornwallis and the British naval forces of Admiral Thomas Graves from September 5 through October 16. The actual siege of Yorktown by the Americans and French began on September 28. Cornwallis signed the instrument of surrender on October 18. The battlefield resources consist of archeological sites, buildings, and monuments relating to the siege.

Various other cultural resources also exist on the battlefield site, including earthworks from the Civil War, some of which used original 1781 structures as a base.

Colonial Parkway

The National Park Service established Colonial Parkway in the 1930s as a connecting roadway between Yorktown, Williamsburg, and Jamestown. The road was to maintain a "country road" flavor and to preserve the rural nature of the landscape between these important sites of British colonial history. Included along the parkway are archeological sites, buildings, and monuments relating to events in the 17th through 20th centuries.

Other Park Properties

Cheatham. The property known as Cheatham Pond is thought to contain a variety of pre-historic and historic cultural resources important to the historical understanding of the region. Various cultural resources, including military redoubts and archeological remains, may 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. Archeologists excavated the site in 1955. The National Park Service acquired 196 acres at Green Spring in 1966.

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, is important to the military and nautical history of the region as a strategic resource important in the control of the James River and Jamestown Island. The property was acquired by fee simple title and scenic easement for general protection of the park's scenic environs. It is important to early colonial and revolutionary war history because of its strategic defense position on the James River.

Mill Dam Site. The Mill Dam, which 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.

Tindalls Point/Gloucester Civil War Fortifications. Tindalls Point at Gloucester is an important scenic area for the park, as well as having been an important site in the strategic defense of Yorktown in both the American Revolution and the Civil War. Military installations at Tindalls Point and Gloucester controlled access to the York River during both of these wars.

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. The precise site is unknown.

Archer's Hope Landing Site/Archer's Hope Settlement Site. English colonists with the Jamestown expedition 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. The site is important in documenting the development and expansion of the original Jamestown settlement. The community developed separately from Jamestown — by 1624 about 25 persons (four families) lived there. By the 1780s the Neck of Land was almost unoccupied. Later, Confederate forces built fortifications in the area.

Glebe Land Site. The Glebe land site is an important parcel of land connected to the Anglican church of Jamestown. It represents lands given to the clergy attached to the Jamestown settlement. The site may contain valuable archeological resources, and important information about the history of the Jamestown settlement may be learned through archeological investigation.

Bellfield Plantation Site. The house ruins and cemetery site at the Bellfield 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. The ruins of a house, a cemetery, two wells, and a vestigial tree-lined approach are remnants of the 1690s Ringfield Plantation, which belonged to British colonist Joseph Ring, a typical planter of the Jamestown region. 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, endangered, and threatened 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 B.

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 non-tidal creeks flowing through the park. Survey findings are summarized in appendix B.

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. Fingerling 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 survey, 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 B.

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 sub-zones 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.

Erosion — and control of erosion — continues to be a problem at Jamestown Island. Studies will be initiated to assess the damage caused by various types of erosion, and recommendations will be made as to the best way to protect the park's resources from such damage.

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 conservationist 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 contrib-

utes 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 indicate good water quality in most waters in the park, but more data are needed on heavy metals and specific pollutants before water quality can be fully understood. A number of 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 emergent 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 far away 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, Newport News, Yorktown, and Williamsburg. Each month an average of 175,000 vehicles 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 1992 the population of York County was 46,700; James City County's was 38,500. York County's growth rate from 1980 to 1990 was 20%; that of James City County was 67%, and indications are that growth continues. Less than half (43%) of James City County's population and almost three-fourths (73%) of York County's were classified as urban in 1990. People of both counties are relatively affluent: per capita income for James City County was \$11,182; for York County, \$15,742. Both counties' populations are highly educated; almost one-fourth of York County residents and one-third of James City County residents have college degrees.

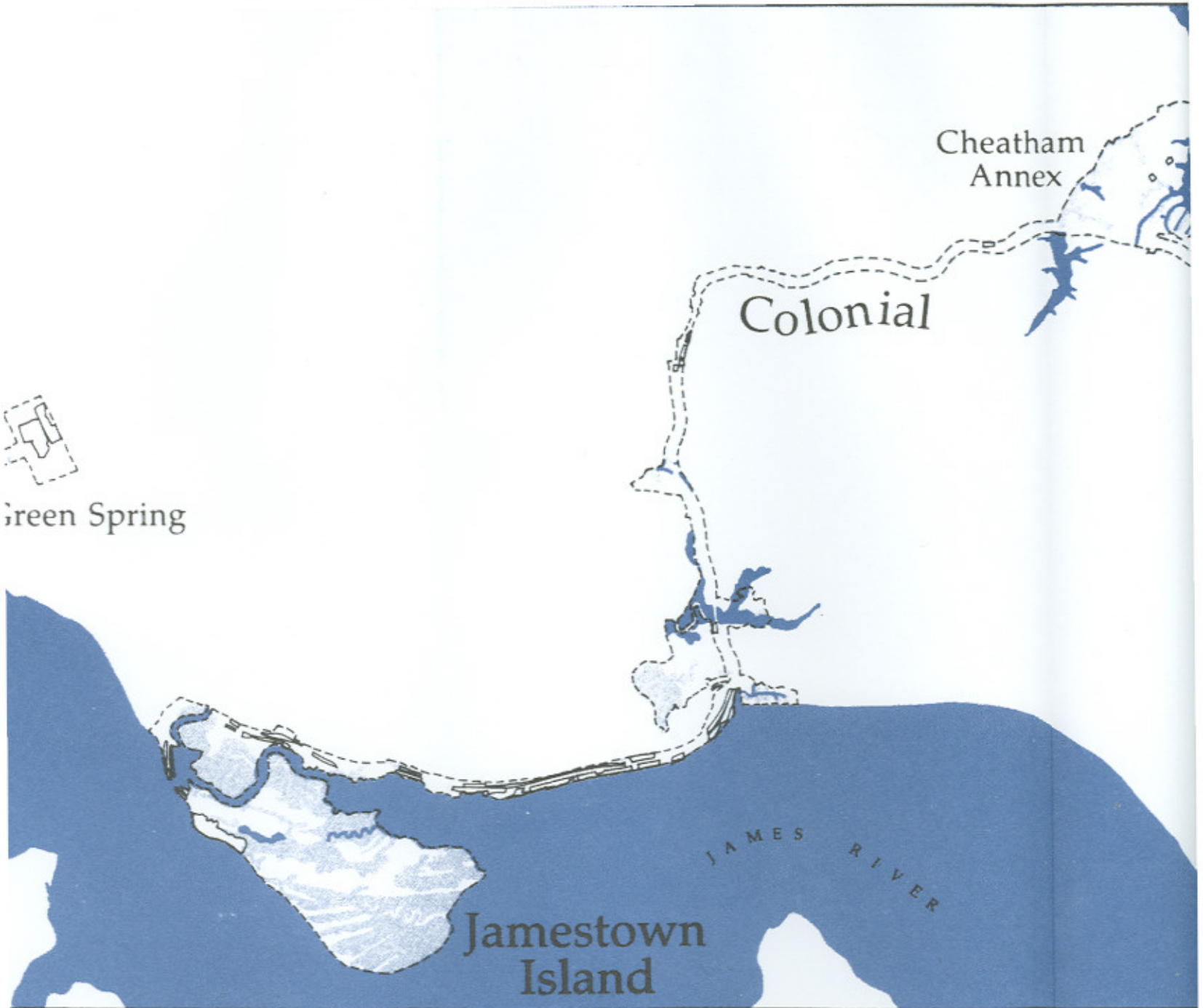
The region's economy is fairly diverse. Defense-related jobs and other federal expenditures provide a solid economic base. Tourism-related industries also are primary employers.

