Chapter 4

ENVIRONMENTAL CONSEQUENCES

Indian Rock Shelter, Palisades

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CHAPTER 4
ENVIRONMENTAL CONSEQUENCES

IMPACT ASSESSMENT METHODOLOGY

This section describes the environmental consequences associated with the alternatives. The process for impact assessment is based on the directives of the Director's Order #12 handbook (Section 4.5(g)) (NPS 2001b), the review of existing literature, and information provided by experts within the park, other agencies, and the public. The impact analyses involved the following:

- **Identify applicable regulations that affect each impact topic.** The section entitled "Servicewide Mandates and Policies" in Chapter 1 and Appendix A summarize the applicable regulations for each impact topic.

- **Define issues of concern based on public input.** The issues of concern are summarized in Table 20. All impact topics were cross-linked to the original list of issues identified by the public during scoping of the general management plan/environmental impact statement. In addition, issues raised upon issuance of the draft general management plan/environmental impact statement in 2004 were also analyzed.

- **Identify the geographic area that could be affected.** The geographic area is either regional or local. Regional effects are defined as those types of changes that would result within the Atlanta metropolitan area. Local effects are defined as those types of effects that occur whether within the park, or within a short distance from the park's boundaries. Because the Chattahoochee River National Recreation Area is a narrow park over 48 miles in length, and is located in the center of an urban and suburban area, local effects vary from north to south and are largely dependent on the level of development. Also, because regional growth is occurring throughout the 48-mile corridor of the park in various forms, these geographic differences are expected to change in the next planning period, and are expected to be an important factor affecting the park through encroachment, increased trail and park facility use, and increased levels of stormwater runoff reaching the park through large numbers of perennial and intermittent streams that connect the park to adjoining areas. These potentially adverse effects are exacerbated by the fact that the watershed is long and narrow, with little chance for retardation of stream flow by settling. In the long-term, therefore, the location of the park will play a major role in future conditions within the park, especially for terrestrial ecological resources and water resources.

- **Define the resources and visitor experiences within the area that could be affected.** This information is included in Chapter 3 according to impact topics identified during public meetings and workshops.

- **Compare the resources and visitor experiences in the park to the area of potential effect.** This step was taken to establish a qualitative basis for comparing the effects of the action alternatives to those of Alternative A. The area of potential effect is related to the combinations of zones assigned to each alternative. Alternatives that involve more active forms of recreation and more potential for construction of park facilities were assumed to have a greater area of potential effect relative to Alternative A. The percentage of the total acreage of the park occupied by each zone under each alternative was used as an indicator of

the level of facility development and the types of visitor experience, types of facilities, and types of appropriate activities that would occur under each alternative (Table 23).

Table 23. Percentages of Park Acreage by Zone

Alternative	Alternatives A, B, C, and D						
	Developed Zone	**Natural Area Recreation Zone**	**Cultural Resource Zone**	**Sub Total[1]**	**Natural Zone**	**River Solitude Zone**	**Sub Total[2]**
Alternative A (No Action)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Alternative B (Focus on Solitude)	2.73	20.27	8.75	**31.75**	49.00	19.25	**68.25**
Alternative C (Centralized Access)	2.69	29.16	7.77	**39.62**	41.13	19.25	60.38
Alternative D (Expanded Use)	4.68	74.13	6.81	**85.62**	14.38	0	14.38
	Alternatives E and F						
Alternative	**Developed Zone**	**Natural Area Recreation Zone**	**Historic Resource Zone**	**Sub Total[3]**	**Natural Zone**	**Rustic Zone**	**Sub Total[4]**
Alternative E	4.65	32.17	7.99	**44.81**	26.82	28.37	**55.19**
Alternative F (the Preferred Alternative)	4.99	49.09	8.01	**62.09**	29.33	8.58	**37.91**

N/A: Not Applicable

[1]Subtotal of developed zone, natural area recreation zone and cultural resource zone represents areas zoned for more active visitor use, and potentially higher levels of construction of new facilities.

[2]Subtotal of natural zone and river solitude zone reflects greater emphasis of these zones on less diverse forms of recreation, and limited construction.

[3]Subtotal of developed zone, natural area recreation zone and historic resource zone represents areas zoned for more active visitor use, and potentially higher levels of construction of new facilities in developed zones.

[4]Subtotal of natural zone and rustic zone reflects greater emphasis of these zones on limited new construction.

Note: Since the river was not zoned in Alternatives B, C, and D, the river zone was excluded from the total acreage in Alternatives E and F, and percentages are based on the land-based zones only.

Under Alternatives B, C, and D, higher levels of park-related construction and more active forms of visitor use would be appropriate in the developed zone, natural area recreation zone, and cultural resource zone. The percentages of the total acreage of the park occupied by each of these three zones were therefore added to provide a relative basis for comparison. In contrast, lower levels of potential park-related construction and less diverse range of visitor activities and types of experience would be appropriate in the natural zone and river solitude zone, so these percentages were also combined (Table 23).

Under Alternatives E and F, higher levels of park-related construction and more active forms of visitor use would be appropriate in the developed zone, natural area recreation zone, and historic resource zone. The percentages of the total acreage of the park occupied by each of these three zones were

therefore added to provide a relative basis for comparison. In contrast, lower levels of park-related construction and less diverse range of visitor activities and types of experience would be appropriate in the natural zone and rustic zone, so these percentages were also combined (Table 24). Since the river was not zoned in Alternatives B, C, and D, the river zone was excluded from the total acreage in Alternatives E and F, and percentages are based on the land-based zones only. This provides a more accurate comparison of all alternatives.

Under Alternative A, existing management policies would be continued, with some new construction, but it was assumed that existing levels of park planning would expected to continue into the future. Therefore, resource planning and implementation would continue with gaps and limitations due to existing levels of funding and staffing.

- **Identify the effects caused by each alternative in relation to Alternative A to determine the relative change in resource condition.** These effects were estimated qualitatively using the management assumptions summarized in the methodology for each impact topic.

- **Characterize the effects based on the following factors:**
    - Whether the effect would be beneficial or adverse;
    - The intensity of the effect: negligible, minor, moderate, or major. Impact topic-specific thresholds for each of these classifications are provided in Table 8. Threshold values were developed based on federal and state standards, consultation with regulators from applicable agencies, and discussions with subject matter experts;
    - Duration of the effect, either short-term or long-term. The definition of short-term and long-term are provided in tables included in the methodology section for each impact topic.
    - Whether the effect would be a direct result of the action or would occur indirectly because of a change to another resource or impact topic.

- **Determine cumulative effects by qualitatively evaluating the effects of the alternatives in conjunction with the past, current, or foreseeable future actions for the park and region.** Cumulative effects include the combined effects of actions inside the park, as well as the combined effects of actions by developments outside the park. The cumulative effect of activities outside the park are beyond the park's control, and the combined effect of any park actions under any of the action alternatives would be negligible in comparison with the effects of actions taken outside the park. Actions outside the park, in contrast, have the potential for having adverse cumulative effects on resources inside the park.

  Cumulative effects were assessed by qualitatively estimating how each alternative would potentially impact the resources within the park, and how the growth and conditions in the area surrounding the park would affect resources and visitor experience inside the park boundaries. This was done by qualitatively estimating the additive effect of expected environmental changes associated with each alternative to existing, ongoing, and reasonably foreseeable actions. Appendix H contains additional information on examples of the types of projects that are either ongoing or proposed to be constructed. Because of the large number of projects that are involved, the assessment of cumulative effects is by necessity a qualitative exercise based on a reasonable prediction of expected activities in the surrounding area, and the features of each alternative.

- **Determine whether impairment would occur to resources and values that are considered necessary and appropriate to fulfill the purposes of the park.** In addition to determining the environmental consequences of the preferred and other alternatives, the National Park Service Management Policies (NPS 2006f) and Director's Order #12 (NPS 2001b) require analysis of potential effects to determine if actions would impair resources in the park.

  "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. National Park Service managers must always seek ways to avoid or minimize to the greatest degree practicable adverse effects on park resources and values. This mandate is independent of the separate prohibition on impairment and applies all the time with respect to all park resources and values, even when there is no risk that any park resource or values may be impaired. National Park Service managers must always seek ways to avoid, or to help minimize to the greatest extent practicable, adverse effects on park resources and values. However, the laws do give the National Park Service the management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, so long as the impact does not constitute impairment of the affected resources and values.

  While Congress has given National Park Service the management discretion to allow impacts within parks, that discretion is limited by statutory requirement (generally enforceable by the federal courts) that the National Park Service must leave park resources and values unimpaired unless a particular law directly and specifically provides otherwise. This, the cornerstone of the Organic Act, establishes the primary responsibility of the National Park Service. It ensures that park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunities for enjoyment of them.

  The impairment of park resources and values may not be allowed by the National Park Service unless directly and specifically provided for by legislation or by the proclamation establishing the park. The relevant legislation or proclamation must provide explicitly (not by implicating reference) for the activity, in terms that keep the National Park Service from having the authority to manage the activity so as to avoid the impairment.

  The impairment that is prohibited by the Organic Act and the General Authorities Act is an impact that, in the professional judgment of the responsible National Park Service manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. Whether an impact meets this definition depends on the particular resources and values that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts.

  An impact to any park resource or value may, but does not necessarily, constitute an impairment. An impact would more likely to constitute impairment to the extent that it affects a resource or value whose conservation is:

  - necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park, or
  - key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or

- identified as a goal in the park's general management plan or other relevant National Park Service planning documents as being of significance.

An impact would be less likely to constitute an impairment, if it is an unavoidable result of an action necessary to preserve or restore the integrity of park resources or values and it cannot be further mitigated (NPS 2006f)."

The potential for impairment was estimated by qualitatively applying the three criteria listed above as required by National Park Service guidelines and policies (NPS 2001b, NPS 2006f). Professional judgment and available information on the baseline conditions and features of the alternatives were relied upon to determine whether resource impairment would be likely. A determination of impairment is made for each impact topic within each "Conclusion" section of this chapter.

