

Section 6:

Environmental Consequences

INTRODUCTION

The National Environmental Policy Act requires that environmental impact statements describe the potential environmental consequences of proposed federal actions and alternatives. In this case, the “proposed federal action” would be the adoption of one of the alternatives described in this Special Resource Study for the Chesapeake Bay watershed. This chapter describes the potential impacts associated with the five alternatives. By assessing the environmental consequences of all the alternatives on an equivalent basis, the NPS and other decision-makers can decide which alternative creates the most desirable combination of beneficial results with the fewest adverse effects on the environment.

The alternatives in this SRS provide broad management directions. The environmental consequences associated with the proposed actions are analyzed on a qualitative level because of the general nature of each proposed action. Thus, this environmental impact statement should be considered a programmatic analysis. If any action is eventually implemented, the NPS, in accordance with the National Environmental Policy Act, would conduct additional environmental analyses with appropriate documentation before implementing site-specific actions. The impacts for each alternative are briefly summarized in Table 6-1 at the end of this section.

METHODOLOGY FOR ASSESSING IMPACTS

Potential impacts are described in terms of type (adverse or beneficial), intensity (negligible, minor, moderate, or major), duration (short-term or long-term), context (site-specific, local, bay-wide, or watershed-wide) and direct versus indirect. Clarification for each of these concepts is provided below.

Impact Type

For each impact topic, the effects of the proposed action would be either adverse or beneficial. In some cases, the actions would result in both adverse and beneficial impacts for the same impact topic.

Intensity

This evaluation uses the approach for defining intensity (or magnitude) for an impact as presented in *Director’s Order # 12: Conservation Planning, Environmental Impact Analysis and Decision-Making* (NPS, 2001b). Analyses of the potential intensity were derived from the available literature on the Chesapeake Bay and the professional judgment of the NPS study team based on similar projects. The thresholds of change for the intensity of impacts are defined as follows:

- *Negligible* - The impact is localized and not measurable or at the lowest level of detection.
- *Minor* - The impact is localized and slight, but detectable.

- *Moderate* - The impact is readily apparent and appreciable.
- *Major* - The impact is severe or beneficial and highly noticeable

In some cases, more specific impact intensity thresholds are provided for the impact topic. If intensity thresholds are not provided, the intensity levels are similar to those stated in this section. Most of the intensities are expressed qualitatively because this SRS is considered a programmatic document.

Duration

The planning horizon for this SRS is similar to that of a General Management Plan but the designation and creation of a National Park Service unit would be in perpetuity. Within the planning timeframe, impacts that would occur within five years or less were classified as short-term. Long-term effects would last for more than five years.

Context

The context of each impact is described in terms of site-specific, localized, bay-wide or watershed-wide. For instance, the construction of a new interpretive center may have localized adverse impacts to terrestrial resources while National Park Service technical and financial assistance would have watershed-wide benefits to terrestrial resources.

Direct Versus Indirect Impacts

A direct impact would be caused by an action at the same time and place as the action. An indirect impact would be an impact that is reasonably foreseeable, but occurs later in time at another place, or to another resource. For example, the removal of vegetation (direct impact) would cause soil erosion and sedimentation, thereby affecting the water quality (indirect impact) of a nearby waterway.

Cumulative Impacts

The Council on Environmental Quality Regulations, which implements the National Environmental Policy Act, requires assessment of cumulative impacts in the decision-making process for federal projects. Cumulative impacts are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions” (40 CFR 1508.7). Cumulative impacts are considered for all alternatives and are presented at the end of this section. Cumulative impacts were determined by combining the impacts of the proposed action with other past, present, and reasonably foreseeable future actions. Cumulative impacts are discussed at the end of this section.

IMPACT ANALYSIS: NATURAL ENVIRONMENT

Aquatic Resources

Methodology

For the impact assessment for aquatic resources, the study team focused on changes to the levels of protection and conservation from the creation of a new park unit or implementation of a new program or policy. The NPS also considered the physical impacts associated with any new development plans, such as the construction of an interpretive center and anticipated visitor uses typical of each park unit (e.g., canoeing, hiking, etc.). Aquatic resources include waterways, wetlands, floodplains, water quality, coastal resources, and aquatic flora and fauna (plants and animals such as submerged aquatic vegetation, emergent vegetation, fish, crabs, and sea turtles). For this programmatic study, the impacts discussed are primarily qualitative because the alternatives are conceptual and quantification of site-specific impacts is difficult.

The alternatives considered in the SRS/EIS have the potential to be in and impact the state's coastal zone. In as much as the Chesapeake Bay SRS/EIS is a programmatic study, the National Park Service will further evaluate the potential impact on the state's coastal zones as site specific information becomes available in later phases of the project and then make a Federal consistency determination that will be submitted to the state's Coastal Zone Management Program for review and concurrence.

The intensity of impact is mostly dependent on the future visitation and existing site characteristics, which have not been identified.

Alternative A – No Action

Rather than adding a new Chesapeake Bay-focused unit of the National Park Service, the No Action Alternative assumes the NPS would simply continue its role related to Chesapeake Bay conservation, restoration, education, and interpretation. Through promoting the Gateways Network, educating the public, and providing technical and financial assistance to communities and organizations, the NPS facilitates conservation of the Bay's vital resources. Hence, the continuation of the Gateways Network in coordination with the Chesapeake Bay Program would result in minor, short-term, beneficial impacts to aquatic resources within the entire Chesapeake Bay watershed. A long-term, indirect, adverse impact would occur to aquatic resources if funding for the Gateways Network is not appropriated past 2008 because of the reduction/elimination of the National Park Service's technical and financial assistance to the Gateways. This adverse impact would be watershed-wide.

Alternative B – An Enhanced Chesapeake Bay Gateways Network

The Enhanced Chesapeake Bay Gateways Network Alternative makes permanent the watershed-wide partnership of sites and trails within the Chesapeake Bay watershed, while expanding certain NPS roles related to Chesapeake Bay interpretation and conservation. A minor, indirect, long-term, watershed-wide, beneficial impact would occur to aquatic resources

through extending long-term technical and financial assistance to local organizations and cooperating Gateways.

The NPS, in partnership with other entities, would create two Chesapeake Bay interpretive centers in proximity to the Bay. The two interpretive centers would educate visitors about the Bay and their role in protecting and conserving the Bay's vital aquatic resources. This educational function would result in a minor to moderate, indirect, long-term, watershed-wide beneficial impact to aquatic resources.

The interpretive centers would be developed within either existing structures or new construction (new or expanded structure). If the centers are constructed within an existing structure, direct impacts to aquatic resources would be negligible. New construction of two centers and associated roads, parking, and support facilities would have localized, adverse impacts on nearby aquatic resources. Impacts typically associated with construction of a new building near the Bay include minor fill in the 100-year floodplains and sediment runoff into nearby waterways from the earth disturbance. However, the degree of impact is largely dependent on the site characteristics and site design, which have not been identified. Impacts would be minimized to the extent practical in accordance with the National Park Service's *Management Policies 2001* (NPS, 2000), *Director's Order #2 Park Planning* (NPS, 1998), and *Director's Order #12 Conservation Planning, Environmental Impact Analysis, and Decision-Making* (NPS, 2002b).

Visitor use at the Chesapeake Bay interpretive centers and on the surrounding lands would also have a minor, localized, long-term, adverse impact on aquatic resources as some species do not adapt or become stressed when humans are present in their environment. However, the alternative anticipates the two interpretive centers would be placed in previously developed or urbanized area already subject to human disruptions; therefore the impacts would be negligible.

Alternative C – Chesapeake Bay Estuary National Park

The core goal of the estuarine National Park would be to conserve, protect, and restore the estuarine environment and natural resources in the park as a high quality natural system. The creation of an estuarine National Park would have a minor to moderate, long-term, beneficial impact on aquatic resources throughout the area of the bay within the park boundaries. Because the direct benefit would be realized in the area local to the park, only a small portion of the Bay is affected by the added protection, enhancement, and restoration of resources. Populations of aquatic biota, such as submerged aquatic vegetation, oysters, crabs, and fish, would be expected to improve because of the efforts typically afforded by park operations. Protection would occur in the forms of reduced commercial harvests, and resource management to facilitate population recovery (e.g., submerged aquatic vegetation).

The NPS would also build a land-based interpretive/orientation center. The construction of the center and associated roads, parking, and facilities would have adverse impacts on nearby aquatic resources. The direct impacts would be localized to the footprint of the facilities and surrounding area where the human activities would take place. Direct impacts associated with new

construction near the Bay would include minor fill in the 100-year floodplains and indirect impacts would include sediment runoff into nearby waterways from the earth disturbance. The degree of impact is largely dependent on the site characteristics and site design, which have not been identified. The impacts would be minimized to the extent practical in accordance with the National Park Service's *Management Policies 2001* (NPS, 2000), *Director's Order #2 Park Planning* (NPS, 1998), and *Director's Order #12 Conservation Planning, Environmental Impact Analysis, and Decision-Making* (NPS, 2002b).

Visitor uses at water-based national parks tend to include recreational uses such as recreational fishing, boating, sailing, kayaking, canoeing, and picnicking. These uses would have a minor, long-term, localized, adverse impact on aquatic resources because of human disruption to the aquatic environment. Some species do not adapt or become stressed when humans are present in their environment. In addition, the park would attract visitors to the area and this increase in visitation would have an indirect, moderate, long-term, adverse impact on aquatic resources because of human disruption to the aquatic environment such as an increase in noise levels from increased traffic or wave action from boat use. The degree of the impact is largely dependent on the park's size, location, and level of visitation. Additional planning such as a general management plan would help balance visitor use to minimize the environmental impacts.

Alternative D – A Chesapeake Bay National Reserve

The core goal of this alternative would be to conserve and sustain the traditional working landscape, waters, and natural and cultural resources within the reserve that reflect the Bay's heritage. The national reserve would help protect traditional resource dependent activities such as commercial fishing, crabbing, oystering, agriculture, and forestry from development pressure and for sustainable use. Land conservation and incentives programs to use best management practices for industries such as agriculture and forestry would offer protection to aquatic resources. A moderate, long-term, beneficial impact to aquatic resources would occur through the technical and financial assistance, comprehensive planning and conservation measures of the reserve. The benefits would be mainly localized to the reserve and surrounding area.

The reserve would include development of an interpretive/orientation center within either an existing structure or new construction (new or expanded structure). If within an existing structure, direct impacts to aquatic resources would be negligible. New construction of a center and associated roads, parking, and facilities would have localized adverse impacts on nearby aquatic resources. Impacts typically associated with new construction near the Bay include minor fill in the 100-year floodplains and sediment runoff into nearby waterways from the earth disturbance. The degree of impact is largely dependent on the site characteristics and site design, which have not been identified. The impacts would be minimized to the extent practical in accordance with the National Park Service's *Management Policies 2001* (NPS, 2000), *Director's Order #2 Park Planning* (NPS, 1998), and *Director's Order #12 Conservation Planning, Environmental Impact Analysis, and Decision-Making* (NPS, 2002b).

Visitor use at the interpretive/orientation center and/or increased visitation in the reserve and its component visitor sites would also have a minor, localized, long-term, adverse impact on aquatic resources because of human disruption to the aquatic environment. Some species do not adapt or become stressed when humans are present in their environment. The degree of the impact is largely dependent on the reserve's size, location, and level of visitation. Additional planning such as a general management plan would help balance visitor use to minimize the environmental impacts.

Alternative E – Chesapeake Bay Watershed National Ecological and Cultural Preserve

The core goal of the preserve would be to conserve and restore a tributary ecosystem so that human uses are in optimal balance with the natural process, ensuring a vital and sustainable future. This would include conservation of natural resources within a core riparian area and planning and incentives for conservation, sustainable development and best management practices within the tributary watershed. For example, incentives might assist landowners in restoring and maintaining riparian buffer areas to reduce sediment runoff improving water quality in nearby streams. The measures would have a long-term, tributary watershed-wide, beneficial impact on aquatic resources because of added protection and restoration efforts. The degree of impact would be dependent on the size of the preserve, current development pressures, and the amount of previous impairment; however, the study team anticipates that the beneficial impact would be moderate to major. Similarly, the overall direct impact on Bay-wide aquatic resources would also be dependent upon these factors, though the intensity would be lower as this would be only one of many Bay tributaries. However, interpretation and education of conservation stewardship is a key goal of the preserve concept; the interpretive programming would result in a minor to moderate, indirect, long-term, Bay watershed-wide beneficial impact to aquatic resources.

The preserve would include development of an interpretive/orientation center within either an existing structure or new construction (new or expanded structure). If within an existing structure, direct impacts to aquatic resources would be negligible, or beneficial, as remediation measures are incorporated into the design. New construction of a center and associated roads, parking, and facilities would have localized adverse impacts on nearby aquatic resources. Impacts typically associated with new construction near the Bay include minor fill in the 100-year floodplains and sediment runoff into nearby waterways from the earth disturbance. The degree of impact is largely dependent on the site characteristics and site design, which have not been identified. The impacts would be minimized to the extent practical in accordance with the National Park Service's *Management Policies 2001* (NPS, 2000), *Director's Order #2 Park Planning* (NPS, 1998), and *Director's Order #12 Conservation Planning, Environmental Impact Analysis, and Decision-Making* (NPS, 2002b). Moreover, the core goals of this alternative would place a priority on use of the center as an example of stewardship practices, causing the ultimate structure to incorporate many sustainable design measures.

Visitor use at the interpretive/orientation center and/or increased visitation in the reserve and its component visitor sites would also have a minor, localized, long-term, adverse impact on aquatic resources because of human disruption to the aquatic environment. Some species do not adapt or become stressed when humans are present in their environment. The degree of the impact is largely dependent on the preserve's size, location, and level of visitation. Additional planning such as a general management plan would help balance visitor use to minimize the environmental impacts.

Terrestrial Resources

Methodology

For the impact assessment of terrestrial resources, the NPS study team focused on changes in levels of protection and conservation from the creation of a new park unit or implementation of a new program or policy. The NPS also considered the physical impacts associated with any new development plans, such as an interpretive center and anticipated visitor uses typical of each park unit (e.g., canoeing, hiking, etc.). For this study, terrestrial resources include wildlife, neotropical birds, vegetation, land cover, prime farmlands, soils, geology, forests, and upland flora and fauna. For this programmatic study, the impacts discussed are mostly qualitative because the alternatives are conceptual. The intensity of impact is mostly dependent on the future visitation and existing site characteristics, which have not been identified.