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 Nelson house, the Moore house, and the Yorktown town center. All these 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 1. This seasonal variation table is based on the total visitation to the visitor centers only.

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 2.





- 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

TABLE 1: 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%

TABLE 2: 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	383,078	352,615	7,381,900
1989	342,490	335,894	6,414,421
1990	356,069	338,509	7,779,143
1991	321,615	346,609	8,630,348
1992	326,970	320,938	8,200,170

ENVIRONMENTAL CONSEQUENCES

The environmental assessment for this *General Management Plan* is included in the following pages. Mitigative measures are described where appropriate. This assessment led to the recommendation of the National Park Service for preparation of a finding of no significant impact, which is attached to this document.

CHEATHAM POND TRACT

The Cheatham Pond tract will be considered for lease to interested entities, including York County and the U.S. Navy; however, such a lease will be considered only after appropriate natural and cultural resource surveys and necessary mitigation have been completed.

CULTURAL RESOURCES

Under this plan, professional protection and administration of the park's archeological collections will be ensured. Cultural resources will benefit from surveys, which will 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 will remove the intrusion of the present building on the original community. Moving the archeological collection to a new facility designed for artifact storage will reduce the threat of damage to these resources.

Additional protection will be provided for the ruins of the original Jamestown glass factory west of the present entrance station. This will arrest gradual deterioration caused by the maritime climate.

Establishment of a transportation system on Jamestown Island will 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 will benefit from upgrading of storage through construction of a new facility for the collection.

Management districts will be selectively designated because their creation might 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 will be well thought out, and care will be taken not to compromise pivotal properties. Any reconstruction or new construction will comply with NPS policies and guidelines, and activities will be considered only if they can be pursued without compromising extant historic structures and archeological resources.

Effects from adaptive reuse of structures will depend on the quality of supervision and administration. Care will be taken to keep the proposed adaptive use appropriate to the building, to avoid altering or destroying historic fabric, and to avoid compromising the historic character of the resource or surrounding environs. Load studies and evaluation of the stress impact of additional numbers of people will be included in any such proposal. Archeological and archival documentation will 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 will 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 will encourage more pedestrian use and make the area safer for pedestrians. It will 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 is constructed, effects on park property will 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 will be taken to make sure that reconstruction of the first shot battery is recognizable as new construction so that it will not be confused with original earthwork elements. Archeological resources could be compromised by this reconstruction.

Colonial Parkway

Surveys of archeological and cultural resources will 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 will 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 will be instituted. Cultural surveys will have to be done before any transfer of the Cheatham Pond area.

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

NATURAL RESOURCES

Topography will not be significantly affected by this plan. All natural resource actions will benefit the environment because further baseline information will 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 the proposal. Planned surface-disturbing actions (construction of bike trail, walkway across wetlands at Yorktown, trails through Yorktown battlefield) will cause minimal disturbance of vegetative communities. Recreational activities in Yorktown battlefield will not significantly affect open fields, but the areas will be monitored and actions taken to mitigate damage from excessive trampling, bare ground, and "social trails" caused by concentrated use.

Mitigative actions will be those necessary to maintain natural vegetation and "open field" conditions.

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

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

The proposed bike trail along Colonial Parkway could cause adverse effects. Care will 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 will be necessary to minimize disruption of vegetation and thus limit erosion. Routes will 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 will be kept to a minimum along the Queen Creek shoreline, and none will 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 will 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 are allowed in or near those areas. (Paving increases runoff and reduces recharge of aquifers.) These activities may occur under this plan; 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 will 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 may be within or adjacent to wetlands; such features will be carefully monitored to prevent adverse effects on rare animals and plants. Trails and new park buildings will be designed to avoid adverse effects.

Soils

Through ongoing consultation and cooperative studies with federal and local soil scientists, the National Park Service will continue efforts to control exotic plants and establish native cover. This will 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 taken by the National Park Service will 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" will be established in cooperation with federal and state soil scientists.