- **Identify mitigation measures that may be employed to offset potential adverse effects.** Measures are presented for the construction of new park facilities and for the operation of all park activities. Most mitigation measures are either: (1) best management practices that would be applied during construction; or to (2) avoid, reduce or minimize potentially adverse effects by developing and implementing studies and plans (including a fire management plan, a resource stewardship strategy, a collections management plan, an integrated trail system study, and a commercial services plan), and completing environmental assessments for park projects. These mitigation measures are built into the thresholds, as described previously, and were used as a means of estimating the net effect of each alternative. A summary of mitigation measures associated with each alternative is provided in Table 7.

IMPACT ASSESSMENT SECTION ORGANIZATION

Each impact assessment section provides a detailed assessment of the effects of each alternative for each impact topic, and the basis on which each threshold was selected. The impact sections are organized as follows:

Regulations and Policies: The relevant regulations and policies that apply to each impact topic are summarized in the "Servicewide Mandates and Policies" section of Chapter 1 and in Appendix A.

Methodology: Qualitative methods were used to assess effects of each alternative on each impact topic. A description is presented at the beginning of each impact topic analysis, and impact thresholds are presented.

Impact Analysis: An impact analysis section was completed for each alternative for each individual impact topic. This section summarizes the results of the impact analysis process for each alternative and identifies reasons for the anticipated effects.

Cumulative Impacts: This section discloses the anticipated cumulative effects of each alternative on each impact topic.

Conclusions: This section describes the final results of the analysis. Conclusions regarding direct and cumulative effects of each alternative on each impact topic are provided, including an estimate of the potential for an alternative to cause impairment. Conclusions address impact intensity and duration and whether the effects would be adverse or beneficial.

WATER RESOURCES

Regulations and Policies

The regulations and policies that guide National Park Service actions with respect to water resources are presented in the "Servicewide Mandates and Policies" section of Chapter 1 and in Appendix A.

Methodology

Water resource issues identified during public meetings and planning workshops included: (1) the potential effects of construction and operation of National Park Service projects on surface water hydrology and water quality of streams inside the park, including the Chattahoochee River; and (2) potential effects of development in the area surrounding the park on surface water hydrology and water quality inside the park, including the Chattahoochee River. In general, concerns were raised regarding the protection of water quality and the prevention of habitat degradation.

To address these issues, an assessment of the effects of projected park actions and development in the area surrounding the park on water resources was made using qualitative estimates of the expected levels of construction inside the park and expected levels of growth outside the park, and the effects were compared to Alternative A. The major assumptions used in the analysis of construction-related effects were that: (1) potential effects on water resources from construction sites are primarily related to increased runoff of storm water from disturbed land at construction sites; and (2) as the amount of land disturbing activity increases under a given alternative, the potential for increased runoff and associated pollutants from construction sites increases. The major assumption for assessing operation-related effects on water resources was that the volume of storm water runoff and associated pollutants from impervious surfaces from park facilities during operation would increase as the number of new park facilities being operated increases.

In addition to these major assumptions, it was also assumed that resource stewardship strategies or many of the other proposed plans and studies outlined in Chapter 5 would not be prepared or implemented under Alternative A, but would be more likely to be implemented under the action alternatives due to planned increases in staffing and other actions specific to each alternative. However, under all alternatives, best management practices for construction would be implemented on any construction project proposed by the park and potential adverse effects of construction on water resources would be minimized by implementation of site-specific environmental assessments tiered to this general management plan/environmental impact statement. Effects of individual projects on water resources would be effectively assessed, and mitigation measures employed.

Impairment of water resources would occur if there was a significant adverse effect to these resources or values whose conservation was (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in this general management plan or other National Park Service planning documents as being of significance.

The impact thresholds used for estimating the intensity of different types of effects on water resources are presented in Table 24.

Table 24. Impact Thresholds for Water Resources

Negligible: Effects (chemical, physical, or biological) would not be detectable. Levels of water quality parameters would be well below all water quality standards for designated uses. No vegetation or wildlife effects associated with altered water quality would be evident.
Minor: Effects (chemical, physical, or biological) would be measurable, but water quality parameters would be well within all water quality standards for designated uses. State water quality and anti-degradation policy would not be violated. Changes in vegetation or wildlife use and health associated with water quality would be slight but measurable.
Moderate: Effects (chemical, physical, or biological) would be measurable and readily apparent, but water quality parameters would be within all water quality standards for the designated use. State water quality and antidegradation policy would not be violated. Changes in vegetation and/or wildlife use and health associated with water quality would be measurable and readily apparent. Mitigation would be necessary to offset adverse effects, and would likely be successful.
Major: Effects (chemical, physical, or biological) would be readily measurable, and some water quality standards would be periodically approached, equaled, or exceeded. State water quality regulations and antidegradation policy may be violated. Changes in vegetation and/or wildlife use and health associated with water quality would be measurable and readily apparent, even to a casual observer. Extensive mitigation measures would be necessary and their success would not be assured. ***Duration:*** Long-term: Following treatment, recovery would take longer than one year. Short-term: Following treatment, recovery would take less than one year.

Impacts of Alternative A

Under Alternative A, some construction-associated runoff would be produced since a small number of new facilities would potentially be constructed and operated. If left uncontrolled, this runoff could cause an increase in current velocities, flow, and sedimentation in receiving streams within the park. However, best management practices would be employed in all construction areas to control the amount and quality of runoff. These would include erosion control measures such as type C silt fencing on slopes greater than 3 percent, mulching, sedimentation ponds, and use of cocoa fiber and seeding of native grasses.

Due to existing staffing and funding constraints, Alternative A is considered to offer a minimal level of protection to water resources. The park would be managed according to current policies, and resource stewardship strategies, flow studies, or many other of the proposed plans and studies outlined in Chapter 5 would not all be implemented. Trails and other park facilities would not be effectively maintained under Alternative A, and there would be a higher potential for elevated levels of surface runoff that could reach streams within the park.

Visitors would be allowed access throughout the park at a wide variety of existing locations, potentially leading to an increase in trail overuse, soil erosion, and transport to surface water, including the Chattahoochee River. Trail overuse and creation of unauthorized trails are already a problem in some areas of the park and this would likely worsen under Alternative A. However, best management practices would also be included in the design of all park facilities, including trails, which would minimize the potential for adverse effects on water resources. Overall, Alternative A would result in a long- and short-term, minor to moderate, adverse, effect on water resources.

Cumulative Effects

Under all of the alternatives, including Alternative A, the cumulative adverse effects related to stormwater runoff from development outside the park on water resources inside the park would be of greater significance than cumulative effects related to park projects and management. As the area surrounding the park becomes more developed, this problem would be expected to increase. However, regional implementation of such initiatives as total maximum daily load requirements, sediment and erosion control permitting and certification programs, local watershed management plans and ordinances, and programs designed to prevent sanitary and combined sewer overflows would have beneficial effects on water quality within the park. As implementation of these initiatives and programs by local governments becomes more widespread, controls should ultimately be put in place and enforced that would improve water quality in the park over the long term. However, Alternative A would involve the least amount of coordination and planning between the National Park Service and local governments which could hinder the potential of such beneficial effects.

When the beneficial and adverse effects of other past, ongoing, and future plans, projects, and activities affecting water resources are combined with actions under Alternative A, the resulting cumulative effects would be long- and short-term, moderate to major, and adverse. Adverse effects would be moderate to major because water resources would continue to be more heavily influenced by urban development in the surrounding area than by activities in the park. These effects would be outside of the park's ability to control, however, and are not related to park actions.

Conclusions

Long- and short-term, minor to moderate, adverse effects would occur under Alternative A from minimal construction and maintenance of park facilities, the effects of increasing visitor use, staffing constraints, and the lack of implementation of resource stewardship strategies and other studies.

Water resources in the park, including the Chattahoochee River, would continue to be primarily influenced by urban development in the surrounding urban watershed. This would constitute a long- and short-term, moderate to major, adverse, cumulative effect on water resources. These effects would be outside of the park's ability to control, however, and are not related to park actions.

There would be no impairment of water resources or values as a result of park actions under Alternative A.

Impacts of Alternative B

Under Alternative B, the level of development would be less than what is anticipated under Alternative A, and most new facilities would be built outside the park whenever possible. In many cases, sites chosen for development would be likely to have some existing facilities or have been previously disturbed by utility lines, access roads, or existing structures. New development within the park would be limited in size and numbers, and could include such visitor facilities as small gravel parking lots, primitive trails, and interpretive signage. Best management practices described under Alternative A would also be incorporated into new development to control and minimize the amount and improve the quality of runoff during construction.

When compared with Alternative A, which lacks management zones, much of the park would be left in a natural state with approximately 68 percent of park acreage zoned as either a natural zone or river solitude zone. Facilities such as roads, parking lots, boat ramps, and restrooms would not be permitted

in the river solitude zone, and only existing facilities and primitive trails would be permitted in the natural zone. Visitor use would be focused on the river, primitive areas, unpaved trails, and other less developed facilities, and passive forms of recreation would be emphasized. Parcels added to the park would remain in, or be restored to, a largely natural state providing additional levels of protection for water resources in the watershed.

Visitors would be allowed access at relatively few locations under Alternative B, resulting in a lower potential for trail overuse and increased soil erosion in comparison with Alternative A. Potential adverse effects of trail use and soil erosion on water quality would be mitigated by developing and implementing a resource stewardship strategy and integrated trail system study. Flow studies would be performed to provide the information necessary to help sustain aquatic life and provide for future park recreational opportunities. An emphasis would also be placed on habitat restoration which would serve as a natural buffer for surface water. In addition, increased educational awareness would also be emphasized under this alternative, which would provide further benefits. Overall, Alternative B would therefore have a long- and short-term, minor, beneficial effect on water resources in the park.

Cumulative Impacts

Cumulative effects would be similar to those described under Alternative A. However, increased staffing proposed for all of the action alternatives could potentially lessen adverse cumulative effects through increased cooperation and coordination with local, county and state agencies on projects and activities outside of the park that directly and indirectly affect water quality within the park. In addition, increased educational programs aimed at increased resource awareness could generate interest in their protection outside the park as well. Although the effectiveness of cooperative efforts and education would be difficult to quantify, it is likely that cumulative effects would be slightly less adverse than those described under Alternative A, resulting in a long- and short-term, moderate, adverse, cumulative effect on water quality under Alternative B.