Alternative A – No Action

The No Action Alternative assumes the NPS would simply continue its role related to Chesapeake Bay conservation, restoration and interpretation. Through educating the public, and providing technical and financial assistance to communities and organizations, the NPS facilitates conservation of the Bay's vital resources. The continuation of the Gateways Network in coordination with the Chesapeake Bay Program would result in minor, short-term, beneficial impacts to terrestrial resources within the entire Chesapeake Bay watershed. Long-term, minor indirect, adverse impacts would occur related to terrestrial resources if funding for the Gateways Network is not appropriated past 2008 because of the reduction/elimination of the National Park Service's technical and financial assistance to Gateways.

Alternative B – An Enhanced Chesapeake Bay Gateways Network

The Enhanced Chesapeake Bay Gateways Network Alternative makes permanent the watershed-wide partnership of sites and trails within the Chesapeake Bay watershed, while expanding NPS roles related to Chesapeake Bay interpretation and conservation. An indirect, long-term, beneficial impact would occur related to terrestrial resources because of technical and financial assistance to local organizations and cooperating Gateways. The two Chesapeake Bay interpretive centers would also help educate visitors of their role in protecting and conserving the Bay's terrestrial resources. The beneficial impact would be watershed wide.

The NPS, in partnership with other entities, would create two Chesapeake Bay interpretive centers in proximity to the Bay. The two interpretive centers

would educate visitors about the Bay and their role in protecting and conserving the Bay's vital terrestrial resources. This educational function would result in a minor to moderate, indirect, long-term, watershed-wide beneficial impact to terrestrial resources.

The interpretive centers would be developed within either existing structures or new construction (new or expanded structure). If within an existing structure, direct impacts to terrestrial resources would be negligible. The construction of two Chesapeake Bay interpretive centers and associated roads, parking, and support facilities would have long-term adverse impacts on terrestrial resources on and adjacent to the construction sites. The impact would result from land disturbance of forest, vegetation or other terrestrial resources, which is potential habitat to animals and birds. However, the degree of impact is largely dependent on the site characteristics and site design, which have not been identified. The impacts would be minimized to the extent practical in accordance with the National Park Service's *Management Policies 2001* (NPS, 2000), *Director's Order #2 Park Planning* (NPS, 1998), and *Director's Order #12 Conservation Planning, Environmental Impact Analysis, and Decision-Making* (NPS, 2002b).

Visitor uses at the Chesapeake Bay interpretive centers and on the surrounding land would also have a localized, long-term, adverse impact on terrestrial resources in the immediate vicinity of the interpretive centers. Some species do not readily adapt or become stressed when humans are present in their environment. In addition, the park would attract visitors to the area and this increase in visitation would have an indirect, moderate, long-term, adverse impact on terrestrial resources because of disruption to the terrestrial environment such as an increase in noise levels from increased traffic. However, it is anticipated that the two interpretive centers would be placed in previously developed or urbanized areas already subject to human disruptions; therefore, the impacts the impacts would be negligible.

Alternative C – Chesapeake Bay Estuary National Park

The goal of the estuarine National Park would be to conserve, protect, and restore the estuarine environment and natural resources in the park as a high quality natural system. The creation of a national park would have a long-term, beneficial impact on adjacent terrestrial resources because the NPS would offer added protection, enhancement, and restoration to resources within the boundaries of the park. Populations of terrestrial biota, such as forests, coastal vegetation, neotropical birds, and water birds, would be expected to improve because of the efforts typically afforded by park operations. Protection would occur in the forms of managed recreational extractions and resource management. Long-term, localized, beneficial impacts would occur within the park boundaries from protection of the land activities in the park. However, the beneficial impacts to terrestrial resources would be minor because the majority of the park would be water based.

Under this alternative, the NPS would build a land-based interpretive center. The construction of the interpretive center and associated roads, parking, and facilities would have localized, adverse impacts on terrestrial resources. The impact would result from land disturbance of forest, vegetation, or other terrestrial resources, which is potential habitat to animals and birds. The

study team anticipates the impact to be minor to moderate; however, the degree of impact is largely dependent on the site characteristics and site design, which have not been identified. The impacts would be minimized to the extent practical in accordance with the National Park Service's *Management Policies 2001*, *Director's Order #2 Park Planning* (NPS, 1998), and *Director's Order #12 Conservation Planning, Environmental Impact Analysis, and Decision-making* (NPS, 2002b).

Visitor use at water-based national parks tends to include recreational uses such as hiking, picnicking, canoeing, and kayaking. These low impact uses would also have a minor, long-term, localized, adverse impact on terrestrial resources because of human disruption to the terrestrial environment. For instance, national parks typically have trails and paths that allow visitors to hike into the terrestrial environment. Hiking results in a physical disturbance to vegetation and soils. In addition, some species do not readily adapt or become stressed when humans are present in their environment. Furthermore, the park would attract visitors to the area, and this increase in visitation would have an indirect, moderate, long-term, adverse impact on terrestrial resources because of human disruption to the environment such as an increase in noise levels from increased traffic. The degree of the impact is largely dependent on the park's size, location and level of visitation. Additional planning, such as a general management plan, would help balance visitor use to minimize the environmental impacts.

Alternative D – A Chesapeake Bay National Reserve

The core goal of this alternative would be to conserve and sustain the traditional working landscape, waters, and natural and cultural resources within the reserve to reflect the Bay's heritage. The NPS would help protect traditional resource dependent activities such as agriculture and forestry from development pressures and for sustainable use. A moderate, long-term, beneficial impact on terrestrial resources would occur from the technical and financial assistance provided by the NPS for comprehensive planning for the reserve. The beneficial impact is likely to be moderate locally while having a minor impact to the watershed as a whole. For instance, the comprehensive plan could set in effect strategies for reducing conversion of farm and forestlands to non-resource uses, thereby protecting soils of statewide importance, prime farmlands, and other significant terrestrial resources.

The reserve would include development of an interpretive/orientation center within either an existing structure or new construction (new or expanded structure). If within an existing structure, direct impacts to terrestrial resources would be negligible. New construction of a center and associated roads, parking, and facilities would have localized, adverse impacts on nearby terrestrial resources. The impact would result from land disturbance of forest, vegetation, or other terrestrial resources, which is potential habitat to animals and birds. The impact would be anticipated to be minor to moderate; however, the degree of impact is largely dependent on the site characteristics and site design, which have not been identified. The impacts would be minimized to the extent practical in accordance with the National Park Service's *Management Policies 2001* (NPS, 2000), *Director's Order #2 Park Planning* (NPS, 1998), and *Director's Order #12 Conservation Planning, Environmental Impact Analysis, and Decision-Making* (NPS, 2002b).

Visitor use at the interpretive center and/or increased visitation in the reserve and its component visitor sites would also have a minor, long-term, localized, adverse impact on terrestrial resources in the immediate vicinity of the activities because of human disruption to the terrestrial environment. In addition, the park would attract visitors to the area, and this increase in visitation would have an indirect, minor, long-term, adverse impact on terrestrial resources because of disruption to the terrestrial environment, such as an increase in noise levels from increased traffic.

Alternative E – Chesapeake Bay Watershed National Ecological and Cultural Preserve

The core goal of the preserve would be to conserve and restore a tributary ecosystem so that human uses are in optimal balance with natural processes, ensuring a vital and sustainable future. The NPS, in partnership with other state and local agencies, would develop a program to protect and restore natural resources within the core riparian area. These efforts would have a regional, long-term, beneficial impact on terrestrial resources within a Bay tributary. The impact would be anticipated to be moderate within the preserve; however, the degree of the impact would be dependent on the size of the preserve, current development pressures, and the amount of previous impairment.

The NPS, through partnerships, would provide demonstration sites throughout the preserve to educate visitors about innovative and sustainable management practices in agriculture, forestry, and commercial and residential development. Visitor education would indirectly have a watershed-wide, beneficial impact on terrestrial resources, such as soils because of the implementation of modern erosion and stormwater control practices. In addition, incentives for conservation easements and resource protection zones would offer benefits to protect terrestrial resources in the watershed.

The preserve would include development of an interpretive/orientation center within either an existing structure or new construction (new or expanded structure). If within an existing structure, direct impacts to terrestrial resources would be negligible, or beneficial, as remediation measures are incorporated into the design. New construction of a center and associated roads, parking, and facilities would have localized, adverse impacts on nearby terrestrial resources. The impact would result from land disturbance of forest, vegetation, or other terrestrial resources, which is potential habitat to animals and birds. The impact would be anticipated to be minor to moderate; however, the degree of impact is largely dependent on the site characteristics and site design, which have not been identified. The impacts would be minimized to the extent practical in accordance with the National Park Service's *Management Policies 2001* (NPS, 2000), *Director's Order #2 Park Planning* (NPS, 1998), and *Director's Order #12 Conservation Planning, Environmental Impact Analysis, and Decision-Making* (NPS, 2002b). Moreover, the core goals of this alternative would place a priority on use of the center as an example of stewardship practices, causing the ultimate structure to incorporate many sustainable design measures.

Visitor use at the interpretive/orientation and/or increased visitation in the reserve and its component visitor sites would also have a minor, long-term, adverse impact on terrestrial resources in the immediate vicinity of the activities because of human disruption to the terrestrial environment. In addition, the park would attract visitors to the area and this increase in visitation would have an indirect, localized, long-term, adverse impact on terrestrial resources because of disruption to the terrestrial environment, such as an increase in noise levels from increased traffic. The impacts would be minor.

Threatened, Endangered, and Rare Species and Natural Communities

Methodology

In the impact assessment for threatened, endangered, and rare species and natural communities, the NPS study team focused on changes to levels of protection and conservation from the creation of a new park unit or implementation of a new program or policy. The NPS also considered the physical impacts associated with any new development plans and anticipated visitor uses. The impact analysis of threatened, endangered, and rare species and natural communities is defined to encompass all federally and state listed protected species, critical habitats, candidate species, and protected ecological community types within the Chesapeake Bay watershed. This includes aquatic and terrestrial species and habitats listed by the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and designated agencies in the six states and the District of Columbia that are part of the watershed. For this programmatic study, the impacts discussed are mostly qualitative because the alternatives are conceptual. The intensity of impact is mostly dependent on the future visitation, location, and existing site characteristics, which have not been identified.

Definition of Intensity Levels

Analyses of the potential intensity of threatened, endangered, and rare species and natural communities were derived from the available literature on the Chesapeake Bay. The thresholds of change for the intensity of impacts are defined as follows:

- *Negligible* – The impact would be expected to have an insignificant and discountable effect on special status species and their habitat.
- *Minor* - The impact is localized and slight, but detectable.
- *Moderate* - The impact is readily apparent and appreciable. The impact to listed species or their habitat is likely to be adverse or beneficial.
- *Major* - The impact is severe or beneficial and highly noticeable. The determination according to Section 7 of the Threatened and Endangered Species Act would be an adverse effect.

Alternative A – No Action

The No Action Alternative assumes the NPS would simply continue its role related to Chesapeake Bay conservation, restoration, and interpretation. Through promoting the Gateways Network, educating the public, and providing technical and financial assistance to communities and organizations, the NPS facilitates conservation of the Bay's vital resources. As a result, continuation of the Gateways Network, in coordination with the

Chesapeake Bay Program, would result in minor, short-term, beneficial impacts on protected species within the entire Chesapeake Bay watershed. Long-term, indirect, adverse impacts would occur to threatened, endangered, and rare species and natural communities if funding for the Gateways Network is not appropriated past 2008 because of the reduction/elimination of the National Park Service's technical and financial assistance to help the Gateways to continue to protect these species.

Alternative B – An Enhanced Chesapeake Bay Gateways Network

The Enhanced Chesapeake Bay Gateways Network Alternative makes permanent the watershed-wide partnership of sites and trails within the Chesapeake Bay watershed, while expanding NPS roles related to Chesapeake Bay interpretation and conservation. Thus, there would be an indirect, long-term, beneficial impact on protected species through technical and financial assistance to local organizations and cooperating Gateways. The two interpretive centers would also help educate visitors of their role in protecting and conserving threatened, endangered, and rare species and natural communities.

The National Park Service, in partnership with other entities, would create two Chesapeake Bay interpretive centers in proximity to the Bay. The two interpretive centers would educate visitors about their Bay and their role in protecting and conserving the Bay's unique species. This educational function would result in a minor to moderate, indirect, long-term, watershed-wide beneficial impact to rare, threatened, and endangered species.

The interpretive centers would be developed within either existing structures or new construction (new or expanded structure). If within an existing structure, direct impacts to threatened, endangered, and rare species would be negligible. The construction of two Chesapeake Bay interpretive centers and associated roads, parking, and support facilities would have minor adverse impacts on threatened, endangered, and rare species and natural communities located on and adjacent to the construction sites. The impact would result from the disturbance to the specie or its habitat from the construction related activities, such as earth disturbance. The degree of impact is largely dependent on the site location and characteristics, which have not been identified. The impacts would be minimized to the extent practical in accordance with the National Park Service's *Management Policies 2001* (NPS, 2000), *Director's Order #2 Park Planning* (NPS, 1998), and *Director's Order #12 Conservation Planning, Environmental Impact Analysis, and Decision-Making* (NPS, 2002b). Section 7 coordination under the Endangered Species Act would be conducted with the U. S. Fish and Wildlife Service, the National Marine Fisheries Service, and appropriate state resource agencies prior to implementation of any alternative.

Visitor use at Chesapeake Bay interpretive centers and surrounding land would have a minor, long-term, adverse impact on protected species in the immediate vicinity of the interpretive centers because of human disruption to the environment. However, this alternative anticipates the two interpretive centers would be placed in previously developed or urbanized areas already subject to human disruptions; therefore the impacts would be negligible.