Prime and Unique Farmlands

In general, there will be no significant adverse effect on prime or unique farmlands. As was mentioned above, efforts to control exotic plant species will 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 will 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 will be some adverse effects on wetlands and floodplains; however, adherence to executive orders and NPS guidelines will help to minimize adverse effects on these areas.

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

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

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

If bike trail construction involves filling of wetland areas where the trail will 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 may 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 will be removed for a boat ramp, and about 60 feet of floating piers and associated pilings will be installed in the

channel. This will adversely affect the vegetated wetlands, but there will be no significant adverse effect on channel navigation. Although the developments will be in the 100-year floodplain of Queen Creek, there will be no adverse effects on overall floodplain values; the vegetated wetlands that will 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 will 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

There will be minimal effects on air quality from actions carried out under this plan. Development of an air quality management plan will ensure that actions are taken to understand regional pollutant sources and to protect air resources in the park. Future effects from regional air quality plans also will be considered. Increased traffic in the park and especially along Colonial Parkway may degrade the air, but the proposed public transportation system on Jamestown Island will locally reduce automobile traffic and emissions. A bike trail will encourage visitors and residents to enjoy the parkway without vehicles; this also will benefit local and regional air quality by reducing automobile emissions.

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 will benefit the local boating population.

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

The cost of implementing this plan has been estimated at \$20,277,000. Approximately 15 years will be needed for full implementation; therefore, the annual contribution to the local economy will be roughly \$320,000 per annum. Given the scale of the regional economy, this will be a small effect. Additional economic opportunities will be realized from adaptive use of some Main Street shops in Yorktown for retail operations.

VISITORS

Although the plan will bring improvements to the visitor experience, it will not change the volume or pattern of visitation significantly. The single exception will be the Yorktown community, where successful implementation of planned changes will attract larger numbers of visitors who will stay for longer periods.

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

Several actions of this plan will improve the quality of visitors' experience at Colonial. New waysides at Jamestown will enhance public understanding of the history of that area. Introduction of a bus tour system, if feasible, will reduce congestion on the tour road. Provision of secure storage for artifacts will 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 will remove a modern intrusion from the scene.

Updated interpretation of Jamestown according to its historiographical base also will strengthen visitors' experience. Expanded interpretive tours of the original townsite and educational programs for school groups will give more people a high-quality interpretive experience. New well-defined wayside exhibits will effectively communicate site-specific

history in an updated context. A new film presentation will 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 will help to reduce congestion at interpretive waysides and heighten visitors' appreciation of Jamestown Island.

Upgrading of interpretive services and restrooms at the Glasshouse will improve services for visitors; this will make for a better tourist experience.

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

Display of archeological artifacts at Archer Cottage will add a new element for visitors to experience. This, along with additional attrac-

tions such as the Windmill Point trail and the pedestrian walkway, will expand the pattern of use beyond Main Street to Water Street.

Restoration actions at the Yorktown battlefield will enhance visitors' understanding of conditions at the time of the battle. The redesigned visitor center roof will improve the view of the surrounding scene. Living history presentations, if realized, will enliven visitors' experience. Traffic on the battlefield tour road will be decreased by rerouting of Virginia 238; thus, fewer modern intrusions will 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 will reduce intrusions.

Provision of a bike trail along Colonial Parkway will improve safety for drivers and cyclists and reduce conflicts between recreationists and tour road traffic. Redesign of Five Points intersection will improve safety for parkway drivers. Possible facilitated recreational use at certain locations along the parkway will improve conditions for recreationists. Comfort stations added at certain locations will detract slightly from the scenic drive, but the design standards of the existing parkway would otherwise be maintained.

COMPLIANCE REQUIREMENTS

This *General Management Plan* for Colonial National Historical Park complies 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 will conduct inventories of cultural resources to determine the presence of significant cultural sites.

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 National Park Service 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 document.

The National Park Service will continue to coordinate with the Virginia 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 C contains detailed information on section 106 requirements for each action.

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 will 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 will 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 and appended to this *General Management Plan*. This will conclude the compliance process for the National Environmental Policy Act.

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

CONSULTATION AND COORDINATION

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

ment 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 Service, 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 re-

vealed that the greatest concern was for the future of Yorktown, given the ongoing master plan for the community.

APPENDIX A: COST ESTIMATES

The cost estimates in the following table include planning and construction costs as well as operational budget estimates for the plan. Some pro-

posed actions involve studies, the cost of which cannot be estimated at this time.

Action	Construction Costs	Planning Costs	Total Costs
<u>Jamestown</u>			
Demolition of present visitor center	\$ 150,950	\$ 26,039	\$ 176,989
Land reclamation	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
Transportation system	300,000	51,750	351,750
Completion of cultural resource survey and National Register forms	—	—	100,000
<u>Yorktown</u>			
Development of Poor Potter's Site	517,500	89,269	606,769
Construction of Yorktown Creek boardwalk	250,000	43,125	293,125
Construction of exhibits on Yorktown Pier	34,500	5,952	40,452
Curatorial collections facility	2,292,500	437,500	2,730,000
Development concept interpretive plan for Yorktown	—	—	150,000
Redesign of visitor center roof	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
Realignment of park portion of Virginia Highway 238	1,380,000	238,050	1,618,050
Completion of cultural resource survey and National Register forms	—	—	75,000
<u>Colonial Parkway</u>			
Stabilization of Ringfield plantation site	40,000	6,900	46,900
Redesign of Five Points intersection	80,000	13,800	93,800
Construction of bicycle path	2,300,000	396,750	2,696,750
Completion of cultural resource survey and National Register forms	—	—	100,000
<u>Park General</u>			
Satellite information stations	162,000	27,945	189,948
Construction of central curatorial facility	—	—	—
Development total			\$16,076,844
Park operations and staffing (annual)			\$ 4,200,000