Conclusions

Alternative B would have long- and short-term, minor, beneficial effects on water resources resulting from negligible increases in surface runoff; implementation of a resource stewardship strategy, an integrated trail system study, and flow studies; and the increased educational opportunities afforded under this alternative.

Water resources would continue to be more heavily influenced by urban development in the surrounding area than by activities in the park under all of the alternatives, including Alternative B. This would constitute a long- and short-term, moderate, adverse, cumulative effect on water resources. These effects would be outside of the park's ability to control, however, and are not related to park actions.

There would be no impairment of water resources or values as a result of park actions under Alternative B.

Impacts of Alternative C

Under Alternative C, three strategic areas or hubs, located inside or outside of the park, would be developed to provide information, interpretation and other services to visitors and would include administrative facilities for park staff. Construction and visitor-use impacts would be centralized within these developed hubs, minimizing the need to construct facilities in other parts of the park, and reducing the potential to affect water resources. The rest of the park would remain relatively undeveloped. The moderate amount of construction and land disturbing activity required for the new hubs, access roads, and trails would be greater than expected under future development in Alternative A. However, with mitigation as described in Table 7, ground-disturbing actions proposed in Alternative C would have only minor, adverse effects on water resources.

Alternative C would discourage new entrances to the park while focusing park supervision, education, and monitoring where use is greatest. With more limited access, sites would be better protected from resource damage than under Alternative A. Potential adverse effects of trail use and soil erosion would be mitigated by developing and implementing a resource stewardship strategy and an integrated trail system study. Flow studies would be performed to provide the information necessary to help sustain aquatic life and provide for future park recreational opportunities. Site monitoring and numbers of rangers and educational programs would be increased, helping to provide greater protection and monitoring of water resources.

Management zones promoting passive recreation and less developed surfaces (the natural and river solitude zones) would occupy approximately 60 percent of the park. New areas added to the park could be effectively managed under this alternative, providing additional levels of protection for water resources in the watershed. New interpretation and education efforts and coordination of public/private partnerships would also help build stewardship and enhance opportunities for resource protection.

Overall, Alternative C would have a long- and short-term, negligible, adverse effect on water resources in the park.

Cumulative Impacts

Cumulative effects would be the same as described for Alternative B.

Conclusions

Alternative C would have the potential for a greater amount of construction than Alternative A; however, these impacts would be offset somewhat by centralization of services and construction in hubs; implementation of a resource stewardship strategy, an integrated trail system study, and flow studies; and the increased educational opportunities and partnerships afforded under this alternative. The overall effect on water resources is long- and short-term, negligible, and adverse.

Water resources would continue to be more heavily influenced by urban development in the surrounding area than by activities in the park under all of the alternatives, including Alternative C. This would constitute a long- and short-term, moderate, adverse, cumulative effect on water resources. These effects would be outside of the park's ability to control, however, and are not related to park actions.

There would be no impairment of water resources or values as a result of park actions under Alternative C.

Impacts of Alternative D

Alternative D would involve a greater relative level of facility construction and operation activities in comparison with Alternative A, and more ground disturbance would be considered appropriate, primarily in the developed zones but also in the natural area recreation zone and cultural resources zone. Under Alternative D, the relative amount of associated surface runoff and addition of impervious space would therefore be higher than that associated with Alternative A. However, best management practices described under Alternative A would also be employed in all construction areas to control and minimize the amount and improve the quality of runoff.

Of the five action alternatives, Alternative D dedicates the least amount of acreage (14 percent of the authorized 10,000 acres) to zones emphasizing less diverse types of recreation and minimization of new construction. The increased number and types of recreational development associated with Alternative D compared to Alternative A would increase the potential for visitor-related adverse effects on water quality. In addition, visitor use and access would be expanded and distributed throughout the park. Connections to existing neighborhoods would be optimized and expanded, and trail links to areas outside the park would be provided. Creation of numerous trails and access points could potentially make it difficult for park staff to prevent resource damage and inappropriate uses of sites. However, potential adverse effects of trail use and soil erosion would be mitigated by developing and implementing a resource stewardship strategy and an integrated trail system study.

Under Alternative D, flow studies would be performed to provide the information necessary to help sustain aquatic life and provide for future park recreational opportunities. Site monitoring, staffing, and educational programs would be increased, helping to provide greater protection and evaluation of water resources. New areas added to the park could be effectively managed under this alternative, providing additional levels of protection for water resources in the watershed. In addition, Alternative D (and Alternatives E and F) would have greater emphasis placed on coordination and planning between the National Park Service and local governments than Alternative A which could result in greater stewardship of water resources within the park.

These combined actions and factors would result in an overall long- and short-term, minor, adverse effect on water resources.

Cumulative Impacts

Cumulative effects would be the similar to those described for Alternative B. However, Alternative D (and Alternatives E and F) would have the greatest staffing increases and greatest emphasis placed on coordination and planning between the National Park Service and local governments and organizations than Alternative A. Park managers would be able to use these partnerships to better adapt to changing ecological and social conditions within and external to the park and coordinate regional planning and land management as it affects the park. The effects of urban development outside the park cannot be directly controlled by park officials and resolution of watershed issues would ultimately depend on the effectiveness of watershed management planning efforts by the surrounding communities and implementation of institutional controls such as wet ponds, artificial floodplains, and non-structured best management practices by local agencies. Bordering area governments could consider future changes to their comprehensive plans to address land use, zoning, permitting and regulatory issues within the watershed. Increased coordination with local agencies

could also have the beneficial effect of increased enforcement of the Metropolitan River Protection Act, resulting in improved stewardship of water resources. The combined effect of a unified strategy would be an effective tool for preserving park resources. Hence, Alternative D (and Alternatives E and F) would provide the greatest level of offset in adverse cumulative effects when compared to Alternative A resulting in a long- and short-term, minor to moderate, adverse, cumulative effect on water resources.

Conclusions

Alternative D would have the greatest relative amount of land disturbing activity and more access in comparison to Alternative A. These impacts would be offset somewhat by implementation of a resource stewardship strategy, an integrated trail system study, and flow studies; and the increased staffing, educational opportunities, and partnerships afforded under this alternative. The overall effect on water resources is long- and short-term, minor, and adverse.

Water resources would continue to be more heavily influenced by urban development in the surrounding area than by activities in the park under all of the alternatives. These potential effects would be mitigated to some extent by the greater emphasis that Alternative D places on partnering with local governments resulting in an overall long- and short-term, minor to moderate, adverse, cumulative effect on water resources.

There would be no impairment of water resources or values as a result of park actions under Alternative D.

Impacts of Alternative E

Alternative E is similar to Alternative B in that it would provide for solitude, and access would be located strategically throughout the park. The level of development in Alternative E is similar to and slightly increased from development in the Alternative C, and substantially more than Alternative A. Mitigation measures described in Table 7 would help ensure that adverse effects on water resources from development would be negligible to minor.

Alternative E dedicates approximately 55 percent of park acreage to zones emphasizing less diverse types of recreation, access, and minimization of new construction. However, the number and types of recreational opportunities associated with Alternative E and the expansion and distribution of visitor services would be greater than Alternative A and would increase the potential for visitor-related adverse effects on water quality. Connections to existing neighborhoods would be optimized and expanded, and trail links to areas outside the park would be provided. Creation of numerous trails and access points could potentially make it difficult for park staff to prevent resource damage and inappropriate uses. However, potential adverse effects of trail use and soil erosion would be mitigated by developing and implementing a resource stewardship strategy and an integrated trail system study.

Under Alternative E, flow studies would be performed to provide the information necessary to help sustain aquatic life and provide for future park recreational opportunities. Site monitoring, staffing, and educational programs would be increased, helping to provide greater protection and evaluation of water resources. New areas added to the park could be effectively managed under this alternative, providing additional levels of protection for water resources in the watershed. In addition, Alternative E (and Alternatives D and F) would have the greatest emphasis placed on coordination and planning between the National Park Service and local governments compared to Alternative A which could

result in greater stewardship of water resources within the park. These combined actions and factors would result in an overall long- and short-term, negligible to minor, adverse effect on water resources.

Cumulative Impacts

Cumulative effects would be similar to those described for Alternative D, resulting in a similar long- and short-term minor to moderate, adverse effect.

Conclusions

Alternative E would have a moderate amount of land disturbing activity and a greater level of access in comparison to Alternative A. These impacts would be offset somewhat by implementation of a resource stewardship strategy, an integrated trail system study, and flow studies; and the increased staffing, educational opportunities, and partnerships afforded under this alternative. The overall effect on water resources is long- and short-term, negligible to minor, and adverse.

Water resources would continue to be more heavily influenced by urban development in the surrounding area than by activities in the park under all of the alternatives. These potential effects would be mitigated to some extent by the greater emphasis that Alternative E places on partnering with local governments resulting in an overall long- and short-term, minor to moderate, adverse, cumulative effect on water resources.

There would be no impairment of water resources or values as a result of park actions under Alternative E.

Impacts of Alternative F, the Preferred Alternative

The same effects as those described under Alternative D are applicable to Alternative F.

AQUATIC RESOURCES

Regulations and Policies

The regulations and policies that guide National Park Service actions with respect to aquatic resources are presented in the "Servicewide Mandates and Policies" section of Chapter 1 and in Appendix A.

Methodology

Aquatic resource issues identified during public meetings and planning workshops included: (1) the potential effects of construction and operation of park projects on aquatic ecology inside the park, including the Chattahoochee River; and (2) potential effects of development in the area surrounding the park on aquatic ecology inside the park, including the Chattahoochee River. In general, concerns were raised regarding the protection of water quality and prevention of habitat degradation.