Alternative C – Chesapeake Bay Estuary National Park

The goal of an estuarine National Park would be to conserve, protect, and restore the estuarine environment and natural resources in the park as a high quality natural system. The creation of a national park would have a long-term, beneficial impact on protected species and habitats because the NPS would offer added protection, enhancement, and restoration to resources within the boundaries of the park. Populations of protected species can be expected to be sustained or increased because of the efforts typically afforded by park operations. Protection would occur because of managed recreational fishing and extractions, habitat management to facilitate population recovery, and land acquisition/easements to control habitat disturbances (e.g., forestry, commercial development).

Under Alternative C, the NPS would build a land-based interpretive center. The construction of the interpretive center and associated roads, parking, and facilities would have adverse impacts on threatened or endangered species on and adjacent to the sites. The impact would result from the disturbance to a species or its habitat from construction related activities such as earth disturbance. The degree of impact is largely dependent on the site characteristics and site design, which have not been identified. The impacts would be minimized to the extent practical in accordance with the National Park Service's *Management Policies 2001* (NPS, 2000), *Director's Order #2 Park Planning* (NPS, 1998), and *Director's Order #12 Conservation Planning, Environmental Impact Analysis, and Decision-Making* (NPS, 2002b). Section 7 coordination under the Endangered Species Act would be conducted with the U. S. Fish and Wildlife Service, the National Marine Fisheries Service, and appropriate state resource agencies prior to implementation of the alternative.

Visitor use at water-based national parks tends to include recreational uses such as hiking, picnicking, canoeing, and other low impact uses. These low impact uses could also have a minor, long-term, adverse impact near the activity because of the human disruption. The degree of the impact is largely dependent on the park's size, location, and site design. Additional planning, such as a general management plan and implementation of mitigation measures, which would be identified in later studies, would help balance visitor use to minimize the impacts on protected species.

Alternative D – A Chesapeake Bay National Reserve

The primary goal of this alternative would be to conserve and sustain the traditional working landscape, waters, and natural and cultural resources within the reserve that reflects the Bay's heritage. As part of this goal, NPS would help protect sensitive natural and cultural resource sites, which could include habitat for threatened, endangered and rare species and natural communities. Hence, a moderate, long-term, regional, beneficial impact on threatened, endangered, and rare species and natural communities would occur comprehensive planning and direct conservation.

Under Alternative D, the NPS, in partnership with other government entities, would build a primary interpretive center in close proximity to the Bay. The construction of an interpretive center and associated roads, parking, and

facilities would have adverse impacts on any protected species present at the construction site. The impact would result from the disturbance to the species or its habitat from construction related activities, such as earth disturbance. The degree of impact is largely dependent on the site characteristics and site design, which have not been identified. The impacts would be minimized to the extent practical in accordance with the National Park Service's *Management Policies 2001* (NPS, 2000), *Director's Order #2 Park Planning* (NPS, 1998), and *Director's Order #12 Conservation Planning, Environmental Impact Analysis, and Decision-Making* (NPS, 2002b). Section 7 coordination under the Endangered Species Act would be conducted with the U. S. Fish and Wildlife Service, the National Marine Fisheries Service, and appropriate state resource agencies prior to implementation of this alternative.

Visitor use at the interpretive center and surrounding land would have minor, long-term, adverse impacts on any protected species present. Human disruption of habitat is the primary source of impacts. Recreational activities, including low-impact activities such as kayaking, hunting, and fishing would be restricted in areas where identified threatened, endangered, and rare species and natural communities occur.

Alternative E – Chesapeake Bay Watershed National Ecological and Cultural Preserve

The goal of the preserve would be to conserve and restore a tributary ecosystem so that human uses are in optimal balance with the natural environment, ensuring a vital and sustainable future. The NPS, in partnership with other state and local agencies, would develop a program to protect and restore natural resources in the core riparian area. These efforts would have a minor to moderate, long-term, regional, beneficial impact on threatened, endangered, and rare species and natural communities along the tributary to the Bay. The degree of the impact would be dependent on the size of the preserve, current development pressures, and the amount of previous impairment.

The preserve would include development of an interpretive/orientation center within either an existing structure or new construction (new or expanded structure). If within an existing structure, direct impacts to RTE species would be negligible, or beneficial, as remediation measures are incorporated into the design. The new construction of an interpretive center and associated roads, parking and facilities would have direct adverse impacts on protected species at the site of the construction. The impact would result from the physical disruption to the species from construction or from the reduction of habitat. The degree of impact is largely dependent on the site characteristics and site design, which have not been identified. The impacts would be minimized to the extent practical in accordance with the National Park Service's *Management Policies 2001* (NPS, 2000), *Director's Order #2 Park Planning* (NPS, 1998), and *Director's Order #12 Conservation Planning, Environmental Impact Analysis, and Decision-Making* (NPS, 2002b). Section 7 coordination under the Endangered Species Act would be conducted with the U. S. Fish and Wildlife Service, the National Marine Fisheries Service, and appropriate state resource agencies prior to implementation of the alternative.

Visitor use at the interpretive center and other demonstration sites would have a minor, long-term, adverse impact on any protected species present. Human disruption of habitat is the primary source of impacts. Recreational activities, including low-impact activities such as hiking, hunting, and fishing, would be restricted in areas where threatened, endangered, and rare species and natural communities are known to exist.

Air Quality

Methodology

In the impact assessment for air quality, the NPS study team focused on changes to levels of protection and conservation from the creation of a new park unit or implementation of a new program or policy. The NPS also considered the physical impacts associated with any new development plans and anticipated visitor uses. The context of the evaluation was the airshed of the Chesapeake Bay. For this programmatic study, the impacts discussed are mostly qualitative because the alternatives are conceptual. Attainment or non-attainment status is discussed in the affected environment; however, for this programmatic document, the potential impacts on the National Ambient Air Quality Standards (NAAQS) cannot be determined because the analysis would be highly dependent on the location of the park unit and anticipated visitation levels, which have not been determined.

Definition of Intensity Levels

Analyses of the potential intensity levels resulting from each alternative on air quality were derived from the available information from the region. Definitions for the thresholds of change for the intensity of impacts on air quality are as follows:

- *Negligible* - The impact is localized and not measurable or at the lowest level of detection.
- *Minor* - The impact is localized and slight, but detectable. The impact would have no effect on the ability to comply with NAAQS.
- *Moderate* - The impact is readily apparent and appreciable. The impact would have an effect when added to other planned projects in the area on the ability to comply with NAAQS.
- *Major* - The impact is severe or beneficial and highly noticeable. The impact would have an effect on the ability to comply with NAAQS.

Alternative A – No Action

The No Action Alternative assumes the NPS would simply continue its role related to Chesapeake Bay conservation, restoration, and interpretation. The National Park Service's continuance of the Gateways Networks would result in no impacts to air quality in the Chesapeake Bay watershed.

Alternative B – An Enhanced Chesapeake Bay Gateways Network

The Enhanced Chesapeake Bay Gateways Network Alternative would expand and extend the National Park Service's coordination with Gateways and local organizations, which would result in minor, long-term, in-direct, beneficial impacts on air quality. The benefits would occur through added financial and technical assistance for education, interpretation, protection, and conservation of the Bay's resources that are important to good air quality.

The NPS, in partnership with other entities, would create two Chesapeake Bay interpretive centers in proximity to the Bay. The two interpretive centers would educate visitors about the Bay and their role in protecting and conserving the Bay's vital resources and the indirect effects on air quality. This educational function would result in minor, indirect, long-term, watershed-wide beneficial impact to air quality.

The interpretive centers would be developed within either existing structures or new construction (new or expanded structure). If within existing structures, direct impacts to air quality would be negligible. The construction of two Chesapeake Bay interpretive centers and associated roads, parking, and support facilities would have direct, short-term, localized, minor, adverse impacts on air quality from emissions and fugitive dust generated from construction activities. The degree of impact is largely dependent on the size of the facilities, which have not been identified. The impacts would be minimized to the extent practical in accordance with the National Park Service's *Management Policies 2001* (NPS, 2000), *Director's Order #2 Park Planning* (NPS, 1998), and *Director's Order #12 (Conservation Planning, Environmental Impact Analysis, and Decision-Making)* (NPS, 2002b) and through compliance with the National Ambient Air Quality Standards.

Visitor use at the Chesapeake Bay interpretive centers and on the surrounding lands would also have a minor, localized, long-term, adverse impact on air quality. However, this alternative anticipates the two interpretive centers would be placed in previously developed or urbanized areas already subject to human disruptions; therefore the impacts would be negligible.

Alternative C – Chesapeake Bay Estuary National Park

The creation of a national park would have a long-term, beneficial impact on air quality because, within the boundaries of the park, the NPS would limit land use, commercial facilities, and other activities that would be sources of air emissions. However, the impact is site-specific and negligible to minor because under this alternative, the land base encompasses a relatively small area focused on providing access the Chesapeake Bay.

Under Alternative C, the NPS, in partnership with other entities, would create a land-based Chesapeake Bay interpretive center. The construction of the Chesapeake Bay interpretive center and associated roads, parking, and support facilities would have direct, short-term, localized, adverse impacts on air quality from emissions and fugitive dust generated from construction activities. The degree of impact is largely dependent on the site characteristics and site design, which have not been identified. The impacts would be minimized to the extent practical in accordance with the National Park Service's *Management Policies 2001* (NPS, 2000), *Director's Order #2 Park Planning* (NPS, 1998), and *Director's Order #12 Conservation Planning, Environmental Impact Analysis, and Decision-Making* (NPS, 2002b) and through compliance with the National Ambient Air Quality Standards.

Increased visitation to the surrounding area because of the creation of the new national park would increase emissions from visitors' vehicle and boat

trips. The increased emissions would be expected to have a minor to moderate long-term, adverse impact on air quality from emissions. The degree of the impact would be dependent on visitation levels and more specifically, vehicle/boat trips to and from the site.

Alternative D – A Chesapeake Bay National Reserve

A minor, long-term, beneficial impact to air quality would occur through technical and financial assistance provided by the NPS for comprehensive planning and the implementation of sustainable practices within the reserve. The NPS, through partnerships, would provide technical assistance to help local communities within the reserve to adopt and implement a comprehensive plan whose purpose is conservation of the reserve landscape and protection against urban sprawl and development, thereby limiting the sources of air emissions.

The reserve would include development of an interpretive/orientation center within either an existing structure or new construction (new or expanded structure). If within an existing structure, direct impacts to air quality would be negligible. New construction of a center and associated roads, parking, and facilities would have localized adverse impacts on air quality. Increased visitation and visitor use at the interpretive center and surrounding land area would have a minor, long-term, adverse impact to the air quality from vehicle emissions. The degree of impact is largely dependent on the visitation levels, and site location, which have not been identified. The impacts would be minimized to the extent practical in accordance with the National Park Service's *Management Policies 2001* (NPS, 2000), *Director's Order #2 Park Planning* (NPS, 2002), and *Director's Order #12 Conservation Planning, Environmental Impact Analysis, and Decision-Making* (NPS, 2002b) and through compliance with the National Ambient Air Quality Standards.

Alternative E – Chesapeake Bay Watershed National Ecological and Cultural Preserve

A minor, long-term, beneficial impact on air quality would occur from technical and financial assistance provided by the NPS to state, local, and private entities within a preserve type setting. The NPS, through partnerships, would educate visitors about innovative and sustainable management practices in agriculture, forestry, and commercial and residential development. The preserve would indirectly have a beneficial impact on air quality from incentives for conservation easements and resource protection zones that offer benefits to reduce sprawl and residential and commercial development within the preserve's boundaries.

The preserve would include development of an interpretive/orientation center within either an existing structure or new construction (new or expanded structure). If within an existing structure, direct impacts to air quality resources would be negligible, or beneficial, as remediation measures are incorporated into the design. New construction of a center and associated roads, parking, and facilities would have localized adverse impacts on local air quality.

Increased visitation and visitor use at the interpretive center and surrounding area would have a minor, long-term, adverse impact on the air quality from

vehicle emissions. The degree of impact is largely dependent on visitation levels, site characteristics, and site design, which have not been identified. The impacts would be minimized to the extent practical in accordance with the National Park Service's *Management Policies 2001* (NPS, 2000), *Director's Order #2 Park Planning* (NPS, 1998), and *Director's Order #12 Conservation Planning, Environmental Impact Analysis, and Decision-Making* (NPS, 2002b) and through compliance with the National Ambient Air Quality Standards.

IMPACT ANALYSIS: CULTURAL ENVIRONMENT

Section 101(b)(4) of the National Environmental Policy Act of 1969 (P.L. 91-190), as amended, directs the federal government to coordinate and plan its actions to, among other goals, "preserve important historic, cultural and natural aspects of our national heritage..." The Council on Environmental Quality's implementing regulations also require that federal impacts on historic and cultural resources be included as part of the National Environmental Policy Act process. The NPS is mandated to preserve and protect its cultural resources through the Organic Act of 1916 (USC title 16) and such specific legislation as the Antiquities Act of 1906 (16 USC 431); the National Historic Preservation Act of 1966, as amended (16 USC 470); the National Environmental Policy Act of 1969, as amended (42 USC 4321, 4331, 4332); the Archaeological Resources Protection Act of 1979 (16 USC 470); and the Native American Graves Protection and Repatriation Act of 1990 (25 USC 3001). The management of cultural resources is also generally guided by the Advisory Council on Historic Preservation (36 CFR 800), and specifically, by the "Protection of Historic Properties" under Section 106 of the National Historic Preservation Act. Therefore, as part of the Chesapeake Bay Special Resource Study, the NPS will evaluate the potential impacts of several different alternatives upon the local cultural environment.

Impacts on Cultural Resources

Methodology

For the purposes of this programmatic analysis, all cultural resources, including archeological sites, historic structures, cultural landscapes, and ethnographic resources, are grouped together because many of the potential impacts or benefits to these resources are operationally similar. However, they are individually described with reference to their defining characteristics to allow subsequent consideration for potential impacts.

In order for an archeological site or historic structure to be eligible for the National Register of Historic Places, it must meet one or more of the following criteria of significance:

- Associated with events that have made a significant contribution to the broad patterns of our history;
- Associated with the lives of significant persons in our past;
- Embody the distinctive characteristics of a type, period, or method of construction, represent the work of a master, possess high artistic value, or represent a significant and distinguishable entity whose components may lack individual distinction; and/or
- Yielded, or may be likely to yield, information important in prehistory or history.