APPENDIX B: 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.]			
Sensitive joint vetch	<i>Aeschynomene virginica</i>	FC2	VC
Lake-bank sedge	<i>Carex lacustris</i>	none	VRSC
a spurge	<i>Euphorbia ammanoides</i>	none	VRSC
Reed mannagrass	<i>Glyceria grandis</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
Ophioglossum	<i>Ophioglossum vulgatum</i> , var. <i>psuedopodum</i>	none	VRSC
Gaping panicum	<i>Panicum hians</i>	none	VRSC
Shadow-witch	<i>Ponthieva racemosa</i>	none	VRSC
Dwarf chinquapin oak	<i>Quercus prinoides</i>	none	VRSC
Drooping bulrush	<i>Scirpus lineatus</i>	none	VRSC
Sweetscent ladies' tresses	<i>Spiranthes odorata</i>	none	VRSC
Mountain camellia	<i>Stewartia ovata</i>	none	VRSC
Three-ribbed arrowgrass	<i>Triglochin striatum</i>	none	VRSC
Virginia least trillium	<i>Trillium pusillum</i> , var. <i>virginianum</i>	FC2	VRSC
Southern cattail	<i>Typha domingensis</i>	none	VRSC
Fibrous bladderwort	<i>Utricularia fibrosa</i>	none	VRSC

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.

SPECIAL STATUS PLANT SPECIES IN AND NEAR COLONIAL NATIONAL HISTORICAL PARK

Common Name	Scientific Name	Federal Status	State Status
[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.]			
Prairie senna	<i>Cassia fasciculata</i> , var. <i>macrosperma</i>	FC2	VRSU
Parker's pipewort	<i>Eriocaulon parkeri</i>	FC3	VRSC
Small whorled pogonia	<i>Isotria medeoloides</i>	FLE	VLE
New Jersey rush	<i>Juncus caesariensis</i>	FC2	VRE

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			
Mabee's salamander	<i>Ambystoma mabeei</i>	none	VRSC
Tiger salamander	<i>Ambystoma tigrinum</i>	none	VLE
Loggerhead sea turtle	<i>Caretta caretta caretta</i>	FLT	VSU
Northeastern beach beetle	<i>Cicindela dorsalis dorsalis</i>	FLT	VRSC
Leatherback turtle	<i>Dermochelys coriacea coriacea</i>	FLE	VLE
a narrow-winged damselfly	<i>Ischnura prognatha</i>	none	VRSC
Ridley turtle	<i>Lepidochelys kempi</i>	FLE	VRSC
Northern diamondback terrapin	<i>Malaclemys terrapin terrapin</i>	FC2	VRSC
Tiny liptooth	<i>Polygyra pustoides</i>	none	VRSC
Carpenter frog	<i>Rana virgatipes</i>	none	VRSC
Birds			
Bald eagle	<i>Haliaeetus leucocephalus</i>	FLE	VLE

CHEATHAM ANNEX INVENTORY LISTS

The Virginia Division of Natural Heritage reported rare species found during an inventory of Cheatham Annex. The lists on the following pages 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>
<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 cinerea</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>
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

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 C: ACTIONS REQUIRING FURTHER CULTURAL CONSULTATION (Section 106 Compliance)

The plans, undertakings, and programmatic exclusions listed in this appendix will be enacted as discussed in letters of June 2, 1993, and August 3, 1993, between the National Park Service Mid-Atlantic Regional Office and the Department of Historic Resources, Commonwealth of Virginia. Copies of the correspondence are included in this appendix.

Major actions of the plan and future studies are listed below. In some cases, further consultation with or review by the Virginia state historic preservation officer (SHPO) and the Advisory Council on Historic Preservation (ACHP) will be required under section 106 of the National Historic Preservation Act of 1966, as amended. Consultation and/or review also may be called for by a 1991 programmatic memorandum of

agreement among the National Park Service, the SHPO, and the ACHP.

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 between the National Park Service, the Advisory Council on Historic Preservation, and the National Council of State Historic Preservation Officers.

JAMESTOWN ISLAND

Recommended Planning Documents and Studies

1. Erosion problems and protection of the Jamestown Island, Glasshouse Point, Yorktown, and Colonial Parkway shorelines and the pitch and tar swamp at Jamestown will be studied.
2. A National Register nomination form will be completed for Jamestown Island.
3. The establishment of a public transportation system for Jamestown Island will be studied.
4. A reassessment of Jamestown's historical significance will be completed.
5. A geomorphological study of Jamestown Island will be completed.
6. The archeological collection at Jamestown Island will be catalogued and made available to researchers.
7. A computerized biographical database will be developed.
8. A compilation of previous studies will be assembled and organized.
9. The scope of past archeological studies will be assessed.
10. The park's historic structures at Jamestown and other locations will be evaluated through an update of the park's list of classified structures (LCS).

Undertakings Covered by Programmatic Exclusions

The undertakings listed below will require internal National Park Service compliance review; that is, "Assessment of Action" forms.

1. Archeological surveys to document the original settlement and town boundaries of Jamestown will be initiated.
2. New wayside exhibits and interpretive media will be developed and installed.
3. Additional protection will be provided for the original Glasshouse. (The scope of the work for the undertaking will determine if SPHO-ACHP consultation is needed.)

Undertakings Requiring SHPO and ACHP Review

The following undertakings will require review by the SHPO and the ACHP under section 106 of the National Historic Preservation Act of 1966.

1. The Jamestown visitor center will be relocated away from the original townsite. Attempts will be made to keep the facility and its curatorial function on the island; however, if engineering cannot guarantee the safety of the building and its curatorial function, the building will be moved to a site to be determined later.
2. New restrooms and redesigned parking that will accommodate buses will be constructed at the Glasshouse area of Jamestown.
3. Municipal waterlines will be extended to Jamestown Island.