To address these issues, an assessment of the effects of projected park actions and development in the area surrounding the park on aquatic resources was made using qualitative estimates of the expected levels of construction inside the park, and expected levels of growth outside the park. Qualitative estimates of these effects were made, and the effects were compared to Alternative A. The major assumptions used in the analysis of construction-related effects were that: (1) potential effects on aquatic resources from construction sites are primarily related to increased runoff of storm water from

disturbed land at construction sites; and (2) as the amount of land disturbing activity increases under a given alternative, the potential for increased runoff and associated pollutants from construction sites increases. The major assumption for assessing operation-related effects on aquatic resources was that the volume of storm water runoff and associated pollutants from impervious surfaces from park facilities during operation would increase as the number of new park facilities being operated increases.

In addition to these major assumptions, current management policies would continue to be carried out into the future, and resource stewardship strategies and many of the other proposed plans and studies outlined in Chapter 5 would not be prepared or implemented under Alternative A, but could be implemented under the action alternatives due to planned increases in staffing and other planned actions specific to each alternative. This implies that, under Alternative A, plant and animal resources associated with aquatic habitats would not be inventoried beyond what is currently known, and that habitat restoration activities would be minimal. The trail system would not be managed as effectively as proposed under the action alternatives.

However, under all alternatives, best management practices for construction would be implemented on any construction project proposed by the park and potentially adverse effects of construction on aquatic resources would be minimized by implementation of site-specific environmental assessments tiered to the general management plan/environmental impact statement. Effects of individual projects on aquatic resources would be effectively assessed, and mitigation measures employed.

Impairment of aquatic resources would occur if there was a significant adverse effect to these resources or values whose conservation was (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in this general management plan or other National Park Service planning documents as being of significance.

The impact thresholds used for estimating the intensity of different types of effects on aquatic resources are presented in Table 25.

Table 25. Impact Thresholds for Aquatic Resources

Negligible: Aquatic resources and their habitats would not be affected or the effects would be at or below the level of detection and would not be measurable or of perceptible consequence to aquatic populations.
Minor: Effects on aquatic resources or habitats would be measurable or perceptible, but localized within a small area. While the mortality of individual plants and animals might occur, the viability of aquatic populations would not be affected and the community, if left alone, would recover.
Moderate: A change in aquatic populations or habitats would occur over a relatively large area. The change would be readily measurable in terms of abundance, distribution, quantity, or quality of populations. Mitigation measures would be necessary to offset adverse effects, and would likely be successful.
Major: Effects on aquatic populations or habitats would be readily apparent, and would substantially change aquatic populations over a large area. Extensive mitigation would be needed to offset adverse effects, and the success of mitigation measures could not be assured.
Duration: Long-term: Takes more than a year to recover. Short-term: Recovers in less than a year.

Impacts of Alternative A

Under Alternative A, some construction-associated runoff would be produced since a small number of new facilities would be constructed and operated. If left uncontrolled, this runoff could cause an increase in current velocities, flow, and sedimentation in receiving streams within the park. These effects in turn would cause elimination of suitable habitat for benthic invertebrate and fish. However, best management practices would be employed in all construction areas to control the amount and quality of runoff and the associated effects on aquatic resources. These would include erosion control measures such as type C silt fencing on slopes greater than 3 percent, mulching, sedimentation ponds, and use of cocoa fiber and seeding of native grasses.

Due to existing staffing and funding constraints, Alternative A is considered to offer a minimal level protection to aquatic resources. The park would be managed according to current policies, and resource stewardship strategies, flow studies, or many other of the proposed plans and studies outlined in Chapter 5 would not all be implemented. Trails and other park facilities would not be effectively maintained under Alternative A, and there would be a higher potential for elevated levels of surface runoff that could reach streams within the park.

Visitors would be allowed access throughout the park at a wide variety of existing locations, potentially leading to an increase in trail overuse, soil erosion, and transport to surface water, including the Chattahoochee River. Trail overuse and creation of unauthorized trails are already a problem in some areas of the park and this would likely worsen under Alternative A. All of these changes would contribute to further degradation of habitats for fish and benthic invertebrates as well as other aquatic resources. However, best management practices would also be included in the design of all park facilities, including trails, which would minimize the potential for adverse effects on aquatic resources. Overall, Alternative A would result in a long- and short-term, minor to moderate, adverse, effect on aquatic resources.

Cumulative Effects

The growth in the area surrounding the park has already had adverse effects on water quality and aquatic resources in the Chattahoochee River. This was identified as a major issue in terms of water quality, fishing, recreational use and visitor experience. However, this issue cannot be effectively solved by park staff because it is largely outside of the park's control.

Under all of the alternatives, including Alternative A, the cumulative adverse effects related to stormwater runoff from development outside the park on aquatic resources inside the park would be of greater significance than cumulative effects related to park projects and management. As the area surrounding the park becomes more developed, this problem would be expected to increase. However, regional implementation of such initiatives as total maximum daily load requirements, sediment and erosion control permitting and certification programs, local watershed management plans and ordinances, and programs designed to prevent sanitary and combined sewer overflows would have beneficial effects on aquatic resources within the park. As implementation of these initiatives and programs by local governments becomes more widespread, controls should ultimately be put in place and enforced that would improve water quality in the park over the long term, which would in turn benefit aquatic resources. However, Alternative A would involve the least amount of coordination and planning between the National Park Service and local governments which could hinder the potential of such beneficial effects.

When the beneficial and adverse effects of other past, ongoing, and future plans, projects, and activities affecting aquatic resources are combined with actions under Alternative A, the resulting cumulative effects would be long- and short-term, moderate to major, and adverse. Adverse effects would be moderate to major because aquatic resources would continue to be more heavily influenced by urban development in the surrounding area than by activities in the park. These effects would be outside of the park's ability to control, however, and are not related to park actions.

Conclusions

Long- and short-term, minor to moderate, adverse effects would occur under Alternative A from minimal construction and maintenance of park facilities, the effects of increasing visitor use, staffing constraints, and the lack of implementation of resource stewardship strategies and other studies.

Aquatic resources in the park would continue to be primarily influenced by urban development in the surrounding urban watershed. This would constitute a long- and short-term, moderate to major, adverse, cumulative effect on aquatic resources in the park. These effects would be outside of the park's ability to control, however, and are not related to park actions.

There would be no impairment of aquatic resources or values as a result of park actions under Alternative A.

Impacts of Alternative B

Under Alternative B, the level of development would be less than what is anticipated under Alternative A, and most new facilities would be built outside the park whenever possible. In many cases, sites chosen for development would likely have some existing facilities or have been previously disturbed by utility lines, access roads, or existing structures. New development within the park would be limited in size and numbers, and could include such visitor facilities as small gravel parking lots, primitive trails, and interpretive signage. Best management practices described under Alternative A would also be incorporated into new development to control and minimize the amount and improve the quality of runoff during construction and the associated effects on aquatic resources.

When compared with Alternative A, which lacks management zones, much of the park would be left in a natural state with approximately 68 percent of park acreage zoned as either a natural zone or river solitude zone. Facilities such as roads, parking lots, boat ramps, and restrooms would not be permitted in the river solitude zone, and only existing facilities and primitive trails would be permitted in the natural zone. Visitor use would be focused on the river, primitive areas, unpaved trails, and other less developed facilities, and passive forms of recreation would be emphasized. Visitors would be allowed access at relatively few locations under Alternative B, resulting in a lower potential for trail overuse and increased soil erosion in comparison with Alternative A. Potential adverse effects of trail use and soil erosion would be mitigated by developing and implementing a resource stewardship strategy and integrated trail system study. Visitor use patterns in heavily used areas could be changed to improve resource conditions and there would be a heavier emphasis placed on restoration. Parcels added to the park would remain in, or be restored to, a largely natural state providing additional levels of protection for aquatic resources in the watershed.

Additional studies and planning efforts could be implemented under Alternative B, including a fisheries management plan which would outline specific measures to restore aquatic habitat and water quality to support the reintroduction of native aquatic species where feasible. This would be developed in coordination with the Georgia Department of Natural Resources, Wildlife Resources

Division. Studies could also be conducted to develop a predictive model for the effects of variable instream flows on fish and their habitats. In addition, habitat restoration and increased educational awareness would also be emphasized under this alternative, which would provide further benefits. Overall, Alternative B would have a long- and short-term, minor, beneficial effect on aquatic resources in the park.

Cumulative Impacts

Cumulative effects would be similar to those described under Alternative A. However, increased staffing proposed for all of the action alternatives could potentially lessen adverse cumulative effects through increased cooperation and coordination with local, county, and state agencies on projects and activities outside of the park that directly and indirectly affect aquatic resources within the park. In addition, increased educational programs aimed at increased resource awareness could generate interest in their protection outside the park as well. Although the effectiveness of cooperative efforts and education would be difficult to quantify, it is likely that cumulative effects would be slightly less adverse than those described under Alternative A, resulting in a long- and short-term, moderate, adverse, cumulative effect on aquatic resources under Alternative B.

Conclusions

Alternative B would have long- and short-term, minor, beneficial effects on aquatic resources resulting from negligible increases in surface runoff; implementation of a fisheries management plan, resource stewardship strategy, an integrated trail system study, and flow studies; and emphasis on habitat restoration and increased educational opportunities afforded under this alternative.

Aquatic resources would continue to be more heavily influenced by urban development in the surrounding area than by activities in the park under all of the alternatives, including Alternative B. This would constitute a long- and short-term, moderate, adverse, cumulative effect on aquatic resources. These effects would be outside of the park's ability to control, however, and are not related to park actions.

There would be no impairment of aquatic resources or values as a result of park actions under Alternative B.

Impacts of Alternative C

Under Alternative C, construction and visitor-use impacts would be centralized within three strategic areas or hubs, minimizing the need to construct facilities in other parts of the park, and reducing the potential to affect aquatic resources. The rest of the park would remain relatively undeveloped. The moderate amount of construction and land disturbing activity required for the hubs, access roads, and trails would be greater than expected future development under Alternative A. However, with mitigation as described in Table 7, ground-disturbing actions proposed in Alternative C would have only minor effects on aquatic resources.

Alternative C would discourage new entrances to the park while focusing park supervision, education, and monitoring activities where use is greatest. With more limited access, sites would be better protected from resource damage than under Alternative A. In addition, management zones with less developed surfaces and less diverse recreational opportunities (the natural zone and river solitude zone) would occupy approximately 60 percent of the park. Additional areas added to the park could be effectively managed under this alternative, providing additional levels of protection for aquatic

resources in the watershed. Increased interpretation and education efforts and coordination of public/private partnerships at hubs would also enhance stewardship and resource protection.