In addition, archeological sites and historic structures must also possess integrity of location, design, setting, materials, workmanship, feeling, and/or association (*National Register Bulletin, Guidelines for Evaluating and Registering Archeological Properties*). The Chesapeake Bay region contains a vast array of archaeological sites and historic structures already listed on the National Register, and untold numbers remain to be identified in the future.

A cultural landscape is defined by the NPS *Cultural Resource Management Guideline* (Director's Order #28) as, "...a reflection of human adaptation and use of natural resources and often expressed in the way land is organized and divided, patterns of settlement, land use, systems of circulation, and the types of structures built. The character of a cultural landscape is defined both by physical materials, such as roads, buildings, walls, and vegetation, and by uses reflecting cultural values and traditions." A wide variety of cultural landscapes, both prehistoric and historic, likely exist within the region defined as the Chesapeake Bay watershed.

An ethnographic resource is defined by the NPS as any "site, structure, object, landscape, or natural resource feature assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it" (DO-28, *Cultural Resource Management Guidelines*, p. 191). Unfortunately, most ethnographic resources remain undocumented for the Chesapeake Bay area; however, with Native American consultation and historic economic research, many such resources are likely to be identified within the region.

Definition of Intensity Levels

To provide consistency with requirements of the National Environmental Policy Act, the effects on any of the above cultural resources are described in terms of intensities intended to convey the nature and duration of any potential impact. For these purposes, the intensity of an impact is defined as follows:

- *Negligible* - The impact is at the lowest levels of detection, barely perceptible and therefore not measurable.
- *Minor* - The impact is perceptible and measurable, but would not affect the character-defining features of an eligible or listed National Register of Historic Places site, structure or building.
- *Moderate* - The impact is readily apparent and appreciable and sufficient to alter a character-defining feature(s) of the site, structure, or building, but would not diminish the integrity of the resource to the extent that its National Register eligibility is jeopardized.
- *Major* - The impact results in a severe or beneficial and highly noticeable change to some character defining feature(s) of a site or structure, diminishing the integrity of the resource such that it is no longer eligible to be listed in the National Register.

The NPS study team focused on changes to levels of protection, conservation, and land use to assess the potential impacts from the creation of a new park unit and/or the implementation of new programs or policy. The National Park Service also considered the physical impacts associated

with any new development plans, such as an interpretive center and anticipated visitor uses typical of each park unit. Specific impacts are highly dependent on the future visitation, size, and location of the park unit, and its facilities in reference to existing cultural resources, which have not yet been identified.

Alternative A – No Action

Under the No Action Alternative, the NPS would continue to promote the Gateways Network, educate the public, and provide technical and financial assistance to communities and organizations for the conservation of the Bay's vital resources through 2008. This assistance includes interpretive materials for many of the Bay's cultural resources and assists in cultural resource conservation projects. There would be a minor, short-term, beneficial impact on the cultural resources in the Chesapeake region because of the technical and financial assistance for protection of cultural resources; impacts may be both direct and indirect depending upon location. However if funding is not appropriated past 2008, then potentially a negligible, adverse, impact on cultural resources would likely result from the discontinuance of the Gateways Network.

NPS management of National Park System units such as the George Washington Birthplace and the Fort McHenry National Monument and Historic Shrine would continue. Impacts of existing NPS unit management decisions are independent of this SRS and are assessed through site-specific environmental analysis.

Alternative B – An Enhanced Chesapeake Bay Gateways Network

Implementation of an Enhanced Chesapeake Bay Gateway Networks Alternative would extend financial and technical assistance to designated Gateways for conserving and restoring cultural resources. Two interpretive centers would educate visitors on the historic significance of various cultural resources in the Bay's watershed. As a result, a moderate, long-term, indirect, beneficial impact on cultural resources would occur from the restoration and education aspects of this alternative.

The NPS, in partnership with other entities, would create two Chesapeake Bay interpretive centers in proximity to the Bay. The two interpretive centers would educate visitors about the Bay and their role in protecting and conserving the Bay's cultural resources. This educational function would result in a minor to moderate, indirect, long-term, watershed-wide beneficial impact to cultural resources as conservation and interpretation efforts are enhanced.

The interpretive centers would be developed within either existing structures or new construction (new or expanded structure). If constructed within an existing non-historic structure, direct impacts to cultural resources would be negligible. Construction of two new interpretive centers would result in an adverse impact on cultural resources if the location of the surrounding cultural resources were within the area of potential effect. The NPS would minimize impacts on historic structures, cultural landscapes, and archeological resources to the extent practical through adherence to National Park Service's *Management Policies 2001* (NPS, 2000), *Director's*

Order #2 Park Planning (NPS, 1998), and *Director's Order #12 (Conservation Planning, Environmental Impact Analysis, and Decision-Making)* (NPS, 2002b). The planning and design of the interpretive centers would consider surrounding archeology and historic resources listed or eligible for listing in the National Register of Historic Places in accordance with the National Historic Preservation Act, *Secretary of the Interior's Standards for the Treatment for Historic Properties*, and *Director's Order #28: Cultural Resource Management* (1998b). The NPS would coordinate with the State Historic Preservation Office and appropriate federal agencies. Additional study would occur during the planning process for each center.

Alternative C – Chesapeake Bay Estuary National Park

The creation of an estuary national park would have a minor, long-term, beneficial impact on cultural resources. NPS would protect cultural resources within the boundaries of the park. However, the water-based focus of this concept is likely to result in a reduced number of cultural resources present within the park relative to the amount of cultural resources present in other alternatives.

The reserve would include development of an interpretive/orientation center within either an existing structure or new construction (new or expanded structure). New construction of an interpretive center and associated roads, parking, and facilities would have localized adverse impacts on nearby cultural resources. The NPS would minimize impacts to archeological resources, historic structures, cultural landscapes, and ethnographic resources to the extent practical through adherence to the National Park Service's *Management Policies 2001* (NPS, 2000), *Director's Order #2 Park Planning* (NPS, 1998), and *Director's Order #12 (Conservation Planning, Environmental Impact Analysis, and Decision-Making)* (NPS, 2002b). The planning and design of the interpretive centers would consider surrounding archeology and historic resources listed or eligible for listing in the National Register of Historic Places in accordance with the National Historic Preservation Act, *Secretary of the Interior's Standards for the Treatment for Historic Properties*, and *Director's Order #28: Cultural Resource Management* (1998b). The NPS would coordinate with the State Historic Preservation Office and appropriate federal agencies. Additional study would occur prior to implementing this alternative.

Alternative D – A Chesapeake Bay National Reserve

The Bay resources for the Chesapeake Bay National Reserve would include one or more waterfront maritime communities and associated resources, such as historic and cultural resources representing the Bay's long maritime and agricultural heritage. The goal of the reserve is to protect and sustain the working landscape, and conserve the reserve landscape including cultural resources. The implementation of the primary interpretive center would help educate visitors to the significance of historic and archeological sites along the Bay. The technical and financial assistance to help conserve, interpret, and protect sensitive cultural resources would have a moderate long-term, and both direct and indirect, beneficial impact on cultural resources in the reserve.

As with Alternative C, the reserve would include development of an interpretive/orientation center within either an existing structure or new construction (new or expanded structure). If constructed within an existing structure, the interpretive center would have direct but negligible impacts to cultural resources. New construction of a center and associated roads, parking, and facilities would have localized adverse impacts on nearby cultural resources located within the area of potential effect. The NPS would minimize impacts on archeological resources, historic structures, cultural landscapes, and ethnographic resources to the extent practical through adherence to the National Park Service's *Management Policies 2001* (NPS, 2000), *Director's Order #2 Park Planning* (NPS, 1998), and *Director's Order #12 (Conservation Planning, Environmental Impact Analysis, and Decision-Making)* (NPS, 2002b). The planning and design of the interpretive center would consider surrounding archeology and historic resources listed or eligible for listing in the National Register of Historic Places in accordance with the National Historic Preservation Act, *Secretary of the Interior's Standards for the Treatment for Historic Properties*, and *Director's Order #28: Cultural Resource Management* (1998b). The NPS would coordinate with the State Historic Preservation Office and appropriate federal agencies. Additional study would occur prior to implementing this alternative.

Alternative E – Chesapeake Bay Watershed National Ecological and Cultural Preserve

Under Alternative E, the NPS would provide financial and technical assistance to help the preserve partners with their comprehensive watershed management planning and the development of a comprehensive, preserve-wide, watershed management plan. Although this plan would be highly focused on ecological resources, the plan would also include cultural resource protection. The NPS would help acquire, own, and manage, select resources in cooperation with other preserve partners and set up conservation easements for resource protection and interpretive cooperative agreements. Furthermore, the NPS would provide matching funding for the development of the interpretive educational center. A moderate, long-term, beneficial impact on cultural resources would occur from the added resource protection.

The preserve would include development of an interpretive/orientation center within either an existing structure or new construction (new or expanded structure). If it is constructed within an existing structure, direct impacts to cultural resources would be negligible or beneficial, as remediation measures are incorporated into the design. However, as with Alternative D, the construction of any interpretive center would result in an adverse impact on cultural resources if the location of the surrounding cultural resources were within the area of potential effect. The NPS would minimize impacts on archeological resources, historic structures, cultural landscapes, and ethnographic resources to the extent practical through adherence to the National Park Service's *Management Policies 2001* (NPS, 2000), *Director's Order #2 Park Planning* (NPS, 1998), and *Director's Order #12 (Conservation Planning, Environmental Impact Analysis, and Decision-Making)* (NPS, 2002b). The planning and design of the interpretive center would consider surrounding archeology and historic resources listed or eligible for listing in the National Register of Historic Places in accordance

with the National Historic Preservation Act, *Secretary of the Interior's Standards for the Treatment for Historic Properties* and *Director's Order #28: Cultural Resource Management* (1998b). The NPS would coordinate with the State Historic Preservation Office and appropriate federal agencies. Additional study would occur prior to implementing this alternative.

IMPACT ANALYSIS: SOCIOECONOMIC ENVIRONMENT

Land Use (including Jurisdictional Boundaries)

Methodology

In the impact assessment for land use and changes in jurisdictional boundaries, the NPS study team focused on changes to land use from the creation of a new park unit or implementation of a new program or policy. For this programmatic study, the impacts discussed are mostly qualitative because the alternatives are conceptual. The intensity of impact is for the most part dependent on the location and size of the park unit, which have not been identified.

Alternative A – No Action

Rather than adding a new Chesapeake Bay-focused unit of the National Park Service, the No Action Alternative assumes the NPS would simply continue its role related to Chesapeake Bay conservation, restoration, and interpretation. Some minor, very localized, beneficial, direct land use changes may occur associated with Chesapeake Bay Gateways grants projects funded through 2008. These would generally be changes to enhance interpretation, conservation or public access to the Bay consistent with Chesapeake Bay Program land use and education goals. No changes to jurisdictional boundaries would be anticipated as part of this alternative.

Alternative B – An Enhanced Chesapeake Bay Gateways Network

The Enhanced Chesapeake Bay Gateways Network Alternative makes permanent the watershed-wide partnership of sites and trails within the Chesapeake Bay watershed, while expanding certain NPS roles related to Chesapeake Bay interpretation and conservation. Minor, localized, beneficial, land use and jurisdictional changes would occur as a direct or indirect result of Chesapeake Bay Gateways technical and financial assistance. These changes would generally enhance interpretation, conservation or public access consistent with Chesapeake Bay Program land use and education goals. The sum total of these changes would result in minor to moderate beneficial impacts watershed-wide, given the number of Chesapeake Bay Gateways.

The NPS, in partnership with other entities, would create two Chesapeake Bay interpretive centers in proximity to the Bay. The interpretive centers would be developed within either existing structures or new construction (new or expanded structure). A minor, localized change in land use or jurisdictional boundaries is possible under either scenario. However, the alternative anticipates the two interpretive centers would be placed in

previously developed or urbanized area already subject to human disruptions, therefore minimizing impacts to important resource lands.

Alternative C – Chesapeake Bay Estuary National Park

The core goal of the estuarine National Park would be to conserve, protect, and restore the estuarine environment and natural resources in the park as a high quality natural system. Public ownership or management would be most compatible with this goal, whereas consumptive, commercial uses would be less so. Under this alternative, limited public lands and extensive public waters would be required for the park, interpretive center and public access sites. There would be a conversion of land use designations and changes in jurisdictional boundaries. Generally, the alternative presumes that any existing public land and water resource management entities within the park would continue to have a key role in managing those resources, limiting jurisdictional changes to some degree. The impact to land use would generally be presumed to be beneficial to achieving several categories of Chesapeake Bay Program commitments. Conversions for visitor uses would be either beneficial or adverse, depending on the site design, surrounding site characteristics, and size and location of the park.

The NPS acquires lands or interests in land when authorized to do so by an act of Congress establishing a unit of the National Park System. There is no single statute authorizing land acquisition that is applicable system-wide, and park-specific legislation varies widely in setting detailed parameters for land acquisition. Additional study and planning is always required to guide land acquisition if and when it is legislatively authorized. The NPS land acquisition and protection process would comply with all applicable legislation, Congressional guidelines, Executive Orders, and Department of Interior policies, and will be in accordance with the NPS *Management Policies 2001* (NPS, 2000), *Section 3.5 Boundary Adjustments*, *Section 3.6 Land Acquisition* and *Section 3.7 Land Acquisition Funding*.

Alternative D – A Chesapeake Bay National Reserve

A representative reserve area would include resources typical of the Bay's aquatic, rural, maritime, and agricultural heritage. This alternative depends highly on both the continuation of traditional private economic uses such as fishing, agriculture and forestry and on a vital and engaged partnership among local, state, and federal governments and the private sector. The NPS would not acquire lands outright, but rather provide matching grants to the state(s) for purchases of development rights on sensitive resource lands or carry out a purchase of development rights program for willing sellers when matched by equal funding from another non-federal partner. A limited transfer in property rights would occur on some lands, but would be expected to have negligible or minor impacts on existing land use designations and changes to jurisdictional boundaries, as the goal would be to continue and sustain traditional uses. The degree of the impact is dependent on existing conditions but it is expected that the impact would be beneficial within the reserve, contributing to Chesapeake Bay Program land use commitments.