YORKTOWN AND YORKTOWN BATTLEFIELD

Recommended Planning Documents and Studies

1. A development concept plan will address additional management issues, including the improvement of curatorial facilities.
2. Feasibility studies will be completed on new bicycle and pedestrian trail systems.
3. Methods for stabilizing Cornwallis Cave will be explored.
4. A landscape plan for the Yorktown Victory Monument will address aesthetic, parking, seating, walkways, interpretation, and landscaping.
5. A National Register nomination form will be prepared for Yorktown Battlefield.
6. A cultural landscape analysis for Yorktown Battlefield will be completed.
7. A new interpretive plan will be developed for Yorktown Battlefield.
8. Studies will be done of the feasibility of a bicycle/pedestrian trail and the possible relocation of active recreational pursuits away from the battlefield area.

Undertakings Covered by Programmatic Exclusions

The undertakings listed below will require internal National Park Service compliance review; that is, "Assessment of Action" forms.

1. Several historic structures will be opened as retail establishments and other visitor services consistent with the National Park Service guidelines to cultural resource management (NPS-28) and with sections C.1(a) and C.1(i) of the 1990 programmatic agreement.
2. New wayside exhibits and interpretive media will be developed and installed.
3. Picnic facilities, restrooms, and fencing will be rehabilitated in the waterfront area east of Comte de Grasse Street, consistent with sections C.1(a) and C.1(i) of the 1990 programmatic agreement.
4. The National Park Service will, upon individual request, consider the purchase of easements from individual private property owners to ensure the continued use of property as single-family residences.
5. Additional properties may be acquired to protect the historic scene.

Undertakings Requiring SHPO and ACHP Review

The following undertakings will require review by the SHPO and the ACHP under section 106 of the National Historic Preservation Act of 1966.

1. Virginia Highway 238 will be rerouted away from Yorktown battlefield.; construction of new connecting route between Coast Guard training center and U.S. 17.*
2. The Chandler and Jenkins houses on Zweybrucken Road will be removed.
3. The earthwork associated with the first shot battery will be reconstructed to replicate the 1781 installation.
4. If a facility cannot be built on Jamestown Island that will adequately protect the archeological collection, a facility may be built in the Yorktown area for both the Jamestown and Yorktown archeological collections.
5. The visitor center roof will be redesigned, stabilized, and expanded to serve as an improved observation platform.
6. Some properties having marginal value to the National Park Service will be considered for exchange with other entities.
7. New landscaping will be done in the proposed Central Preservation and Interpretation District to avoid a too "parklike" appearance.
8. New facilities such as restrooms and parking lots will be established in the proposed support district.
9. The National Park Service may build a walkway across Yorktown Creek past Windmill Point to tie to the riverwalk on the west side of town.

10. Cornwallis Cave will be stabilized and connected by trails to the proposed waterfront boardwalk and to the Great Valley Trail.
11. Landscaping in the area of the Yorktown Victory Monument will be improved.
12. Pedestrian linkages will be developed to connect the visitor center and picnic area via Tobacco Road and the riverwalk.
13. The National Park Service wharf and wharf building that is being used as a post office will be transferred to the Yorktown Trustees when no longer needed by the National Park Service or the U.S. Postal Service, with the recommendation that it be preserved at its present location or a nearby location.
14. New buildings and other private sector development will be considered for the Main Street and Ballard Street adaptive use districts.
15. A new ranger headquarters and visitor contact station will be established on Ballard Street. This development will be addressed in a future development concept/interpretive prospectus.
16. The Moore House subdivision sewer system will be transferred to York County through congressional action.

COLONIAL PARKWAY AND OTHER PARK PROPERTIES

Recommended Planning Documents and Studies

1. A National Register nomination form will be prepared for Colonial Parkway.
2. A study will be initiated of the effects of visitation on various archeological sites along the Colonial Parkway.
3. A landscape management plan will be developed for Colonial Parkway.
4. Cooperative studies will be undertaken by the National Park Service, local governments and landowners, and conservation and historical groups to ensure protection of the viewshed in and around the park. A similar study will be done for lands in Surry County, across the river from Jamestown.
5. A land protection plan will be done to evaluate the need for protection of the historic scene in the vicinity of Virginia Highway 704 and near Colonial Parkway east of Virginia Highway 682.
6. The 17th and 18th century mansion sites at Green Spring will be restudied.
7. A plan will be prepared for Green Spring that will address long-range management, protection, and interpretation of the site.

Undertakings Covered by Programmatic Exclusions

The undertakings listed below will require internal National Park Service compliance review; that is, "Assessment of Action" forms.

1. The Ringfield plantation site will be stabilized and the exposed foundation portions will be protected.
2. The National Park Service will seek to acquire parcels of land along Virginia Highway 704 that are owned by York County, as well as a privately owned parcel of land along the allied encampment tour road.

Undertakings Requiring SHPO and ACHP Review

The following undertakings will require review by the SHPO and the ACHP under section 106 of the National Historic Preservation Act of 1966.

1. The Five Points intersection will be redesigned.
2. A new bicycle/pedestrian trail will be established.
3. The Cheatham Pond area will be leased to the U.S. Navy and York County for recreational purposes.
4. Some properties having marginal value to the National Park Service will be considered for exchange with other entities.
5. Satellite information stations will be added at major intersections along the Colonial Parkway to facilitate dissemination of park information.
6. Existing utilities will be placed underground.
7. Comfort stations, hardened trails, and stairs may be added to the areas of Indian Creek, Felgate's Creek, Archer's Hope, and the Ringfield picnic area. The Indian Creek overflow parking area will be improved or removed.
8. Native trees and shrubs will be planted to screen uses that could impair scenic quality.
9. An agricultural lease for Green Spring plantation site will be considered after appropriate archeological testing.