A fisheries management plan would also be implemented which would outline specific measures to restore aquatic habitat and water quality and measures that support the reintroduction of native aquatic species where feasible. This would be developed in coordination with the Georgia Department of Natural Resources, Wildlife Resources Division. Studies could also be conducted to develop a predictive model for the effects of variable instream flows on fish and their habitats. Potential adverse effects of trail use and soil erosion would be mitigated by developing and implementing a resource stewardship strategy and an integrated trail system study. In addition, staffing and monitoring programs would be increased under Alternative C, helping to provide greater protection and evaluation of aquatic resources.

Overall, Alternative C would have a long- and short-term, negligible, adverse effect on aquatic resources in the park.

Cumulative Impacts

Cumulative effects would be similar to those described for Alternative B, resulting in a similar long- and short-term, moderate, adverse cumulative effects.

Conclusions

Alternative C would have a greater amount of construction than Alternative A; however, these impacts would be offset somewhat by centralization of construction in hubs; implementation of a fisheries management plan, resource stewardship strategy, an integrated trail system study, and flow studies; and the increased educational opportunities and partnerships afforded under this alternative. The overall effect on aquatic resources is long- and short-term, negligible, and adverse.

Aquatic resources would continue to be more heavily influenced by urban development in the surrounding area than by activities in the park under all of the alternatives, including Alternative C. This would constitute a long- and short-term, moderate, adverse, cumulative effect on aquatic resources. These effects would be outside of the park's ability to control, however, and are not related to park actions.

There would be no impairment of aquatic resources or values as a result of park actions under Alternative C.

Impacts of Alternative D

Alternative D would involve the greatest relative level of facility construction and operation activities in comparison with Alternative A, and more ground disturbance would occur, primarily in the developed zones but also in the natural area recreation zone and cultural resources zone. Under Alternative D, the relative amount of associated surface runoff and addition of impervious space would therefore be higher than that associated with Alternative A. However, best management practices described under Alternative A would be employed in all construction areas to control and minimize the amount and improve the quality of runoff and the associated effects on aquatic resources.

Of the five action alternatives, Alternative D dedicates the least amount of acreage (14 percent of the total 10,000 acre designation) to zones emphasizing less diverse recreational opportunities and minimization of new construction. The increased number and types of recreational development associated with Alternative D compared to Alternative A would increase the potential for visitor-related adverse effects on aquatic resources. In addition, visitor use and access would be expanded and distributed throughout the park. Connections to existing neighborhoods would be optimized and expanded, and trail links to areas outside the park would be provided. Creation of numerous trails and access points would make it difficult for park staff to prevent resource damage and inappropriate uses. However, development and implementation of an integrated trail system study and a resource stewardship strategy would help mitigate these effects.

Alternative D would provide beneficial effects through the development and implementation of a fisheries management plan which would outline specific measures to restore aquatic habitat and water quality and measures that support the reintroduction of native aquatic species where feasible. This would be developed in coordination with the Georgia Department of Natural Resources, Wildlife Resources Division. Flow studies would also be performed to provide the information necessary to sustain aquatic life and provide for future park recreational opportunities. Site monitoring, the number of park staff, and educational programs would be increased, helping to provide greater protection and evaluation of aquatic resources. New areas added to the park could be effectively managed under this alternative, providing additional levels of protection for aquatic resources in the watershed. In addition, Alternative D (and Alternatives E and F) would have the greatest emphasis placed on coordination and planning between the National Park Service and local governments than Alternative A which could result in greater stewardship of aquatic resources within the park.

Overall, Alternative D would have a long- and short-term, minor, adverse effect on aquatic resources in the park.

Cumulative Impacts

Cumulative effects would be the similar to those described for Alternative B. However, Alternative D (and Alternatives E and F) would have the greatest staffing increases and greatest emphasis placed on coordination and planning between the National Park Service and local governments than Alternative A. Park managers would be able to use these partnerships to better adapt to changing ecological and social conditions within and external to the park and coordinate regional planning and land management as it affects the park. The effects of urban development outside the park cannot be directly controlled by park officials and resolution of watershed issues would ultimately depend on the effectiveness of watershed management planning efforts by the surrounding communities and implementation of institutional controls such as wet ponds, artificial floodplains, and non-structural best management practices by local agencies. Bordering area governments could consider changes to their comprehensive plans to address land use, zoning, permitting and regulatory issues within the watershed. Increased coordination with local agencies could also have the beneficial effect of increased enforcement of the Metropolitan River Protection Act, resulting in improved stewardship of aquatic resources. The combined effect of a unified strategy would be an effective tool for preserving the park resources. Hence, Alternative D (and Alternatives E and F) would provide greater level of offset in adverse cumulative effects when compared to Alternative A resulting in a long- and short-term, minor to moderate, adverse, cumulative effect on aquatic resources.

Conclusions

Alternative D would have the greatest relative amount of land disturbing activity and the most widespread level of access in comparison to Alternative A. These impacts would be offset somewhat by implementation of a fisheries management plan, resource stewardship strategy, an integrated trail system study, and flow studies; and the increased educational opportunities and partnerships afforded under this alternative. The overall effect on aquatic resources is long- and short-term, minor, and adverse.

Aquatic resources would continue to be more heavily influenced by urban development in the surrounding area than by activities in the park under all of the alternatives. These potential effects would be mitigated to some extent by the greater emphasis that Alternative D places on partnering with local governments resulting in an overall long- and short-term, minor to moderate, adverse, cumulative effect on aquatic resources.

There would be no impairment of aquatic resources or values as a result of park actions under Alternative D.

Impacts of Alternative E

Alternative E is similar to Alternative B in that it would provide for solitude, and access would be located strategically throughout the park. The level of development in Alternative E is similar to and slightly increased from the level of development proposed under Alternative C, and substantially more than Alternative A. Mitigation measures described in Table 7 would help ensure that adverse effects on aquatic resources from development would be negligible to minor.

Alternative E dedicates approximately 55 percent of park acreage to zones emphasizing less diverse types of recreation and access, and minimization of new construction. However, the number and types of recreational development associated with Alternative E and the expansion and distribution of visitor services would be greater than Alternative A and would increase the potential for visitor-related adverse effects on aquatic resources. Connections to existing neighborhoods would be optimized and expanded, and trail links to areas outside the park would be provided. Creation of numerous trails and access points could potentially make it difficult for park staff to prevent resource damage and inappropriate uses. However, potential adverse effects of trail use and soil erosion would be mitigated by developing and implementing a resource stewardship strategy and an integrated trail system study.

Alternative E would provide beneficial effects through the development and implementation of a fisheries management plan which would outline specific measures to restore aquatic habitat and water quality to support the reintroduction of native aquatic species where feasible. Flow studies would also be performed to provide the information necessary to help sustain aquatic life and provide for future park recreational opportunities. Site monitoring, the number of park staff, and educational programs would be increased, helping to provide greater protection and evaluation of aquatic resources. New areas added to the park could be effectively managed under this alternative, providing additional levels of protection for aquatic resources in the watershed. In addition, Alternative E (and Alternative D and F) would have the greatest emphasis placed on coordination and planning between the National Park Service and local governments than Alternative A which could result in greater stewardship of aquatic resources within the park.

These combined actions and factors would result in an overall long- and short-term, negligible to minor, adverse effect on aquatic resources.

Cumulative Impacts

Cumulative effects would be similar to those described for Alternative D, resulting in similar long- and short-term, minor to moderate, adverse effects.

Conclusions

Alternative E would have a moderate amount of land disturbing activity and a greater level of access in comparison to Alternative A. These impacts would be offset somewhat by implementation of a fisheries management plan, resource stewardship strategy, an integrated trail system study, and flow studies; and the increased staffing, educational opportunities, and partnerships afforded under this alternative. The overall effect on aquatic resources is long- and short-term, negligible to minor, and adverse.

Aquatic resources would continue to be more heavily influenced by urban development in the surrounding area than by activities in the park under all of the alternatives. These potential effects would be mitigated to some extent by the greater emphasis that Alternative E places on partnering with local governments resulting in an overall long- and short-term, minor to moderate, adverse, cumulative effect on aquatic resources.

There would be no impairment of aquatic resources or values as a result of park actions under Alternative E.

Impacts of Alternative F, the Preferred Alternative

The same effects as those described under Alternative D are applicable to Alternative F.

WETLANDS

Regulations and Policies

The regulations and policies that guide National Park Service actions with respect to wetlands are presented in the "Servicewide Mandates and Policies" section of Chapter 1 and in Appendix A.

Methodology

The issues identified during public meetings and planning workshops was the potential effects of park construction activities, including trail construction and maintenance, and overall plan implementation on wetlands. Potential adverse effects of the alternatives on wetlands were assessed based on a qualitative analysis of the potential for locating facilities in or near wetlands, the relative extent of the effects, the effects of other development activities in the surrounding region, the effectiveness of mitigation measures employed, and the potential for addition of new wetland areas. The impact thresholds developed for the assessment of effects on wetlands are presented in Table 26.

Table 26. Impact Thresholds for Wetlands

Negligible: Wetlands would not be affected or the effects would be at or below levels of detection and would not be measurable or of perceptible consequence to wetland plant and animal populations.
Minor: The effects to wetlands would be measurable or perceptible, but localized within a small area. While the mortality of individual plants and animals might occur, the viability of wetland populations and habitats would not be affected and the community, if left alone, would recover.
Moderate: The effects to wetlands would be readily apparent over a relatively small area, but the effect could be mitigated by restoring previously degraded wetlands. The action would have a measurable effect on plant or wildlife species within the wetland, but all species would remain indefinitely viable. Mitigation measures would be necessary to offset adverse effects, and would likely be successful.
Major: Effects on wetland populations or habitats would be readily apparent, and would substantially change over a large area. The effects would have measurable consequences for the wetland area that could not be mitigated.
Duration: Long-term: Takes more than 3 years to recover. Short-term: Recovers in less than 3 years.