The potential impacts associated with the development of an interpretive/orientation center on land use or jurisdictional boundaries

would be the same as described for Alternative C, and would be dependent on whether or not land acquisition is conducted. It is possible that there would be no impact on land use or changes in jurisdictional boundaries if the NPS, in partnership with state or local government, leased or co-occupied publicly-owned facilities for the interpretive center.

Alternative E – Chesapeake Bay Watershed National Ecological and Cultural Preserve

The potential impact on jurisdictional boundaries for the creation of a national preserve and construction and use of a primary interpretive center would be similar to that described in Alternative D.

Population

Methodology

The study team focused on potential changes to the environment that may influence population, such as development, and programs that may trigger increased jobs or economic development or result in displacements. For this programmatic study, the impacts discussed are mostly qualitative because the alternatives are conceptual.

Alternative A – No Action

Under the No Action Alternative, there would be no changes in population because maintaining the existing Gateways Network through 2008 would not likely affect visitation levels or the economy to the degree that would result in a change in local or watershed-wide population.

Alternative B – An Enhanced Chesapeake Bay Gateways Network

A permanent and enhanced Chesapeake Bay Gateways Network would be expected to affect visitation levels and the economy as described under the visitor use section below. However, given the existing overall high levels of visitation and population in the Chesapeake Bay watershed, it is likely the incremental increases in visitation would have only a negligible or minor impact on population. It is also unlikely that the two visitor centers would result in the displacements or have any effect on existing population levels.

Alternative C – Chesapeake Bay Estuary National Park

Typically, national parks encompass a large public land area. In this alternative, the great bulk of the park would be water based; moreover, a relatively undeveloped area would be required to meet the intended resource characteristics. Consequently, no reduction in population would be expected to occur as a result of the park. In contrast, national parks can attract a large numbers of visitors resulting in an increased demand for park staff and concession services. This demand can result in added jobs and an increase in population to the local area. The change in population is dependent on the level of visitation. The impact is expected to be minor, again because the park will be mainly water based with only limited land to provide access to the Bay.

Alternative D – A Chesapeake Bay National Reserve

This alternative depends highly on both the continuation of traditional private economic uses such as fishing, agriculture and forestry and on a vital and sustained population to support the traditional economies. A limited transfer in property rights would occur on some lands, but would be expected to have negligible or minor impacts on population, as the goal would be to continue and sustain traditional uses and lifestyles. The visitation for the reserve would not be expected to have more than a negligible effect on population. However, the reserve may attract some residents and businesses, possibly resulting in a relatively small change in worker and resident population. There would not be the level of change in the economy that would cause either a significant increase or decrease in local population to meet the employment demand. Landscape conservation measures would limit sprawl development, further mitigating changes in population.

Alternative E – Chesapeake Bay Watershed National Ecological and Cultural Preserve

This alternative depends highly on both the continuation of traditional private economic uses and lifestyles and the continued and enhanced stewardship of the land and water. A limited transfer in property rights would occur on some lands, but would be expected to have negligible or minor impacts on population, as the goal would be to continue existing land uses but focus on watershed conservation and stewardship. The visitation for the preserve would not be expected to have more than a negligible effect on population. There would not be the level of change in the economy that would cause either a significant increase or decrease in local population to meet the employment demand. Landscape conservation measures would limit sprawl development, further mitigating changes in population.

Economy

Methodology

For the economic impact assessment, the study team focused on changes to the economy from increased visitation/tourism, new programs or policies, and NPS capital and operational investments. For this programmatic study, the impacts discussed are qualitative because the alternatives are conceptual and the level of visitation is subject to several variables. Typically, impacts on the economy associated with new park units or changes in the NPS designation are dependent on the levels of visitation, percentage of overnight stays, average visitor spending, and existing economic conditions of the local area – none of which have been identified at this stage of the study. Prior to implementation of any of the alternatives, more detailed evaluation of the potential economic impact to the local economy would be considered in the decision-making process.

Alternative A – No Action

Under the No Action Alternative, the NPS would continue coordination of the Gateways Network through 2008. Use of the Network by visitors is expected to increase as the Network becomes more well-known. This would lead to minor to moderate, beneficial impacts to the localities around Gateways. However, if the Network is not continued past 2008, a long-term, adverse impact to the economy would occur from the loss of coordinated

joint marketing and promotions and other services that exist for the 140+ Gateway Network sites.

The NPS would maintain an annual matching grants program to assist designated Gateways in improving interpretation, public access, and conservation restoration through 2008. The continuation of the grants program has a minor, long-term, beneficial impact to the local communities that use the grants for financial assistance. The annual matching program has beneficial impacts throughout the watershed.

Alternative B – An Enhanced Chesapeake Bay Gateways Network

Under this alternative, the NPS would permanently continue its role in coordinating the Chesapeake Bay Gateways Network. The enhanced Gateways Network would be expected to attract and disperse additional visitors to the area over time. The increased visitation would ultimately have long-term, direct and indirect, beneficial impacts on the local economy. Promotional and educational services offered in the two interpretive centers would be expected to draw added visitation and then direct visitors to other Bay Gateways, thus generating direct and indirect tourism benefits for the community. The degree of the impact would be expected to be long-term, moderate and bay-wide, but is largely dependent on increased visitation levels and the location of the two centers.

Under Alternative B, the NPS would offer added financial assistance through the annual matching grants program to assist designated Gateways in improving interpretation, public access and conservation and restoration, including new grants for conserving Bay landscapes. The expanded program would be expected to have a moderate, beneficial impact to the economy through the financial assistance. The economic benefits would be distributed throughout the entire watershed.

The NPS would provide matching funds up to three million dollars for the creation of each of the two Chesapeake Bay interpretive centers. When considering the size of the Bay, its resources, and existing efforts to restore the bay, this expenditure by the NPS would be minor. The upfront capital investment for the two interpretive centers and associated improvements would have a beneficial impact to the local community and any operational expenditures would have a long-term, beneficial impact on the local community. The degree of the impact would be expected to be minor but is dependent on the existing economic conditions. Lastly, if a public entity were to acquire private land for the interpretive centers, there would be the potential for the loss of tax revenue for the local jurisdiction. This adverse impact would be negligible.

Alternative C – Chesapeake Bay Estuary National Park

The estuarine park would have a long-term, beneficial impact on economics attributed to additional visitors to the Chesapeake Bay area. The designation as a NPS unit signals the significance and likely character of the potential visitor's experience, and thus may alone have a substantial effect on the level of visitation. It may have substantial effects on local visitation because the change in designation may imply (real or perceived) differences in availability of services, promotional expenditures by the NPS, allowable land uses, or

uniquely attractive features of the site (Colorado State University, 2001). The increased visitation/tourism would have a direct impact through increased patronage to local business resulting in additional revenue and an indirect impact to other business that may provide services or supplies to those businesses. The benefits would be moderate and affect the business communities who service the area surrounding the park.

The park may also have an adverse impact on the area economy because of limits placed on commercial fishing within the park. The degree of this impact would vary depending on the location, existing use and size of the park, though the impact to the overall economy would be expected to be limited. If land is acquired by the NPS, a potential loss of tax revenue for the local jurisdiction is anticipated. This adverse impact is expected to be minor because the land acquired would be expected to be small, as in this concept the park would be mostly water.

The NPS would develop and operate a park interpretive/orientation center. When considering the size of the bay, its resources, and existing efforts to restore the bay, this expenditure by the NPS would be minor. The upfront capital investment for the interpretive center and associated facilities and improvements would have a beneficial impact to the local community and operational expenditure would have a long-term, beneficial impact on the local community. The degree of the impact would be expected to be minor but is dependent on the existing economic conditions. If a public entity were to acquire private land for the interpretive center, there would be the potential for the loss of tax revenue for the local jurisdiction. This adverse impact would be negligible.

Alternative D – A Chesapeake Bay National Reserve

Under this alternative, a national reserve would be established to protect and sustain the Bay's maritime, rural, and agricultural heritage. The designation as a NPS unit signals the significance and likely character of the potential visitor's experience, and thus may alone have a substantial effect on the level of visitation. It may have substantial effects on local visitation because the change in designation may imply (real or perceived) differences in availability of services, promotional expenditures by the NPS, or uniquely attractive features of the site (Colorado State University, 2001). The increased visitation/tourism would have a direct impact through increased patronage to local business resulting in additional revenue and an indirect impact to other business that may provide services or supplies to those businesses. The degree of the beneficial impact would be expected to be long-term and moderate but is dependent on the existing economic conditions.

One unique attribute of this alternative is the emphasis on protecting traditional resource dependent activities (commercial fishing, crabbing, oystering, agriculture and forestry) from adverse development pressures. The reserve would create a purchase of development rights (PDR) program aimed at protecting resource lands and uses. This would have a moderate, beneficial impact to these industries within the reserve, though it may limit the economic growth of an area from other forms of development. The purchase of development rights would also limit future growth of local jurisdiction tax revenues as the properties would not be converted to more development-

intensive uses. This adverse impact is expected to be localized and minor due to the pattern of PDR lands and the fact that such lands do remain on the tax rolls.

The reserve would include an interpretive/orientation center, with NPS matching funds provided for its development. When considering the size of the bay, its resources, and existing efforts to restore the bay, this expenditure by the NPS would be minor. The upfront capital investment for the interpretive center and associated facilities and improvements would have a beneficial impact to the local community and operational expenditures would have a long-term, beneficial impact on the local community. The degree of the impact would be expected to be minor but is dependent on the existing economic conditions. If a public entity were to acquire private land for the interpretive center, there would be the potential for the loss of tax revenue for the local jurisdiction. This adverse impact would be negligible.

Alternative E – Chesapeake Bay Watershed National Ecological and Cultural Preserve

This alternative would create a NPS unit focused on conserving and restoring a Bay tributary ecosystem so that human uses are in optimal balance with the natural process to conserve the Bay resources and values for future generations. The designation as a NPS Unit signals the significance and likely character of the potential visitor's experience, and thus may alone have a substantial effect on the level of visitation. It may have substantial effects on local visitation because the change in designation may imply (real or perceived) differences in availability of services, promotional expenditures by the NPS, or uniquely attractive features of the site (Colorado State University, 2001). The increased visitation/tourism would have a direct impact through increased patronage to local business resulting in additional revenue and an indirect impact to other business that may provide services or supplies to those businesses. The degree of the impact is dependent on the existing economic conditions; however, the benefits are expected to be long-term, watershed-wide, and moderate.

In this alternative, economic uses within the preserve landscape would continue; however, best management practices would be developed and implemented to protect water quality and the range of ecosystems. A range of options and incentives to encourage the use of best management practices might be employed (such as tax incentives, technical assistance, local zoning, and design reviews and purchase or transfer of development rights) depending on the unique characteristics of the area. The degree of economic impact is largely dependent on the site-specific economic conditions, types of economic uses within the preserve, and types of management practices applied.

If lands or interests in lands were acquired along the riparian corridor by a public entity, there would be a potential loss of tax revenue for the local jurisdiction. This adverse impact is expected to be localized and minor due to the limited role of outright land acquisition and the fact that any purchase of development rights programs leaves the underlying lands on the tax rolls.

The reserve would include an interpretive/orientation center, with NPS matching funds provided for its development. When considering the size of the bay, its resources, and existing efforts to restore the bay, this expenditure by the NPS would be minor. The upfront capital investment for the interpretive center and associated facilities and improvements would have a beneficial impact to the local community and operational expenditures would have a long-term, beneficial impact on the local community. The degree of the impact would be expected to be minor but is dependent on the existing economic conditions. If a public entity were to acquire private land for the interpretive center, there would be the potential for the loss of tax revenue for the local jurisdiction. This adverse impact would be negligible.

Parks and Recreation

Methodology

In the impact assessment for parks and recreation, the study team focused on changes to the levels of recreation activities and experiences at nearby parks or recreational areas from the creation of a new park unit or implementation of a new program or policy. The NPS also considered the physical attributes associated with any new development plans such as the construction of an interpretive center and anticipated visitor uses typical of each park unit. For this programmatic study, the impacts discussed are mostly qualitative because the alternatives are conceptual. The intensity of impact is mostly dependent on the future visitation, location of park unit in the context of other parks, and available recreational activities, which have not yet been identified.

Alternative A – No Action

Under the No Action Alternative, the NPS would continue to manage existing units of the National Park System and to coordinate the Chesapeake Bay Gateways Network through 2008. There would be minor to major, short-term, beneficial impacts to parks and recreation sites participating in the Network as a result of the Network's technical and financial assistance programs. If the Gateways Network is not reauthorized and funded subsequent to 2008, there would be a moderate to major, long-term, adverse impact to parks and recreation sites previously participating in the Network or potentially eligible to do so.

Alternative B – An Enhanced Chesapeake Bay Gateways Network

Under this alternative, the NPS would permanently continue its role in coordinating the Chesapeake Bay Gateways Network, which currently includes more than 140 parks and recreation sites for experiencing the Bay and its watershed. The NPS would offer added financial assistance through the annual matching grants program to assist designated Gateways in improving interpretation, public access and conservation and restoration, including new grants for conserving Bay landscapes. The impacts to parks and recreation sites in the Gateways Network would range from minor to major, long-term, beneficial effects due to Gateways Network influenced improvements. For instance, educational resources at Gateway sites would be improved causing a beneficial impact because the visitor experience would be enhanced, making the visit more enjoyable or rewarding. Long-term, these improvements would increase visitation to Gateway sites.

Through the creation of two Chesapeake Bay interpretive centers, the National Park Service, in partnership with other government entities, would provide visitors with two centralized locations to introduce a multitude of Bay themes and resources. Promotional and educational services offered in the centers would be expected to draw added visitation and then direct visitors to other Bay Gateways. The degree of the impact would be expected to be long-term, moderate and bay-wide, but is largely dependent on increased visitation levels and the location of the two centers.