COMMONWEALTH of VIRGINIA

Department of Historic Resources

221 Governor Street
Richmond, Virginia 23219



Hugh C. Miller, Director

March 26, 1992

Ms. Lorraine Mintzmyer
National Park Service
Mid-Atlantic Region
143 South Third Street
Philadelphia, PA 19106

Re: Draft General Management Plan and Environmental Assessment (GMP), Colonial National Historical Park,
York County; VDHR File No. 90-794-F

Dear Ms. Mintzmyer:

We appreciate the opportunity to review your agency's draft GNP for the Colonial National Historical Park (CNHP). The document was received on January 29, 1992 and we regret the slight delay in providing our comments. Please understand that our agency's comments on the draft GNP do not constitute a response for consultation on individual undertakings subject to the Section 106 process and the Programmatic Agreement. We hope that the following observations, organized according to each of the proposed alternatives, prove useful in preparation of the final GMP.

Alternative A

We do not support selection of Alternative A (no action). Alternative A would not satisfactorily resolve compelling problems related to interpretation, curation, and cultural resource management at the CNHP. We do support, however, the ongoing efforts to develop a comprehensive inventory within this alternative as mentioned on page 11. Development of a comprehensive cultural resource inventory, however, is an action common to all of the alternatives.

Alternative B

We recognize that Alternative B (refinement of existing conditions) is preferred by the NPS. While many of the actions outlined for this alternative do constitute necessary and appropriate improvements to your program, we offer the following observations:

1. The DHR supports your agency's opposition to any proposed new bridge across the James River "that would disrupt the primitive isolation on Jamestown Island" (page 11).
2. We question the effectiveness of moving the existing Jamestown visitor's center to another location on the island. The proposed location in the "southwest portion of the present parking lot" (page 12) would provide only limited benefit at great expense. A major hurricane (page 6) would affect any location on Jamestown Island regardless of the configuration of the 100-year floodplain. If your objective is to enhance the "primitive isolation" of Jamestown and protect your collections, then moving the visitor center entirely off-island would be preferable. We suggest that the NPS explore the possibility of siting a new visitor's center on the mainland near the glasshouse or on NPS

property at Green Spring. If an off-island site for the visitor's center is not possible, then retaining the existing facility and moving the collections to a centralized curatorial facility is preferable.

3. We agree that the NPS should avoid a "too open and park-like ... appearance on vacant lots" in Yorktown (page 14). Therefore, we reaffirm our position that the Jenkins and Chandler Houses are worthy of preservation.
4. The intention of the NPS to "reassess" the historical significance of Yorktown must be comprehensive and include recognition of all periods and areas of significance, as well as resources significant at the local and state levels (page 14). A restriction in the scope of this reassessment to capture only "Yorktown's historical significance as a seaport caught in the final battle of the Revolution..." will inappropriately influence the stewardship responsibility of the NPS for all classes of historic properties.
5. We assume that the provisions for "better maintenance and access" of earthworks in Yorktown include those military features dating to both the American Revolution and the Civil War (page 18).
6. We recommend that the NPS retain an easement on the Yorktown Wharf and post office in the event that it is transferred out of the federal system (page 18). The easement should ensure that any alterations to the post office do not adversely affect its historic character.
7. The "reassessment of historical significance" for the Yorktown Battlefield (page 19) should include a careful review of district boundaries and address all non-contributing buildings within those boundaries.
8. We are interested in the specific details concerning any efforts at scene restoration (page 19) and/or reconstruction of historic structures. As plans are developed, we would like to work closely with your agency on the design and implementation of such proposals.
9. We request additional information concerning your proposed relocation of Route 238 and construction of a new connector route between the Coast Guard training center and U.S. 17 (page 20).
10. We support and commend your proposal to reassess the significance of the Colonial Parkway in relation to early twentieth-century park planning (page 20).
11. As planning proceeds, we would appreciate the opportunity to examine detailed information concerning the proposed modifications to the Five Points intersection (page 21).
12. We do not support any of the options for management of the Cheatham Pond area except for Option A (page 22). Recent documentary research by our agency has revealed that the Native American settlement of Kiskiack was probably located on the lower reaches of Queens Creek rather than at Indian Field Creek as previously thought. If this is supported by archaeological survey evidence, then retention of that tract within the CNHP is the only management option that would ensure appropriate preservation of this significant resource related to the early development of the Virginia colony at Jamestown.
13. Additional information concerning the proposed leasing of the Green Spring tract needs to be provided if a specific concept is being considered at this time (page 23).

Alternative C

Please note that some of our comments for Alternative B also apply to Alternative C for those activities which are common to both. In general, however, we perceive Alternative C (substantive change) as a preferred course of action for the NPS since emphasis is placed on protection and conservation of resources. Alternative C is the only alternative in which all tracts, including Cheatham and Green Spring, will be retained as part of the CNHP. Alternative C also emphasizes a complementary interpretive relationship between Jamestown Settlement and the

NPS. Enhanced protection of natural resources will be beneficial to the preservation of archaeological properties. Further, the integrated management of cultural and natural resources is entirely consistent with a sense of public stewardship.

We hope that our comments provided on your draft GNP prove constructive in your agency's efforts to prepare a final plan. Our staff is available to explore any of our comments in detail. We are willing to attend a meeting at mutual convenience if you feel that a more lengthy discussion of our concerns is appropriate. If you have any questions regarding our comments, please do not hesitate to contact Antony Opperman or Elizabeth Hoge of our staff.

Sincerely,



H. Bryan Mitchell
Deputy State Historic Preservation Officer

cc: Alec Gould, CNHP



IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE

Mid-Atlantic Region
143 South Third Street
Philadelphia, PA 19106



H30(MAR-CRM)

June 2, 1993

Bryan Mitchell
Deputy State Historic Preservation Officer
Virginia Department of Historic Resources
221 Governor Street
Richmond, Virginia 23219

Dear Mr. Mitchell: *Bryan*

As you know, the National Park Service has been preparing a General Management Plan for Colonial NHP for some time. A copy of the January 1992 review draft of alternatives was submitted to your office. You responded on March 26, 1992 with various comments which have been addressed in the present document. Additionally, a meeting between your office and National Park Service Regional Office staff was held in January 1993 to discuss mutual concerns and issues. The present document also reflects the results of that meeting.