The major assumptions used in this analysis were: (1) limited but variable construction would be allowable in the park under any of the alternatives and best management practices would be implemented during construction; (2) visitor use and potential effects on wetlands would vary between alternatives based on the amount of facilities made available; and (3) that the highly urbanized areas surrounding the park would have a far greater potential effect on wetlands in the park than any activities proposed under any of the action alternatives.

In addition to these major assumptions, current management policies would continue to be carried out into the future, and it was also assumed that resource stewardship strategies and many of the other proposed plans and studies outlined in Chapter 5 would not be prepared or implemented under Alternative A but could be implemented under the action alternatives due to planned increases in staffing and other planned actions specific to each alternative. This implies that under Alternative A, wetland resources would not be inventoried or managed beyond what is currently known, and that wetland restoration activities would be minimal. Trails would also not be maintained to the extent possible, and the trail system would not be managed as effectively as it would be under an integrated trail system study proposed under the action alternatives.

Impairment of wetland resources would occur if there was a significant adverse effect to these resources or values whose conservation was (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in this general management plan or other National Park Service planning documents as being of significance.

Impacts of Alternative A

Limited construction (such as boat ramps, parking spaces, limited roads, or small buildings) and maintenance activities would occur under Alternative A. New trail and facility construction would be addressed and assessed in the form of individual environmental assessments, and avoidance, minimization, and compensation would be demonstrated prior to construction activity. Construction near a wetland area would be avoided whenever practicable; hence, the majority of the wetlands in the park would not be affected. Under Alternative A, existing trails and facilities currently located in wetlands would not be altered.

Due to existing staffing and funding constraints, Alternative A is considered to offer a minimal level of protection to wetland resources. Existing levels of protection of wetlands would continue, but wetlands would not be inventoried beyond what is currently known, and a resource management plan and integrated trail system study would not be implemented. Trails would not be as effectively maintained as possible under Alternative A, and there would be a higher potential for elevated levels of surface runoff that could affect wetlands within the park. Visitors would be allowed access throughout the park at a wide variety of existing locations, potentially leading to an increase in trail overuse and soil erosion. Where erosion occurs along unauthorized trails or overused areas, these conditions would likely continue to occur, and could affect wetlands in the park. Also, new areas could be added to the park which could potentially contain wetlands; however, due to staffing and funding constraints, these areas would not be managed to the extent possible. Overall, this alternative would have long- and short-term, moderate, adverse effects on wetlands.

Cumulative Impacts

Wetlands throughout the park would continue to be protected from direct disturbance from park construction projects through required environmental assessments required by the National Environmental Policy Act and National Park Service regulations. Application of best management practices would help reduce risk to wetland resources from stormwater runoff, erosion, filling activities, or sedimentation from sources within the park. However, it is likely that continued development outside of the park will continue to reduce the number of wetland areas and their quality in the Chattahoochee River basin making wetlands contained within the park even more valuable from a regional context. Cumulative adverse effects on wetlands inside the park may become more significant as total wetland area in the watershed is reduced.

The cumulative adverse effects related to stormwater runoff from development outside the park on wetlands inside the park would continue to increase under Alternative A. Wetlands located within the park would continue to be affected by sediments and water transported via runoff during high storm water discharges originating from developed areas outside the park. As the area surrounding the park becomes more developed, this problem would be expected to increase. The effects of stormwater runoff cannot be directly controlled by park officials and resolution of these concerns would ultimately depend on the effectiveness of watershed management planning efforts by the surrounding communities and implementation of institutional controls such as wet ponds, artificial wetlands, and non-structural best management practices. Under Alternative A, there would be less chance for improving this situation because there would be no increase in the level of coordination and planning between the National Park Service and local governments and organizations to address stormwater runoff concerns. Alternative A would therefore have little effect in controlling cumulative effects on wetlands.

When the beneficial and adverse effects of other past, ongoing, and future plans, projects, and activities affecting wetlands are combined with actions under Alternative A, the resulting cumulative effects would be long- and short-term, moderate to major, and adverse. Adverse effects would be moderate to major because wetlands would continue to be more heavily influenced by urban development in the surrounding area than by activities in the park. These effects would be outside of the park's ability to control, however, and are not related to park actions.

Conclusions

Long- and short-term, moderate, adverse effects on wetlands would occur under Alternative A from minimal new construction activities and maintenance of park facilities, the effects of increasing visitor

use, staffing constraints, and the lack of implementation of resource stewardship strategies and other new studies.

Wetlands in the park would continue to be primarily influenced by urban development in the surrounding urban watershed. This would constitute a long- and short-term, moderate to major, adverse, cumulative effect on wetlands in the park. These effects would be outside of the park's ability to control, however, and are not related to park actions.

There would be no impairment of wetlands or values as a result of park actions under Alternative A.

Impacts of Alternative B

Under Alternative B, the level of development would be less than what is anticipated under Alternative A, and most new facilities would be built outside the park whenever possible. In many cases, sites chosen for development would likely have some existing facilities or have been previously disturbed by utility lines, access roads, or existing structures. New development within the park would be limited in size and numbers, and could include such visitor facilities as small gravel parking lots, primitive trails, and interpretive signage. Existing trails and facilities currently located in wetlands would not be altered, other to improve them, or in some cases, eliminated to improve wetland conditions. The focus of Alternative B would be to restore wetlands and protect the resource. New trail construction would be addressed and assessed in the form of individual tiered environmental assessments, and avoidance, minimization and compensation would be demonstrated prior to construction activity. New trail construction would be minimal, however, and would be less than that associated with Alternative A. Construction near a wetland area would be avoided whenever practicable; hence, the majority of the wetlands in the park would not be affected.

When compared with Alternative A, which lacks management zones, much of the park would be left in a natural state with approximately 68 percent of park acreage zoned as either a natural zone or river solitude zone. Facilities such as roads, parking lots, boat ramps, and restrooms would not be appropriate in the river solitude zone, and only existing facilities and primitive trails would be appropriate in the natural zone. Visitor use would be focused on the river, primitive areas, unpaved trails, and other less developed facilities, and passive forms of recreation would be emphasized. Visitors would be allowed access at relatively few locations under Alternative B, resulting in a lower potential for trail overuse and increased soil erosion in comparison with Alternative A. Potential adverse effects of trail over-use and soil erosion would be mitigated by developing and implementing an integrated trail system study which would integrate local environmental requirements such as the Metropolitan River Protection Act, appropriate buffers, and floodplain, wetland, and sensitive resource avoidance. In addition, parcels added to the park would remain in, or be restored to, a largely natural state providing additional levels of protection for wetlands in the watershed.

Additional wetlands inventories, studies, and planning efforts, including resource stewardship strategies, could be implemented under Alternative B, since increased staffing would be proposed. Habitat restoration and increased educational awareness would also be emphasized, which would provide further benefits. Overall, Alternative B would have a long- and short-term, minor, beneficial effect on wetlands in the park.

Cumulative Impacts

Cumulative effects would be similar to those described under Alternative A. However, increased staffing proposed for all of the action alternatives could potentially lessen adverse cumulative effects

through increased cooperation and coordination with local, county, and state agencies on projects and activities outside of the park that directly and indirectly affect wetlands within the park. In addition, increased educational programs aimed at increased resource awareness could generate interest in their protection outside the park as well. Although the effectiveness of cooperative efforts and education would be difficult to quantify, it is likely that cumulative effects would be slightly less adverse than those described under Alternative A, resulting in a long- and short-term, moderate, adverse, cumulative effect on wetlands under Alternative B.

Conclusions

Alternative B would have long- and short-term, minor, beneficial effects on wetlands from restoration of wetland areas, implementation of a resource stewardship strategy and an integrated trail system study, emphasis on habitat restoration, and the increased educational opportunities afforded under this alternative.

Wetlands would continue to be more heavily influenced by urban development in the surrounding area than by activities in the park under all of the alternatives, including Alternative B. This would constitute a long- and short-term, moderate, adverse, cumulative effect on wetlands. These effects would be outside of the park's ability to control, however, and are not related to park actions.

There would be no impairment of wetlands or values as a result of park actions under Alternative B.

Impacts of Alternative C

Under Alternative C, construction and visitor-use impacts would be centralized within three strategic areas or hubs, minimizing the need to construct facilities in other parts of the park, and reducing the potential to affect wetlands. The rest of the park would remain relatively undeveloped. An intermediate amount of construction and land disturbing activity would be required for Alternative C when compared to the expected future development in Alternative A. The amount of new trail construction would be greater than Alternative A; however, new trail construction would be addressed and assessed in the form of individual tiered environmental assessments, and avoidance, minimization and compensation would have to be demonstrated prior to construction. Construction near a wetland area would be avoided whenever practicable; hence, the majority of the wetlands in the park would not be affected. In addition, potential adverse effects of trail use and soil erosion would be mitigated by developing and implementing an integrated trail system study which would integrate local environmental requirements such as the Metropolitan River Protection Act, appropriate buffers, and floodplain, wetland, and sensitive resource avoidance. A resource stewardship strategy would also be developed and implemented providing an effective management tool for wetland resources.

Alternative C would discourage new entrances to the park while focusing National Park Service supervision, education, and monitoring where visitor use is greatest. With more limited access, resources would be better protected from resource damage than Alternative A. In addition, management zones with less diverse types of recreational opportunities and less developed surfaces (the natural and river solitude zones) would occupy approximately 60 percent of the park. New areas added to the park could be effectively managed under this alternative, providing additional levels of protection for wetlands in the watershed. In addition, staffing, resource monitoring programs, interpretation and educational efforts, and coordination of public/private partnerships would be increased under Alternative C in comparison to Alternative A, helping to provide greater protection and evaluation of wetlands. The overall effect on wetlands under Alternative C would be long- and short-term, negligible, and adverse.

Cumulative Impacts

Cumulative effects would be the same as described for Alternative B.

Conclusions

Alternative C would have a greater amount of construction than Alternative A; however, these impacts would be offset somewhat by centralization of construction in hubs, implementation of a resource stewardship strategy and an integrated trail system study, and the increased educational opportunities and partnerships afforded under this alternative. The overall effect on wetlands is long- and short-term, negligible, and adverse.