Alternative C – Chesapeake Bay Estuary National Park

The creation of an estuarine National Park would provide visitors with a park focused on interpreting the Chesapeake Bay as an outstanding natural system. Through a land-based interpretive/orientation center, the NPS would provide interpretive educational materials stressing the importance and influences of human interaction on the Bay's health. The park would provide visitors with access to the Chesapeake Bay. Group tours, planned itineraries, and established programs would provide visitors with a variety of experiences on the open water, at islands, marshes, or along the shore ecosystem. Uses such as sailing, boating, kayaking, hiking and picnicking would be available to visitors. As a result of the visitor experience and increased access to the Bay, there would be a major, long-term, beneficial impact to the availability of Chesapeake Bay parks and recreation sites.

Implementation of this alternative may have a negative impact on some existing parks should visitation be taken away from other parks in the area; conversely, the impact would be beneficial if visitation to parks overall rose from an increase of visitors to the entire Chesapeake Bay area.

Alternative D – A Chesapeake Bay National Reserve

Implementation of a Chesapeake Bay National Reserve alternative would provide visitors with a reserve focused on protecting and sustaining the Bay's maritime, rural, and agricultural heritage. Through a land-based interpretive center and programs, the reserve would provide visitors with a variety of experiences such as enjoying an open water setting, experiencing a maritime or rural community, visiting significant heritage sites, and learning about the reserve's working landscape. Because of the enhanced visitor experience, there would be a moderate, long-term, beneficial impact to parks and recreation. The impact would be localized to the area of the reserve.

Under this alternative, existing parks and recreation sites would likely be encompassed within the national reserve designation. This designation alone may increase visitation at the existing parks, as a certain quality of resources and visitor experiences are signaled by the association with the NPS arrowhead. In contrast, the creation of a reserve would have a negative impact on parks and recreation sites in the surrounding area should visitation be drawn away from them and funneled to the reserve. However, the actual type and degree of impact is highly dependent on the location of any potential reserve, something that is not known at this time.

Alternative E – Chesapeake Bay Watershed National Ecological and Cultural Preserve

The core goal of a Chesapeake Bay Watershed National Ecological and Cultural Preserve would be to conserve and restore the tributary ecosystem so that human uses are in optimal balance with the natural processes in order to conserve the Bay resources and values for future generations. The preserve would provide opportunities for visitors to experience and learn about the transition of natural areas from the headwaters to the Bay and how human actions affect the health of the Bay. At an interpretive center, visitors would be introduced to watershed themes and would orient themselves to a series of experiences and sites throughout the preserve. Group tours, planned itineraries, and established programs would provide visitors with a variety of experiences along the riparian corridor. As a result of the visitor experience, there would be a moderate, long-term, beneficial impact to parks and recreation.

Under this alternative, existing parks and recreation sites would likely be encompassed within the national reserve designation. This designation alone may increase visitation at the existing parks, as a certain quality of resources and visitor experiences are signaled by the association with the NPS arrowhead. In contrast, the creation of a preserve would have a negative impact on parks and recreation sites in the surrounding area should visitation be drawn away from them and drawn only to the reserve. However, the actual type and degree of impact is highly dependent on the location of any potential preserve, something that is not known at this time.

Transportation

Methodology

Regarding the impact assessment for transportation, the study team focused on the physical impacts associated with any new development plans, such as the construction of an interpretive center and anticipated visitor uses typical of each park unit. For this programmatic study, the impacts discussed are qualitative because the alternatives are conceptual. The intensity of impact is dependent on the future visitation and existing site characteristics, which have not been identified

Definition of Intensity Levels

Analyses of the potential intensity of transportation (i.e., traffic) were derived from the available information for the Chesapeake Bay region, and the professional judgment of the study team. Definitions for the thresholds of change for the intensity of impacts on transportation are as follows:

- *Negligible* - Traffic would not be affected, or the effects would be at the lower levels of detection and would not have an appreciable effect on traffic flow. There would be no changes in the level of service.
- *Minor* - The effect would be detectable, but would be of a magnitude that would not have an appreciable effect on traffic flow. There would be no noticeable changes in the traffic congestion or level of service. If mitigation was needed to offset adverse effects, it would be simple and likely successful.
- *Moderate* - The effects would be readily apparent, and would result in a substantial change in traffic flow patterns, congestion, and/or level of

service, in a manner noticeable to the public. Mitigation would be necessary to offset adverse effects and would likely be successful.

- *Major* - The effects would be severe or beneficial, readily apparent, and would result in a substantial change in traffic flow in a manner noticeable to the public and markedly different from the current traffic flow patterns and levels of service. Mitigation measures to offset adverse effect would be needed and extensive, and their success would not be guaranteed.

Alternative A – No Action

Under the No Action Alternative, there may be some local, minor impacts to transportation in the vicinity of some existing Chesapeake Bay Gateways, due to possible increases in visitation. These impacts would be moderated by the limited duration of the Gateways Network, which expires in 2008.

Alternative B – An Enhanced Chesapeake Bay Gateways Network

Through the creation of two Chesapeake Bay interpretive centers, this alternative would attract visitors to two centralized locations at opposite ends of the Bay. The centers are intended for high-traffic volume areas with existing transportation systems capable of supporting increased visitation. However, increased visitation would have a localized, minor to moderate adverse impact because the increased number of visitors would add traffic to nearby transportation routes. Secondly, the increased visitation to existing Gateway sites would increase traffic demands at some sites. Because the traffic would be dispersed over the 140+ sites, the adverse impact would be negligible on a regional scale. The degree of impact is largely dependent on the visitation levels, site characteristics, and site design, which have not been identified. The impacts would be minimized to the extent practical in accordance with the National Park Service's *Management Policies 2001* (NPS, 2000), *Director's Order #2 Park Planning* (NPS, 1998), and *Director's Order #12 (Conservation Planning, Environmental Impact Analysis, and Decision-Making)* (NPS, 2002b).

Alternative C – Chesapeake Bay Estuary National Park

The creation of an estuarine National Park would have anywhere from a minor to major adverse impact on transportation, due to an increased number of visitors adding traffic to nearby transportation routes. The degree of impact is largely dependent on the visitation levels, site characteristics and site design, which have not been identified. The impacts would be minimized to the extent practical in accordance with the National Park Service's *Management Policies 2001* (NPS, 2000), *Director's Order #2 Park Planning* (NPS, 1998), and *Director's Order #12 (Conservation Planning, Environmental Impact Analysis, and Decision-Making)* (NPS, 2002b).

Alternative D – A Chesapeake Bay National Reserve

Implementation of the Chesapeake Bay National Reserve Alternative would have a minor to moderate, long-term, adverse impact on transportation. The reserve would attract additional recreational visitors to the area adding traffic on nearby transportation routes. The impact would be localized to areas surrounding the interpretive center, other heritage sites and tour routes. The degree of impact is largely dependent on the site characteristics and design, which have not been identified. The impacts would be minimized to the

extent practical in accordance with the National Park Service's *Management Policies 2001* (NPS, 2000), *Director's Order #2 Park Planning* (NPS, 1998), and *Director's Order #12 (Conservation Planning, Environmental Impact Analysis, and Decision-Making)* (NPS, 2002b).

Alternative E – Chesapeake Bay Watershed National Ecological and Cultural Preserve

Implementation of the Chesapeake Bay Watershed National Ecological and Cultural Preserve Alternative would have a minor to moderate, long-term, adverse impact on transportation. The preserve would attract additional recreational visitors to the area adding traffic to nearby transportation routes. The impact would be localized to areas surrounding the interpretive center, tour routes, and demonstration sites. The degree of impact is largely dependent on the site characteristics and design, which have not been identified. The impacts would be minimized to the extent practical in accordance with the NPS *Management Policies 2001* (NPS, 2000), *Director's Order #2 Park Planning* (NPS, 1998), and *Director's Order #12 (Conservation Planning, Environmental Impact Analysis, and Decision-Making)* (NPS, 2002b).

Visitor Experience and Use

Methodology

For the impact assessment for visitor experience and use, the study team focused on recreational, educational and interpretive experiences for each park unit or program. The NPS also considered the physical attributes conceptualized for each alternative, such as the interpretive center. In addition, anticipated visitor uses typical of each park unit were considered. For this programmatic study, the impacts discussed are qualitative because the alternatives are conceptual. The intensity of impact is dependent on the size of the park unit and resources when compared to the visitation levels and existing site characteristics, which have not been identified.

Definition of Intensity Levels

The thresholds of change for the intensity of impacts on visitor experience and use are defined as follows:

- *Negligible* - The impact would be a change that would not be perceptible or would be barely perceptible by most visitors.
- *Minor* - The impact would change a few visitors' experiences, which would be noticeable, but would result in little distraction or improvements in the quality of the experience.
- *Moderate* - The impact would change a large number of visitors' experiences that would result in a noticeable decrease or improvement in the quality of the experience. This would be indicated by a temporary change in frustration level or inconvenience.
- *Major* - The impact has a substantial improvement in many visitors' experiences or a severe drop in the quality of many visitors' experiences, such as the addition or elimination of a recreational opportunity or a permanent change to an area.

Alternative A – No Action

Under Alternative A, the Chesapeake Bay Gateways Networks would continue to represent the broadest geographic and thematic system of Bay-related sites in the watershed, but only through 2008. During this period, the Gateways Network would continue to promote the 140+ designated Gateways and provide financial assistance for Chesapeake Bay interpretive services and products, thereby helping visitors learn more about how to explore the diverse range of themes, places, and geography existing in the Chesapeake Bay. If the program were not sustained, a moderate, long-term, watershed-wide adverse impact on visitor experience and use would occur because of the loss of the Gateways Network's important role in providing promotional services, interpretive products, and financial assistance to the Gateways members.

Alternative B – An Enhanced Chesapeake Bay Gateways Network

In this alternative the National Park Service would permanently continue its role in coordinating the Chesapeake Bay Gateways Network and its various programs. Two visitor/orientation centers would also be developed to introduce visitors to the multitude of Chesapeake Bay themes, and resources, helping visitors to explore these themes and resources at existing Gateway sites. This combination of enhancements would result in a moderate to major, long-term, watershed-wide, beneficial impact on visitor experiences in the Bay region through enhanced interpretation and visitor experiences. At individual Gateway sites, the intensity of impacts would range from minor to major depending on the sites' use of Network technical and financial assistance services.

Alternative C – Chesapeake Bay Estuary National Park

The creation of an estuarine National Park would provide visitors with a park focused on interpreting the Chesapeake Bay as an outstanding natural system. Through a land-based interpretive center, the NPS would provide visitors with interpretive and educational materials stressing the importance and influences of human interaction on the Bay's health. The national park would provide visitors with direct access to the Bay and locations representing different Bay natural areas, from island environments to shoreline ecosystems. Group tours, planned itineraries, and established programs would provide visitors with a variety of experiences on the open water, at islands, marshes, or along the shore ecosystem. In addition, uses such as boating, kayaking, hiking, sailing, and picnicking would attract visitors and enhance the overall visitor experience. The magnitude of the impact on visitor use would be dependent on the park's location and accessibility. In general, national parks have high recreational visits; therefore, Alternative C would be expected to have a moderate to major, long-term, beneficial impact on the visitor experience because of added recreational activities and interpretive programs available to the public. The context of the impact would be local and regional.

Alternative D – A Chesapeake Bay National Reserve

The creation of a Chesapeake Bay National Reserve would provide visitors with a reserve focused on protecting and sustaining the Bay's maritime, rural, and agricultural heritage. Through a land based interpretive center and programming, the reserve would provide visitors with interpretive and

educational materials stressing the Bay's heritage. Group tours, planned itineraries, and established programs would provide visitors with a variety of experiences on the open water, in the community, at significant heritage sites, and on the reserve working landscape. In general, the creation of a national reserve would have a moderate, long-term, beneficial impact on the visitor experience. The context of the impact would be local and regional. Similar to the national park, the magnitude of the impact on visitor use would be dependent on the reserve's location and accessibility to major transportation routes.

Alternative E – Chesapeake Bay Watershed National Ecological and Cultural Preserve

The core goal of a Chesapeake Bay Watershed National Ecological and Cultural Preserve would be to conserve and restore the tributary ecosystem so that human uses are in optimal balance with the natural process to conserve the Bay resources and values for future generations. The NPS and its partners, through a primary interpretive/ education center, would provide opportunities for visitors to experience and learn about the transition of natural areas from the headwaters to the Bay and how human actions affect the health of the Bay. At the interpretive center, visitors would be introduced to watershed themes and would orient themselves to a series of experiences and sites throughout the preserve.

Group tours, planned itineraries, and established programs would provide visitors with a variety of experiences along the riparian corridor. In general, the creation of a national preserve would have a moderate, long-term, beneficial impact. The context of the impact would be local and regional. Similar to the other alternatives, the magnitude of the impact on visitor use would be dependent on the preserve's location and accessibility of the preserve and its interpretive center to major transportation routes.

CUMULATIVE IMPACTS

Impacts on the environment can result from the incremental impact of actions when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such actions. Cumulative impacts can also result from individually minor, but collectively significant, actions taking place over a period of time. For this programmatic analysis, the NPS defined a broad geographic area (the Chesapeake Bay watershed) to be analyzed for most impact topics. (Air quality considers the entire airshed.) Regional plans, policies, and program were considered. Site-specific projects were not identified or studied for this programmatic analysis because the location of each alternative has not been identified. Site-specific plans and projects will be considered and documented in future planning studies by the NPS prior to implementation. The cumulative impact section for this study focused on the potential cumulative impacts to other regional initiatives such as the goals outlined in the Chesapeake Bay Agreement, county and state watershed management planning, wetland protections programs, and state wetlands programs.

The National Park Service considered cumulative impacts for each impact topic; however, because the cumulative impacts are similar for many of the impact topics, the cumulative impacts are briefly summarized in this section.

Other Chesapeake or Regional Plans, Policies, and Programs

Chesapeake Bay Program

The Chesapeake Bay Program is a unique regional partnership that directs and conducts the restoration of the Chesapeake Bay. Since its inception in 1983, the Chesapeake Bay Program's highest priority has been the restoration of the Bay's living resources (finfish, shellfish, Bay grasses, and other aquatic life and wildlife). Improvements include fisheries and habitat restoration, recovery of Bay grasses, nutrient and toxic reduction, and significant advances in estuarine science.