Enclosed please find the final review draft of the Colonial NHP General Management Plan which is being submitted under Stipulation E of the 1990 Programmatic Agreement. Under the terms of the 1990 Programmatic Agreement, "the Regional Director, in consultation with the SHPO will make a determination about which undertakings are programmatic exclusions under C.1, and for all other undertakings, whether there is sufficient information about resources and potential effects of those resources to seek review and comment under 36 CFR Part 800.4-6, during the plan review process." Accordingly, the following undertakings have been identified in the Colonial General Management Plan, and we seek your concurrence in our finding as to which undertakings are covered by programmatic exclusions, and which undertakings will require additional consultation with your office and possibly the Advisory Council on Historic Preservation. The final version of this list will be printed in the final draft of the Colonial General Management Plan.

JAMESTOWN ISLAND

Recommended Planning Documents and Studies:

1. Erosion problems and protection of the Jamestown Island, Glasshouse Point, Yorktown and Colonial Parkway shorelines, and the Pitch and Tar Swamp at Jamestown will be studied.

2. A National Register Nomination Form will be completed for Jamestown Island.
3. The establishment of a public transportation system for Jamestown Island will be studied.
4. A reassessment of Jamestown's historical significance will be completed.
5. A geomorphological study of Jamestown Island will be completed.
6. The archeological collection at Jamestown Island will be catalogued and made available to researchers.
7. A computerized biographical data base will be developed.
8. A compilation of previous studies will be assembled and organized.
9. The scope of past archeological studies will be assessed.
10. The park's historic structures at Jamestown and other locations, will be evaluated through an update of the Park's List of Classified Structures (LCS).

Undertakings Covered by Programmatic Exclusions. (These undertakings will require internal National Park Service compliance review, i.e. Assessment of Action Forms.)

1. Archeological surveys to document the original settlement and town boundaries of Jamestown will be initiated.
2. New wayside exhibits and interpretive media will be developed and installed.
3. Additional protection will be provided for the original Glass House. (The scope of work for the undertaking will determine if SHPO-Advisory Council consultation is needed.)

Undertakings Requiring State Historic Preservation Officer (SHPO) - Advisory Council Section 106 Review:

1. The Jamestown Visitor Center will be relocated away from the original townsite. Attempts will be made to keep the facility and its curatorial function on the island; however, if engineering cannot guarantee the safety of the building and its curatorial function, the building will be moved to a site to be determined later.
2. New restrooms and redesigned parking that will accommodate buses will be constructed at the Glass House area of Jamestown.
3. Municipal water lines will be extended to Jamestown Island.

YORKTOWN AND YORKTOWN BATTLEFIELD

Recommended Planning Documents and Studies:

1. A development concept plan will address additional management issues, including the improvement of curatorial facilities.
2. Feasibility studies will be completed on new bicycle and pedestrian trail systems.
3. Methods for stabilizing Cornwallis Cave will be explored.
4. A landscape plan for the Yorktown Victory Monument will address aesthetic, parking, seating, walkways, interpretation, and landscaping.
5. A National Register Nomination Form will be prepared for Yorktown Battlefield.
6. A cultural landscape analysis for Yorktown Battlefield will be accomplished.
7. A new interpretive plan will be developed for Yorktown Battlefield.
8. Studies will be done of the feasibility of a bicycle/ pedestrian trail and the possible relocation of active recreational pursuits away from the battlefield area.

Undertakings Covered by Programmatic Exclusions. (These undertakings will require internal National Park Service compliance review, i.e. Assessment of Action Forms.)

1. Several historic structures will be opened as retail establishments and other visitor service facilities consistent with NPS-28, and C.1(a) and C.1(i) of the 1990 Programmatic Agreement.
2. New wayside exhibits and interpretive media will be developed and installed.
3. Picnic facilities, rest rooms and fencing will be rehabilitated in the waterfront area east of Comte de Grasse Street, consistent with C.1(a) and C.1(i).
4. The National Park Service will, upon individual request, consider the purchase of easements from individual private property owners to insure the continued use of property as single-family residences.
5. Additional properties may be acquired to protect the historic scene.

Undertakings Requiring SHPO - Advisory Council Section 106 Review:

1. Virginia Highway 238 will be rerouted away from Yorktown Battlefield.

2. The Chandler and Jenkins houses located on Zwcybrucken Road will be removed.
3. The earthworks associated with the first shot battery will be reconstructed to replicate the 1781 installation.
4. If a facility cannot be built on Jamestown Island that will adequately protect the archeological collection, a facility may be built for both the Jamestown and Yorktown archeological collections in the Yorktown area.
5. The visitor center roof will be redesigned, stabilized and expanded to serve as an improved observation platform.
6. Some properties having marginal value to the National Park Service will be considered for exchange with other entities.
7. New landscaping will be done in the proposed Central Preservation and Interpretation District to avoid a too "park-like" appearance.
8. New facilities such as restrooms and parking lots will be established in the proposed Support District.
9. The National Park Service may build a walkway across Yorktown Creek past Windmill Point to tie to the riverwalk on the west side of town.
10. Cornwallis Cave will be stabilized and connected by trails to the proposed waterfront boardwalk and to the Great Valley Trail.
11. Landscaping in the Yorktown Victory Monument area will be improved.
12. Pedestrian linkages will be developed to connect the visitor center and picnic area via Tobacco Road and the riverwalk.
13. The National Park Service wharf and wharf building being used by the U.S. Post Office will be transferred to the Yorktown Trustees when no longer needed by the National Park Service or U.S. Postal Service, with the recommendation that it be preserved at its present location or a nearby location.
14. New buildings and other private sector development will be considered for the Main Street and Ballard Street Adaptive Use Districts.
15. A new Ranger Headquarters and visitor contact station will be established on Ballard Street and will be addressed in a future development concept/interpretive prospectus.