Wetlands would continue to be more heavily influenced by urban development in the surrounding area than by activities in the park under all of the alternatives, including Alternative C. This would constitute a long- and short-term, moderate, adverse, cumulative effect on wetlands. These effects would be outside of the park's ability to control, however, and are not related to park actions.

There would be no impairment of wetlands or values as a result of park actions under Alternative C.

Impacts of Alternative D

A greater amount of construction and land disturbing activity would be appropriate under Alternative D when compared to the expected future development proposed under Alternative A. As a result, the relative amount of associated surface runoff and addition of impervious space would be increased under Alternative D. The amount of new trail construction would also be greater when compared to Alternative A; however, new trail construction would be addressed and assessed in the form of individual tiered environmental assessments, and avoidance, minimization and compensation would have to be demonstrated prior to construction. Construction near a wetland area would be avoided whenever practicable; hence, the majority of the wetlands in the park would not be affected. In addition, potential adverse effects of trail use and soil erosion would be mitigated by developing and implementing an integrated trail system study which would integrate local environmental requirements such as the Metropolitan River Protection Act, appropriate buffers, and floodplain, wetland, and sensitive resource avoidance.

Of the five action alternatives, Alternative D dedicates the least amount of acreage (14 percent of the total 10,000 acre designation) to zones emphasizing less diverse types of recreational opportunities and minimization of new construction. Alternative D also promotes expanded access, visitor use and connectivity to existing neighborhoods, which would make it difficult for park staff to prevent resource damage and visitor over-use of trails and unauthorized trail use. However, increased staffing proposed under this alternative could help mitigate these effects.

Alternative D would provide beneficial effects through increased site monitoring, park staff, and educational programs, thereby providing greater protection and evaluation of wetlands. New areas added to the park could be effectively managed under this alternative, providing additional levels of protection for wetlands in the watershed. In addition, Alternative D (and Alternatives E and F) would have the greatest emphasis placed on coordination and planning between the National Park Service and local governments than Alternative A which could result in greater stewardship of wetlands within the park.

Overall, Alternative D would have a long- and short-term, minor, adverse effect on wetland resources in the park.

Cumulative Impacts

Cumulative effects would be the similar to those described for Alternative B. However, Alternative D (and Alternatives E and F) would have a greater increase in staffing and greater emphasis placed on coordination and planning between the National Park Service and local governments and organizations than Alternative A. Park managers would be able to use these partnerships to better adapt to changing ecological and social conditions within and external to the park and coordinate regional planning and land management as it affects the park. Partnerships could be facilitated with the Metropolitan North Georgia Water Planning District, local governments and organizations to implement recommendations from local watershed management plans, enforce protection of riparian buffers in the Chattahoochee River Watershed and help reduce the effects of scouring and sedimentation. The combined effect of a unified strategy would be an effective tool for preserving the park's wetland resources. Hence, Alternative D (and Alternatives E and F) would provide a greater level of offset in adverse cumulative effects when compared to Alternative A resulting in a long- and short-term, minor to moderate, adverse, cumulative effect on wetlands.

Conclusions

Alternative D would have a greater relative amount of land disturbing activity and more dispersed levels of access in comparison to Alternative A. These impacts would be offset somewhat by implementation of a resource stewardship strategy an integrated trail system study, and the increased educational opportunities and partnerships afforded under this alternative. The overall effect on wetlands is long- and short-term, minor, and adverse.

Wetlands would continue to be more heavily influenced by urban development in the surrounding area than by activities in the park under all of the alternatives. These potential effects would be mitigated to some extent by the greater emphasis that Alternative D places on partnering with local governments resulting in an overall long- and short-term, minor to moderate, adverse, cumulative effect on wetlands.

There would be no impairment of wetlands or values as a result of park actions under Alternative D.

Impacts of Alternative E

Similar effects as those described under Alternative C are applicable to Alternative E (long- and short-term, negligible, and adverse). Although visitor use and development would be expanded and distributed throughout the park under Alternative E, the overall intensity of effects would be the same due to mitigative measures. Cumulative effects would be the same as those described under Alternative D (long- and short-term, minor to moderate, and adverse).

There would be no impairment of wetlands or values as a result of park actions under Alternative E.

Impacts of Alternative F, the Preferred Alternative

The same effects as those described under Alternative D are applicable to Alternative F.

FLOODPLAINS

Regulations and Policies

The regulations and policies that guide National Park Service actions with respect to floodplains are presented in the "Servicewide Mandates and Policies" section of Chapter 1 and in Appendix A.

Methodology

Floodplain issued raised during public meetings and planning workshops were more general in terms of protection of park resources and habitat preservation. Potential adverse effects of the alternatives on floodplains were assessed based on a qualitative analysis of the potential for locating facilities in or near floodplains, the relative extent of the effects, the effectiveness of mitigation measures employed, and the potential for addition of new floodplain areas. The impact thresholds developed for the assessment of effects on floodplains are presented in Table 27.

Table 27. Impact Thresholds for Floodplains

Negligible: There would be no change in the ability of a floodplain to convey floodwaters, or its values and functions. Project or activity would not contribute to the flood.
Minor: Changes in the ability of a floodplain to convey floodwaters, or its values and functions, would be measurable and local, although the changes would be only slightly measurable. Project or activity would not contribute to the flood. No mitigation would be needed.
Moderate: Changes in the ability of a floodplain to convey floodwaters, or its values and functions, would be measurable and local. Project or activity could contribute to the flood. The effect could be mitigated by modification of proposed facilities in floodplains.
Major: Changes in the ability of a floodplain to convey floodwaters, or its values and functions, would be measurable and, widespread. The project or activity would contribute to the flood. The effect could not be mitigated.
Duration: Long-term: Usually more than one year. Effects would be measurable during and after project construction. Short-term: Usually less than one year. Effects would not be measurable or measurable only during construction period.

The major assumptions used in this analysis were: (1) limited but variable construction would be allowable in the park under any of the alternatives; (2) visitor use and potential effects on floodplains would vary between alternatives based on the amount of facilities made available; and (3) that the highly urbanized areas surrounding the park and changes in flow patterns associated with the operations of Buford Dam and Morgan Falls Dam would have a far greater potential effect on floodplains in the park than any activities proposed under any of the action alternatives.

In addition to these major assumptions, it was also assumed that resource stewardship strategies, flow studies, or many of the other proposed plans and studies outlined in Chapter 5 would not be prepared or implemented under Alternative A, but would be more likely to be implemented under the action alternatives due to planned increases in staffing and other actions specific to each alternative. This implies that floodplains would not be managed beyond what is currently being done, and that river flow dynamics would not be further surveyed or studied. Trails would also not be maintained to the extent possible, and the trail system would not be managed as effectively as it would be under an integrated trail system study.

Impairment of floodplain resources would occur if there was a significant adverse effect to these resources or values whose conservation was (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in this general management plan or other National Park Service planning documents as being of significance.

Impacts of Alternative A

Limited construction (such boat ramps, parking facilities, limited roads, or small buildings) and maintenance activities would occur under Alternative A. National Park Service policy gives preference to locating, or relocating, proposed construction outside and not affecting the regulatory floodplain. Mitigation measures may be applied if other management considerations exist which clearly favor locating an action in a regulatory floodplain, such as a boat ramp or river access facility which must be located in the floodplain. Mitigation may consist of any combination of seasonal closure, structural flood protection measures, specific actions to minimize impacts to floodplain natural resource values, effective flood warning, and flood evacuation. Mitigation and compliance with regulations and policies to prevent impacts to water quality, floodplain values, and loss of property or human life would be strictly adhered to during and after facility construction and upgrades. These requirements would be applicable to all alternatives.

Under Alternative A, existing trails and facilities currently located in floodplain would not be altered. New trail and facility construction would be addressed and assessed in the form of individual environmental assessments, and avoidance, minimization, and compensation would be demonstrated prior to construction activity. Construction within a floodplain would be avoided whenever practicable.

Due to existing staffing and funding constraints, Alternative A is considered to offer a minimal level protection to floodplains. Existing levels of protection of floodplains would continue, but flow studies, a resource stewardship strategy, and an integrated trail system plan would not be implemented. Trails would not be effectively maintained as possible under Alternative A, and there would be a higher potential for elevated levels of surface runoff and sedimentation that could affect the ability of a floodplain to convey and store floodwaters within the park.

Visitors would be allowed access throughout the park at a wide variety of existing locations, potentially leading to an increase in trail overuse and soil erosion. Where erosion occurs along unauthorized trails or overused areas, these conditions would likely continue to occur, and could affect floodplains in the park. Also, limited new park areas would be added that could be used to protect additional floodplains. Overall, this alternative would have long- and short-term, moderate, adverse effects on floodplains.

Cumulative Impacts

Floodplains throughout the park would continue to be evaluated and protected from direct disturbance from park construction projects through required environmental assessments required by the National Environmental Policy Act and National Park Service regulations. Application of best management practices would help reduce effects to floodplains from stormwater runoff, erosion, filling activities, or sedimentation from sources within the park.

The cumulative adverse effects related to stormwater runoff from development outside the park on floodplains inside the park would continue to increase under Alternative A. In addition, floodplains

would continue to be affected by fluctuating flow due to scheduled releases from Buford Dam and Morgan Falls Dam. Floodplains located within the park would continue to be affected by sedimentation via runoff during elevated levels of stormwater discharges originating from developed areas outside the park. As the area surrounding the park becomes more developed, this problem would be expected to increase. The effects of sedimentation cannot be directly controlled by park officials and resolution of these concerns would ultimately depend on the effectiveness of watershed management planning efforts by the surrounding communities and implementation of institutional controls such as wet ponds, artificial floodplains, and non-structural best management practices by local agencies. Under Alternative A, there would be less chance for improving this situation because there would be less coordination and planning between the National Park Service and local governments and organizations to address stormwater runoff and watershed concerns. Alternative A would, therefore, have little effect in controlling cumulative effects on floodplains.