Chesapeake 2000 Agreement

In the 1987 Chesapeake Bay Agreement, the Executive Council set a goal to reduce the nutrients such as nitrogen and phosphorous entering the Bay by 40 percent by 2000. In 1992, the Bay Program partners agreed to continue the 40 percent reduction goal beyond 2000, as well as, to attack nutrients at their source; upstream in the Bay's tributaries. As a result, Pennsylvania, Maryland, Virginia, and the District of Columbia began developing tributary strategies to achieve nutrient reduction targets. On June 28, 2000, the Chesapeake Bay Program partners signed the new *Chesapeake 2000 agreement*, which will guide the next decade of restoration and protection efforts throughout the Bay watershed.

State, County, and Municipal Wetlands and Watershed Programs

All the states within the watershed have agencies and programs dedicated to water quality and wetland protection, including special initiatives for the Chesapeake Bay. In addition, as a result of the initiative to reduce pollutants from entering the Bay, many counties and municipal governments within the watershed have developed or are developing watershed management plans and programs. From the Chesapeake Bay Preservation Act (VA) and Critical Areas Act (MD), most counties have created development ordinances that establish riparian buffer requirements and limit development in the Chesapeake Bay critical areas.

Urban Sprawl and Development

The relationship between population growth and sprawl can be quantified by comparing rates of change in population and urbanized land area over the same time period. Based on U.S. Census Bureau Data from 1970 to 1990, increased per capita land consumption was associated with about 55 percent of the sprawl in the watershed and population growth was associated with about 45 percent of the sprawl, although there is great variation among the "Urbanized Areas" of the Chesapeake Bay watershed. These numbers demonstrate that population growth and increased land consumption are expanding "Urbanized Areas" in the watershed (Sprawl City, 2003). The land development associated with urban sprawl such as wastewater generation, groundwater use, and land clearing generally has an adverse impact on land use, aquatic resources, terrestrial resources, and cultural resources. This adverse impact comes from issues such as land clearing activities, the creation of additional impervious surfaces, etc. A number of the states have "Smart Growth" initiatives, which are focused on reducing urban sprawl and revitalizing existing urban areas.

Agriculture and Forestry

In the 1960s and 1970s, there were significant changes in farming practices with the heavy use of chemical fertilizers and pesticides. These practices had a significant impact on Bay grasses and other submerged aquatic vegetation (Maryland Marine Notes, Volume 18 May-August 2001). Significant steps have been taken over the last decade through regulations and incentive programs to reduce nutrient and chemical runoff associated with farming operations, and to reduce land clearing and sedimentation associated with forestry. Programs, such as the United States Department of Agriculture's Conservation Restoration Enhancement Program, provide monetary incentives for farmers to take land out of production, and use the land to construct wetlands or riparian forests, and/or place the land into conservation easements. Past farming and forestry practices have had a major adverse impact on the Bay. Current and future agriculture and forestry programs can potentially have a beneficial impact through sustainable practices and restoration initiatives.

Other Plans, Programs, and Policies

A vast number of other plans, programs, and policies exist within the watershed, which have not been listed above. The NPS would consider more site-specific plans and programs prior to implementation of any of the alternatives as part of another study.

Cumulative Impact Analysis

The protection, conservation, and restoration efforts described under Alternatives A, B, C, D, and E, when added to other environmental protection programs, such as the wetlands protection programs implemented by the U.S. Army Corps of Engineers, water quality control programs implemented by the states and the U.S. Environmental Protection Agency, and the Chesapeake Bay Program, would have a beneficial, long-term cumulative impact on aquatic resources, terrestrial resources, threatened and endangered species, air quality, and cultural resources within the region. The incremental change resulting from the implementation of Alternatives B, C, D, or E would be expected to be minor when combined with other federal and state programs. As a result, the cumulative impacts are anticipated to be minor.

Under Alternatives B, C, D, and E, the potential adverse impact from the construction of the interpretive center(s) and associated roads, parking, and facilities, when added to other past and future development associated with urban sprawl would have a long-term cumulative adverse impact to aquatic resources, terrestrial resources, threatened and endangered species, cultural resources, transportation, and ethnographic resources. The incremental change resulting from the implementation of Alternatives B, C, D, or E would be expected to be minor when combined with other federal and state programs. As a result, the cumulative impacts are anticipated to be minor.

The associated visitor use under Alternative B, C, D, and E, when added to urban sprawl and development, would have an adverse cumulative impact on natural resources, cultural resources, transportation, and socio-economics to

the region. The incremental change resulting from the implementation of Alternatives B, C, D, or E would be expected to be minor when combined with other federal and state programs. As a result, the cumulative impacts are anticipated to be minor.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The National Park Service considered in the decision making process whether the alternative will have an irreversible or irretrievable commitment of resources. Resource in this case would refer to money and labor invested in the project, or more importantly, resources in the environment, such as threatened and endangered species, mature forest, prime farmlands, etc. Typically, these resources cannot be easily or readily replaced. In general, the irreversible and irretrievable commitment of resources for the concepts discussed in each alternative would include funding for the construction of the interpretive center(s) discussed in Alternatives B, C, D and E; land acquisition; and grants to increase financial and technical assistance.

IMPAIRMENT TO PARK RESOURCES

The National Park Service's *Management Policies, 2001* (2000) require analysis of potential effects to determine whether actions would impair park resources. The fundamental purpose of the National Park System, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. Generally, environmental impact statements developed by the National Park Service assess the potential effects to the existing park's resources; however, in the case of this programmatic study, the specific park resources and boundaries have not been identified; therefore, this section is not applicable to the study.

Table 6-1 Comparison of Impacts by Alternative

Impact Topic	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
<p>Please Note: The Chesapeake Bay Special Resource Study is a programmatic study; therefore, the analysis was very qualitative. The project team determined the intensity levels throughout this document based on the professional judgment on past experience with projects of similar scope. However, the degree of the impact is largely dependent on a variety of factors which have not yet been determined (e.g. size and location, site design, visitation levels, and local conditions). Thus in some instances, the degree of the impact is somewhat speculative and in some cases simply not determined. For this study, the project team assumed typical site conditions that might be expected based on the desired resources described for each alternative. The project team also assumed that the National Park Service would minimize impacts to the degree practical in accordance with the National Park Service's <i>Management Policies 2001</i> (NPS, 2000), Director's Order #2 <i>Park Planning</i> (NPS, 1998), and Director's Order #12 <i>Conservation Planning, Environmental Impact Analysis and Decision-Making</i> (NPS, 2002b). If a particular alternative were to be selected for implementation, the National Park Service would conduct additional environmental analysis as a part of any management or development planning. This would help further quantify impacts that are site specific in nature and determine appropriate mitigation measures if needed. In general, National Park Service designations and associated developments are typically "net positive" to the environment due to NEPA compliance and environmentally-sensitive construction techniques.</p>					
<p>Natural Environment</p>					
<p>Aquatic Resources</p>	<p>Through 2008, the Gateways Network would result in minor, short-term, watershed-wide, beneficial impacts to aquatic resources because of interpretive and financial assistance to existing Gateways. A long-term, indirect, adverse impact to the watershed would occur throughout the watershed if funding is not appropriated past 2008 and the Gateways Network program is not sustained.</p>	<p>A minor, indirect, long-term, beneficial impact would occur to aquatic resources throughout the watershed because of the National Park Service's technical and financial assistance to designated Gateways, local communities and other organizations. The educational function of the interpretive centers would result in a minor to moderate, indirect, long-term, watershed-wide beneficial impact to aquatic resources. If the interpretive centers were constructed within an existing structure, direct impacts to aquatic resources would be negligible. New construction of two centers and associated roads, parking, and support facilities would have localized, adverse impacts on nearby aquatic resources although it is expected that the centers would be developed in previously disturbed urban areas. Impacts from visitor use would be negligible.</p>	<p>The creation of a park would have a minor to moderate, long-term, beneficial impact on aquatic resources throughout the portion of the Bay within the park boundaries because of the National Park Service's conservation and restoration efforts associated with the management of National Parks. The construction of the land-based interpretive center and associated roads, parking, and facilities could have direct, local, adverse impacts on nearby aquatic resources. The increase in visitation could have an indirect, moderate, long-term, adverse impact on aquatic resources because of human disruption to the aquatic environment such as an increase in noise levels from increased traffic or wave action from boat use.</p>	<p>A minor to moderate, localized, long-term, beneficial impact to aquatic resources would occur likely as a result of comprehensive planning and site specific conservation measures. through technical and financial assistance to local communities for comprehensive planning and resource protection. Construction of an interpretive center within an existing structure would have negligible direct impacts to aquatic resources. New construction and associated roads, parking, and facilities would have localized adverse impacts on nearby aquatic resources. Visitor use at the interpretive center and surrounding land could have a minor, long-term, adverse impact. An increase in the number of visitors to the area would have an indirect, minor, long-term, adverse impact because of minor human disruptions to the aquatic environment.</p>	<p>A moderate, tributary watershed-wide, long-term beneficial impact to aquatic resources would likely occur as a result of restoration, stewardship and land conservation efforts. The interpretive programming would result in a minor to moderate, indirect, long-term, tributary watershed-wide beneficial impact to aquatic resources. Construction of an interpretive center within an existing structure would have negligible or beneficial direct impacts as remediation measures would be incorporated into the design. New construction and associated roads, parking, and facilities would have localized adverse impacts on nearby aquatic resources. Visitor use at the interpretive center and surrounding land could have a minor, long-term, localized, adverse impact. An increase in the number of visitors to the area would have a minor, localized, long-term, adverse impact.</p>
<p>Terrestrial Resources</p>	<p>Through 2008, the Gateways Network would result in minor, short-term, beneficial impacts to terrestrial resources throughout the watershed because of interpretive and financial assistance to existing Gateways. Minor, long-term, indirect, adverse impacts would occur throughout the watershed if funding is not appropriated past 2008 and the Gateways Network program is not sustained.</p>	<p>An indirect, long-term, beneficial impact would occur to terrestrial resources throughout the watershed because of the National Park Service's technical and financial assistance to designated Gateways, local communities and other organizations. The educational function of the interpretive centers would result in a minor to moderate, indirect, long-term, watershed-wide beneficial impact to aquatic resources. If the interpretive centers were constructed within an existing structure, direct impacts of to terrestrial resources would be negligible. New construction of two Chesapeake Bay interpretive centers and associated roads, parking, and support facilities would have long-term adverse impacts on terrestrial resources on and adjacent to the construction sites. Visitor use at the centers and surrounding land would also have a minor, localized, long-term, adverse impact due to habitat disturbances. However, it is expected the centers would be developed in previously disturbed urban areas.</p>	<p>The creation of a park would have a minor, long-term, beneficial impact on terrestrial resources at the park and surrounding areas because of the National Park Service's conservation and restoration efforts associated with the management of National Parks. Construction of an interpretive center would be expected to have minor to moderate, localized, adverse impacts. Visitor uses would have a minor, long-term, localized, adverse impact. An increased number of visitors to the area would have an indirect, moderate, long-term, adverse impact due to habitat disturbances.</p>	<p>The creation of a reserve would have a moderate, long-term, beneficial impact to terrestrial resources as a result of comprehensive planning and site-specific conservation of sensitive natural resource sites. through technical and financial assistance to local communities for comprehensive planning. The beneficial impact is likely to be moderate locally while having a minor impact to the watershed as a whole. If the construction of the interpretive center occurs within an existing structure, direct impacts to terrestrial resources would be negligible. New construction of a center and associated roads, parking, and facilities would have localized, adverse impacts on nearby terrestrial resources. Visitor use at the interpretive center and surrounding land would have a minor, long-term, localized, adverse impact. An increase in the number of visitors to the area would have an indirect, minor, long-term, adverse impact due to habitat disturbances.</p>	<p>The creation of a preserve would have a regional, long-term, moderate, beneficial impact on terrestrial resources a result of restoration, stewardship and land conservation efforts. through technical and financial assistance within the watershed. If the interpretive centers were constructed within an existing structure, direct impacts to terrestrial resources would be negligible, or beneficial, as remediation measures would be incorporated into the design. New construction of a center and associated roads, parking, and facilities would have localized, adverse impacts on nearby terrestrial resources. Visitor use at the interpretive center and surrounding land would have a minor, localized, long-term, adverse impact. An increase in the number of visitors to the area would have an indirect, localized, minor, long-term, adverse impact due to habitat disturbances.</p>