16. The Moore House subdivision sewer system will be transferred to York County through congressional action.

COLONIAL PARKWAY AND OTHER PARK PROPERTIES

Recommended Planning Documents and Studies:

1. A National Register Nomination form will be prepared for Colonial Parkway.
2. A study of effects of visitation on various archeological sites along the Colonial Parkway will be initiated.
3. A landscape management plan will be developed for the Colonial Parkway.
4. Cooperative studies between NPS and local governments and landowners, conservation and historical groups will be undertaken to insure protection of the viewshed in and around the park. A similar study will be done for lands in Surry County, across the river from Jamestown.
5. A land protection plan will be done that will evaluate the need for protection of the historic scene in the vicinity of Highway 704 and near Colonial Parkway east of Virginia Highway 682.
6. The 17th and 18th century mansion sites at Green Spring will be restudied.
7. A plan will be prepared for Green Spring addressing long range management, protection, and interpretation at the site.

Undertakings Covered by Programmatic Exclusions. (These undertakings will require internal National Park Service compliance review, i.e. Assessment of Action Forms.)

1. The Ringfield plantation site will be stabilized and the exposed foundation portions will be protected.
2. NPS will seek to acquire parcels of land along Virginia Highway 704 owned by York County as well as a privately owned parcel of land along the allied encampment tour road.
3. An agricultural lease for Green Spring will be considered after appropriate archeological testing.

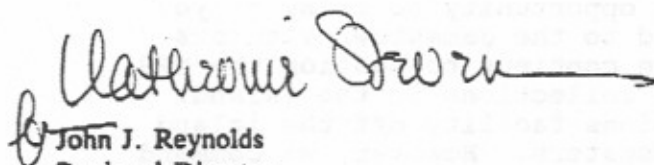
Undertakings Requiring SHPO - Advisory Section 106 Review:

6

1. The Five Points intersection will be redesigned.
2. A new bicycle/pedestrian trail will be established.
3. Cheatham Pond area will be leased to the U.S. Navy and York County for recreational purposes.
4. "Marginal" park properties will be exchanged with other entities.
5. Satellite information stations will be added at major intersections along the Colonial Parkway to facilitate the dissemination of park information.
6. Existing utilities will be placed underground.
7. Comfort stations, hardened trails, and stairs may be added to the areas of Indian Creek, Felgate's Creek, Archer's Hope and the Ringfield picnic area. The Indian Creek overflow parking area will be improved or removed.
8. Native trees and shrubs will be planted to screen uses that could impair scenic quality.

We would greatly appreciate receiving your comments at your earliest possible convenience, so that they can be incorporated into the final printing of this document. Please direct all Section 106 comments and concerns to my office, Attention: Diann Jacox. Ms. Jacox can be reached at (215) 597-6524.

Sincerely,


John J. Reynolds
Regional Director
Mid-Atlantic Region

Enclosure

cc:
Superintendent, Colonial NIIP
Martha Catlin, Advisory Council on Historic Preservation

bcc:
CRM, Jacox Reading File (O'Brien w/modifications)
CRM, Colonial GMP 106 File

COLO, James Haskett
DSC-East, Pat O'Brien

Regional Director's Reading File

General
Daily



COMMONWEALTH of VIRGINIA

Department of Historic Resources

221 Governor Street
Richmond, Virginia 23219



TDD: (804) 786-1934
Telephone (804) 786-3143
FAX: (804) 225-4261

Hugh C. Miller, Director

August 3, 1993

Mr. John J. Reynolds
Regional Director
National Park Service
Mid-Atlantic Region
143 S. Third Street
Philadelphia, PA 19106

RE: GMP for Colonial National Historic Park
York and James City Counties
VDHR File No. 90-794-F

Dear Mr. Reynolds:

Thank you for submitting the final draft of the General Management Plan (GMP) for the Colonial National Historic Park. We appreciate the efforts your staff and the park staff have made to address our previous concerns. Many of our questions and concerns have been addressed verbally and within the revised draft.

However, we would like to take this opportunity to relay to you our remaining concerns. With regard to the Jamestown Visitors Center and curatorial facilities, we continue to caution the NPS about housing the valuable artifact collections on the island. We believe a curatorial and collections facility off the island will be more secure from natural disasters. However, we commend your proposal to study the issue thoroughly before making a decision and we look forward to hearing about the results of that study.

We continue to recommend that the reassessment of the historical significance of Yorktown include historic periods and themes that post-date the Revolutionary War. Yorktown contains many resources from other periods, many of which are under NPS ownership.

We disagree with the statements on page 17 concerning the Jenkins and Chandler Houses. We do not agree that the setting for the Victory Monument will be improved by the removal of these two houses. In fact, we believe that the removal will take away from the town-like setting of Yorktown and will help to create the park-like setting that the NPS is trying to avoid.

Concerning the Cheatham Pond property, we find the proposal acceptable, but not desirable. Although the NPS will assure that

Mr. Reynolds

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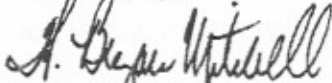
August 3, 1993

all the necessary archaeological work will be undertaken prior to any use by the County or the Navy, we are concerned about the stewardship of sensitive archaeological sites once the property is being used for training and recreation. As the lease arrangement develops, we would like to know more about who will be responsible for conducting the surveys and how significant sites, if discovered, will be protected and managed.

We agree with all of your definitions of projects covered under the programmatic exclusions with one exception. We believe that the agricultural lease for Greensprings should be reviewed pursuant to the process stipulated in the Programmatic Agreement. We believe the Greensprings lease proposal is of the same nature as the Cheatham Pond lease, a project that is listed with "undertakings requiring SHPO review".

We hope our comments are helpful. We look forward to receiving the final document. Please contact Elizabeth Hoge or Antony Opperman if we can be of further assistance.

Sincerely,



H. Bryan Mitchell
Deputy State Historic Preservation Officer

cc: Don Klima, ACHP
Alec Gould, Colonial National Park

APPENDIX D: 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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