Table: 6-1 Comparison of Impacts by Alternative

Impact Topic	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Threatened, Endangered, and Rare Species and Natural Communities	Through 2008, the Gateways Network would result in minor, short-term, beneficial impacts to protected species natural communities because of interpretive and financial assistance to existing Gateways. A long-term, indirect, adverse impact would occur if funding is not appropriated past 2008 and the Gateways Network program is not sustained.	An indirect, long-term, beneficial impact would occur to threatened, endangered, and rare species and natural communities throughout the watershed because of the National Park Service's technical and financial assistance to designated Gateways, local communities and other organizations. The educational function of the interpretive centers would result in a minor to moderate, indirect, long-term, watershed-wide beneficial impact to rare, threatened, and endangered species. If the interpretive centers were developed within existing structures direct impacts to threatened, endangered, and rare species would be negligible. New construction of two Chesapeake Bay interpretive centers and associated roads, parking, and support facilities would have minor adverse impacts. Visitor use and increased visitation would have a minor, long-term, adverse impact. However, it is expected that the centers would be developed in previously disturbed urban areas.	The creation of a park would have a minor, long-term, beneficial impact on protected species and habitats at the park and surrounding areas because of conservation and restoration efforts associated with the management of National Parks. The construction of the interpretive center and associated roads and parking would have an adverse impact. The degree of the impact would be dependent on existing conditions. Visitor use and increased visitation would have a minor, localized, long-term, adverse impact near activity areas.	The creation of a reserve would have a minor to moderate, long-term, regional, beneficial impact to threatened, endangered, and rare species and natural communities as a result of comprehensive planning and site-specific conservation of sensitive natural resource sites. through the technical and financial assistance to local communities for comprehensive planning. If the interpretive centers were developed within existing structures direct impacts to threatened, endangered, and rare species would be negligible. The construction of the interpretive center and associated roads and parking would have an adverse impact on RTE species present at the construction site. The degree of the impact would be dependent on existing conditions. Visitor use at the interpretive center and surrounding land would have a minor, long-term, adverse impact.	A preserve would have a minor to moderate, long-term, regional, beneficial impact on threatened, endangered, and rare species and natural communities. If the interpretive centers were developed within existing structures direct impacts to threatened, endangered, and rare species would be negligible. The construction of the interpretive center and associated roads and parking would have an adverse impact. The degree of the impact would be dependent on existing conditions. Visitor use at the interpretive center and surrounding land would have a minor, long-term, adverse impact.
Air Quality	The Gateways Network would result in no impact to air quality between now and its sunset in 2008.	The creation of an enhanced Gateways Network would have a minor, regional, long-term, beneficial impact to air quality because of a continually expanded educational program with designated Gateways. The educational function of the interpretive centers would result in a minor to moderate, indirect, long-term, watershed-wide beneficial impact to air quality. If the interpretive centers were placed within existing structures, direct impacts to air quality would be negligible. The construction of two Chesapeake Bay interpretive centers in new buildings and associated roads, parking, and support facilities would have direct, short-term, localized, minor, adverse impacts on air quality from emissions and fugitive dust generated from construction activities. Increased visitation would have a long-term, indirect, adverse impact from emissions. Visitor use and increased visitation would have a minor, long-term, adverse impact.	The creation of a park would have a negligible to minor, site-specific, long-term, beneficial impact on air quality because of the National Park Service management policies. 's conservation and restoration efforts associated with the management of National Parks. This impact would be expected to be minor and site-specific. New construction for the interpretive center would have a direct, short-term, localized, adverse impact on air quality from emissions and fugitive dust generated from construction activities. Increased visitation could also have a minor to moderate, long-term, adverse impact from emissions.	The creation of a reserve would have a minor, long-term, indirect beneficial impact to air quality within the reserve as a result of comprehensive planning and limits on sprawl development through technical and financial assistance to local communities for comprehensive planning. If the interpretive centers were placed within existing structures, direct impacts to air quality would be negligible or beneficial, as remediation measures would be incorporated into the design. New construction for the interpretive center would have a direct, short-term, localized, adverse impact on air quality from emissions and fugitive dust generated from construction activities. Visitor use and increased visitation at the interpretive center and surrounding land would have a minor, long-term, adverse impact.	A preserve would have an indirect minor, long-term, local, beneficial impact to air quality as a result of from technical and financial assistance stewardship and land conservation efforts.. If within an existing structure, direct impacts to air quality from an interpretive center would be negligible or beneficial, as remediation measures would be incorporated into the design. New construction for the interpretive center would have a direct, short-term, localized, adverse impact on air quality from emissions and fugitive dust generated from construction activities. Visitor use and increased visitation at the interpretive center and surrounding land would have a minor, long-term, adverse impact on air quality from vehicle emissions.
Cultural Environment	Through 2008, the Gateways Network would result in a minor, short-term, indirect or direct (based on location), beneficial impact to cultural resources throughout the region because of technical and financial assistance for protection of cultural resources. However, if funding is not appropriated past 2008 and the Gateways Network program is not sustained, then a negligible, adverse impact would occur throughout the watershed.	A moderate, long-term, indirect, beneficial impact would occur to cultural resources throughout the watershed from the restoration and education aspects of this alternative. The educational function would result in a minor to moderate, indirect, long-term, watershed-wide beneficial impact to cultural resources as conservation and interpretation efforts are enhance. If the interpretive centers were constructed within non-historic, existing structures, direct impacts to cultural resources would be negligible. Construction of two new interpretive centers would result in an adverse impact on cultural resources if the location of the surrounding cultural resources were within the area of potential effect.	The creation of a park would have a minor, long-term, localized, beneficial impact on cultural resources through limiting disturbances and bringing about restoration efforts. The impact is minor due to the limited amount of cultural resources expected in this type of park. land use, commercial facilities, and land disturbing activities within the park. New construction of a center and associated roads, parking, and facilities would have localized adverse impacts if the location of the surrounding cultural resources were within the area of potential effect.	The technical and financial assistance to help conserve, interpret, and protect sensitive cultural resources would have a moderate, long-term, direct and indirect, beneficial impact on cultural resources in the reserve. If the interpretive center were developed within an existing non-historic structure, direct impacts to cultural resources would be negligible. New construction of a center and associated roads, parking, and facilities would have localized adverse impacts if the location of the surrounding cultural resources were within the area of potential effect.	A moderate, long-term, beneficial impact on cultural resources would occur throughout the reserve from added resource protection. If the interpretive center were developed within a non-historic existing structure, direct impacts to cultural resources would be negligible or beneficial as remediation measures are incorporated. The construction of an interpretive center would result in an adverse impact if the location of the surrounding cultural resources were within the area of potential effect.

Table: 6-1 Comparison of Impacts by Alternative

		Alternative E			
		Alternative D		Alternative C	
		Alternative B		Alternative A	
Socio-economic Environment		Alternative B		Alternative A	
Impact Topic					
Land Use/Jurisdictional Boundaries	Some minor, very localized, beneficial, direct land use changes may occur associated with Chesapeake Bay Gateways grants projects funded through 2008. There would be no changes to jurisdictional boundaries.	If the interpretive centers were developed within either existing structures or new construction (new or expanded structure), a minor, localized change in land use or jurisdictional boundaries is possible. However, this alternative anticipates the two interpretive centers would be placed in previously developed or urbanized area already subject to human disruptions, therefore minimizing impacts to important resource lands.	The impact to land use would generally be presumed to be beneficial to achieving several categories of Chesapeake Bay Program commitments. Conversions for visitor uses would be either beneficial or adverse, depending on the site design, surrounding site characteristics, and size and location of the park.	A limited transfer in property rights would occur on some lands, but would be expected to have negligible or minor impacts on existing land use designations and changes to jurisdictional boundaries, as the goal would be to continue and sustain traditional uses. The degree of the impact is dependent on existing conditions but it is expected that the impact would be beneficial within the reserve, contributing to Chesapeake Bay Program land use commitments. It is possible that there would be no impact on land use or changes in jurisdictional boundaries if the NPS, in partnership with state or local government, leased or co-occupied publicly-owned facilities for the interpretive center.	Negligible to A preserve would increase conservation and stewardship measures on lands along the riparian corridor. This would bring about some changes in existing land use over time, but the minor impacts on existing land use designations and changes to jurisdictional boundaries would be expected. The degree of the impact is dependent on existing conditions. However, , but it is expected that the impact would be beneficial within the reserve. It is possible that there would be no impact on land use or changes in jurisdictional boundaries if the NPS, in partnership with state or local government, leased or co-occupied publicly-owned facilities for the interpretive center.
Population	No impacts to population would occur.	No displacements or adverse impacts on existing population levels would be likely to occur. Incremental increases in visitation would have a negligible or minor impact on population.	The impact is expected to be minor; however, the degree of the impact is dependent on the level of visitation and local conditions.	Negligible or minor impacts on population would occur.	Negligible or minor impacts on population would occur.
Economy	Greater recognition and use of the Gateways Network would result in a minor to moderate, beneficial impact to the local economies around the Gateways site. If the program was not continued past 2008 a long-term, adverse impact would occur from the loss of joint marketing services to designated Gateways and the grants program.	Increased visitation would have a long-term, direct and indirect, beneficial impact on the local economy. The increased tourism from the visitor centers and other promotional activities would have long-term, direct and indirect, beneficial impacts on the local economy. The degree of the impact would be expected to be long-term, moderate and Bay-wide, but is dependent on visitation levels. The added financial assistance offered by the National Park Service would have minor to moderate beneficial impacts on local areas watershed-wide. The upfront capital investment and operational expenditures for the two interpretive centers would have long-term, beneficial impacts on the local communities. The degree of the impact would be expected to be minor, but is dependent on the existing economic conditions. Any loss of tax revenue from a public entity's land acquisition would have a negligible impact.	The park would have a long-term, moderate, beneficial impact on economics attributed to increased visitation. There would be a direct, beneficial impact on the local economies through increased tourism numbers and an indirect, beneficial impact on local businesses that supply the local tourism industry. The park may also have an adverse impact on economics because of limits placed on commercial fishing. The adverse impact of a loss of tax revenue from a public entity's land acquisition would be minor. The upfront capital investment and operational expenditures for the interpretive center would have long-term, beneficial impacts on the local community. The degree of the impact would be expected to be minor, but is dependent on the existing economic conditions.	A reserve would have a long-term, moderate, beneficial impact on economics attributed to increased visitation. There would be a direct, beneficial impact on the local economies through increased tourism numbers and an indirect, beneficial impact on local businesses that supply the local the tourism industry. Protection of traditional, resource-dependent activities would have a moderate beneficial impact to these industries within the reserve. However, the purchase of development rights may limit future growth of local jurisdiction tax revenues. This adverse impact is expected to be localized and minor. The upfront capital investment and operational expenditures for the interpretive center would have beneficial impacts on the local community. The degree of the impact would be expected to be minor, but is dependent on the purchase of conservation easements or limited lands may limit future growth of local jurisdiction tax revenues, however this adverse impact is expected to be localized and minor. The adverse impact of a loss of tax revenue from a public entity's land acquisition would be minor.	The preserve would have a long-term, regional, watershed-wide, moderate, beneficial impact on economics because of an increase in visitors to the area. The upfront capital investment and operational expenditures for the interpretive center would have beneficial impacts on the local community. The degree of the impact would be expected to be minor, but is dependent on the purchase of conservation easements or limited lands may limit future growth of local jurisdiction tax revenues, however this adverse impact is expected to be localized and minor. The adverse impact of a loss of tax revenue from a public entity's land acquisition would be minor.
Parks and Recreation	There would be minor to major, short-term, beneficial impacts to parks and recreation sites participating in the Network as a result of the Network's technical and financial assistance programs. If the Gateways Network is not reauthorized and funded subsequent to 2008, there would be a moderate to major, long-term, adverse impact to parks and recreation sites previously participating in the Network or potentially eligible to do so.	The impacts to parks and recreation sites in the Gateways Network would range from minor to major, long-term, beneficial effects due to Gateways Network influenced improvements. For instance, educational resources at Gateway sites would be improved causing a beneficial impact because the visitor experience would be enhanced, making the visit more enjoyable or rewarding. Long-term, these improvements would increase visitation to Gateway sites. With two new interpretive centers to introduce visitors to the Bay and promote other Gateway sites, the degree of the impact would be expected to be long-term, moderate and Bay-wide, but is largely dependent on increased visitation levels and the location of the two centers.	The addition of a variety of visitor activities would have a major, long-term, beneficial impact to the availability of parks and recreation sites. This designation alone may increase visitation at the existing parks. In contrast, the creation of a national park reserve would also have a negative impact on parks and recreation sites in the area should visitation be drawn away from them and funneled to the reserve. However, the actual type and degree of impact is highly dependent on the location of any potential park reserve, something that is not known at this time.	Because of the enhanced visitor experience, there would be a moderate, long-term, beneficial impact to parks and recreation. The impact would be localized to the area of the reserve. Under this alternative, existing parks and recreation sites would likely be encompassed within the national reserve designation. This designation alone may increase visitation at the existing parks. In contrast, the creation of a reserve could have a negative impact on parks and recreation sites in the surrounding area should visitation be drawn away from them and funneled to the reserve. However, the actual type and degree of impact is highly dependent on the location of any potential reserve, something that is not known at this time.	As a result of the enhanced visitor experience, a moderate, long-term, beneficial impact to parks and recreation sites would occur within the preserve. Under this alternative, existing parks and recreation sites would likely be encompassed within the national preserve designation. This designation alone may increase visitation at the existing parks. In contrast, the creation of a preserve could have a negative impact on parks and recreation sites in the surrounding area should visitation be drawn away from them and funneled to the reserve. However, the actual type and degree of impact is highly dependent on the location of any potential reserve, something that is not known at this time.

Table: 6-1 Comparison of Impacts by Alternative

Impact Topic	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Transportation	Local, minor impacts to transportation in the vicinity of some existing Gateways sites may occur.	Traffic around the two interpretive centers would have a minor to moderate, localized, long-term, adverse impact on transportation routes because of increased visitation. Also, the increased visitation would increase traffic resulting in a negligible adverse impact on a regional scale.	The creation of the park would have a minor to major adverse impact on transportation because of increased visitation to the area resulting in more traffic. The degree of the impact is dependent on visitation levels, site characteristics, and site design, which have not been identified.	Increased visitation associated with the interpretive center would have a minor to moderate, long-term, adverse impact on local traffic. The degree of the impact is dependent on visitation levels, site characteristics, and site design, which have not been identified. The impact would be localized to areas surrounding the interpretive center, tour routes, and other visitor sites.	Increased visitation associated with the interpretive center would have a minor to moderate, long-term, adverse impact on local traffic. The degree of the impact is dependent on visitation levels, site characteristics, and site design, which have not been identified. The impact would be localized to areas surrounding the interpretive center, tour routes, and demonstration sites.
Visitor Experience and Use	A moderate, watershed-wide, long-term, adverse impact to the visitor experience would occur if funding is not appropriated past 2008 and the Gateways Network program is not sustained.	The combination of enhancements to the visitor experience would result in a moderate to major, long-term, watershed-wide, beneficial impact on visitor experiences in the Bay region through enhanced interpretation and visitor experiences. At individual Gateway sites, the intensity of impacts would range from minor to major depending on the sites' use of Network technical and financial assistance services. A moderate, long-term, beneficial impact to the visitor experience would occur throughout the watershed because of expanded interpretive services including the working landscape.	The park would have a moderate to major, long-term, beneficial impact on the visitor experience because of added recreational activities and interpretive programs available to the public. The impact would be local and regional. The magnitude of the impact on visitor use would be dependent on the reserve's location and accessibility.	The reserve would have a moderate, long-term, beneficial impact on the visitor experience. The impact would be local and regional. The magnitude of the impact on visitor use would be dependent on the reserve's location and accessibility.	The preserve would have a moderate, long-term, beneficial impact on visitor experience and use. The impact would be local and regional but the magnitude is largely dependent on the location and accessibility.