When the beneficial and adverse effects of other past, ongoing, and future plans, projects, and activities affecting floodplains are combined with actions under Alternative A, the resulting cumulative effects would be long- and short-term, moderate to major, and adverse. Adverse effects would be moderate to major because floodplains would continue to be more heavily influenced by urban development in the surrounding area than by activities in the park. These effects would be outside of the park's ability to control, however, and are not related to park actions.

Conclusions

Long- and short-term, moderate, adverse effects on floodplains would occur under Alternative A from minimal construction and maintenance of park facilities, the effects of increasing visitor use, staffing constraints, and the lack of implementation of flow studies, resource stewardship strategies, and other studies.

Floodplains in the park would continue to be primarily influenced by urban development in the surrounding urban watershed and effects of Buford Dam and Morgan Falls Dam. This would constitute a long- and short-term, moderate to major, adverse, cumulative effect on aquatic resources in the park. These effects would be outside of the park's ability to control, however, and are not related to park actions.

There would be no impairment of floodplains or values as a result of park actions under Alternative A.

Impacts of Alternative B

Under Alternative B, the level of development would be less than what is anticipated under Alternative A, and most new facilities would be built outside the park whenever possible. In many cases, sites chosen for development would likely have some existing facilities or have been previously disturbed by utility lines, access roads, or existing structures. New development within the park would be limited in size and numbers, and could include such visitor facilities as small gravel parking lots, primitive trails, and interpretive signage. Existing trails and facilities currently located in floodplains would not be altered, other to improve them, or in some cases, eliminate them to improve floodplain conditions. In addition, the same requirements for avoidance and mitigation of floodplain effects described under Alternative A would be applicable to Alternative B.

When compared with Alternative A, which lacks management zones, much of the park would be left in a natural state with approximately 68 percent of park acreage zoned as either a natural zone or river solitude zone. Facilities such as roads, parking lots, boat ramps, and restrooms would not be permitted

in the river solitude zone, and only existing facilities and primitive trails would be permitted in the natural zone. Hence, there would be the least potential for construction to occur in a floodplain under Alternative B.

Visitors would be allowed access at relatively few locations under Alternative B, resulting in a lower potential for trail overuse and increased soil erosion in comparison with Alternative A. Potential adverse effects of trail use and soil erosion would be mitigated by developing and implementing an integrated trail system study which would integrate local environmental requirements such as the Metropolitan River Protection Act, appropriate buffers, and floodplain, wetland, and sensitive resource avoidance. In addition, parcels added to the park would remain in, or be restored to, a largely natural state providing additional levels of protection for floodplains in the watershed.

Additional floodplains studies and planning efforts, including a flow studies and resource stewardship strategies, could be implemented under Alternative B, since increased staffing would be proposed. In addition, increased educational awareness would also be emphasized under this alternative, which would provide further benefits. Overall, Alternative B would have a long- and short-term, minor, beneficial effect on floodplains in the park.

Cumulative Impacts

Cumulative effects would be similar to those described under Alternative A. However, increased staffing proposed for all of the action alternatives could potentially lessen adverse cumulative effects through increased cooperation and coordination with local, county, and state agencies and organizations on projects and activities outside of the park that directly and indirectly affect floodplains within the park. In addition, increased educational programs aimed at increased resource awareness could generate interest in their protection outside the park as well. Although the effectiveness of cooperative efforts and education would be difficult to quantify, it is likely that cumulative effects would be slightly less adverse than those described under Alternative A, resulting in a long- and short-term, moderate, adverse, cumulative effect on floodplains under Alternative B.

Conclusions

Alternative B would have long- and short-term, minor, beneficial effects on floodplains from restoration of floodplains; implementation of flow studies, a resource stewardship strategy and an integrated trail system study; and the increased educational opportunities afforded under this alternative.

Floodplains would continue to be more heavily influenced by urban development in the surrounding area than by activities in the park under all of the alternatives, including Alternative B. This would constitute a long- and short-term, moderate, adverse, cumulative effect on floodplains. These effects would be outside of the park's ability to control, however, and are not related to park actions.

There would be no impairment of floodplains or values as a result of park actions under Alternative B.

Impacts of Alternative C

Under Alternative C, construction and visitor-use impacts would be centralized within three strategic areas or hubs, minimizing the need to construct facilities in other parts of the park, and reducing the potential to affect floodplains. The rest of the park would remain relatively undeveloped. An intermediate amount of construction and land disturbing activity would be required for Alternative C

when compared to the expected future development in Alternative A. The same policy requirements for avoidance and mitigation of floodplain effects described under Alternative A would be applicable to Alternative B.

The amount of new trail construction would be greater than Alternative A; however, new trail construction would be addressed and assessed in the form of individual tiered environmental assessments, and avoidance, minimization and compensation would have to be demonstrated prior to construction. In addition, potential adverse effects of trail use and soil erosion would be mitigated by developing and implementing an integrated trail system study which would integrate local environmental requirements such as the Metropolitan River Protection Act, appropriate buffers, and floodplain, wetland, and sensitive resource avoidance.

Alternative C would discourage new entrances to the park while focusing National Park Service supervision, education, and monitoring where use is greatest. With more limited access, sites would be better protected from resource damage than in Alternative A. In addition, the natural and river solitude zones would occupy approximately 60 percent of the park. Facilities such as roads, parking lots, boat ramps, and restrooms would not be permitted in the river solitude zone, and only existing facilities and primitive trails would be permitted in the natural zone. Hence, there would be an intermediate potential for construction to occur in a floodplain under Alternative C when compared to Alternative A.

New areas added to the park could be effectively managed under this alternative, providing additional levels of protection for floodplains in the watershed. In addition, staffing, resource monitoring programs, interpretation and educational efforts, and coordination of public/private partnerships would be increased under Alternative C in comparison to Alternative A, helping to provide greater protection and evaluation of floodplains.

Alternative C would have a greater amount of construction than Alternative A; however, these impacts would be offset somewhat by centralization of construction in hubs; implementation of flow studies, a resource stewardship strategy, and an integrated trail system study; and the increased educational opportunities and partnerships afforded under this alternative. The overall effect on floodplains is long- and short-term, negligible, and adverse.

Cumulative Impacts

Cumulative effects would be the same as described for Alternative B.

Conclusions

Alternative C would have a greater amount of construction than Alternative A; however, these impacts would be offset somewhat by centralization of construction in hubs; implementation flow studies, a resource stewardship strategy, and an integrated trail system study; and the increased educational opportunities and partnerships afforded under this alternative. The overall effect on floodplains is long- and short-term, negligible, and adverse.

Floodplains would continue to be more heavily influenced by urban development in the surrounding area than by activities in the park under all of the alternatives, including Alternative C. This would constitute a long- and short-term, moderate, adverse, cumulative effect on floodplains. These effects would be outside of the park's ability to control, however, and are not related to park actions.

There would be no impairment of floodplains or values as a result of park actions under Alternative C.

Impacts of Alternative D

More construction and land disturbing activity would be appropriate under Alternative D when compared to the expected future development under Alternative A. As a result, the relative amount of associated surface runoff and addition of impervious space would be the greater under Alternative D, which could result in greater runoff and sedimentation into receiving streams and subsequent alteration of the ability of a floodplain to convey and store floodwaters within the park. However, the same policy requirements for avoidance and mitigation of floodplain effects described under Alternative A would be applicable to Alternative D, which would help minimize these effects.

The amount of new trail construction would also be the greater when compared to Alternative A; however, new trail construction would be addressed and assessed in the form of individual tiered environmental assessments, and avoidance, minimization and compensation would have to be demonstrated prior to construction. In addition, potential adverse effects of trail use and soil erosion would be mitigated by developing and implementing an integrated trail system study which would integrate local environmental requirements such as the Metropolitan River Protection Act, appropriate buffers, and floodplain, wetland, and sensitive resource avoidance.

Of the five action alternatives, Alternative D dedicates the least amount of acreage (14 percent of the total 10,000 acre designation) to zones emphasizing less diverse types of recreation and minimization of new construction. Alternative D also promotes expanded visitor use and connectivity to existing neighborhoods, which would make it difficult for park staff to prevent resource damage and inappropriate uses. However, increased staffing proposed under this alternative could help mitigate these effects.

Alternative D would provide beneficial effects through increases in site monitoring, park staff, and educational programs would be, thereby providing greater protection and evaluation of floodplains. New areas added to the park could be effectively managed under this alternative, providing additional levels of protection for floodplains in the watershed. In addition, Alternative D (and Alternatives E and F) would have the greatest emphasis placed on coordination and planning between the National Park Service and local governments than Alternative A which could result in greater stewardship of floodplains within the park.

Overall, Alternative D would have a long- and short-term, minor, adverse effect on floodplains in the park.

Cumulative Impacts

Cumulative effects would be similar to those described for Alternative B. However, Alternative D (and Alternatives E and F) would have greater staffing increases and greater emphasis placed on coordination and planning between the National Park Service and local governments and organizations than Alternative A. Park managers would be able to use these partnerships to better adapt to changing ecological and social conditions within and external to the park and coordinate regional planning and land management as it affects the park. Partnerships could be facilitated with local governments and organizations regarding watershed protection. Bordering area governments could consider changes to their comprehensive plans to address land use, zoning, permitting and regulatory issues within the watershed. The combined effect of a unified strategy would be an effective tool for preserving the park resources. Hence, Alternative D (and Alternatives E and F) would provide a greater level of offset in adverse cumulative effects when compared to Alternative A resulting in a long- and short-term, minor to moderate, adverse, cumulative effect on floodplains.

Conclusions

Alternative D would have a greater relative amount of land disturbing activity and a more widespread level of access in comparison to Alternative A. These impacts would be offset somewhat by conducting flow studies, implementing a resource stewardship strategy, an integrated trail system study, and the increased educational opportunities and partnerships afforded under this alternative. The overall effect on floodplains is long- and short-term, minor, and adverse.

Floodplains would continue to be more heavily influenced by urban development in the surrounding area than by activities in the park under all of the alternatives. These potential effects would be mitigated to some extent by the greater emphasis that Alternative D places on partnering with local governments resulting in an overall long- and short-term, minor to moderate, adverse, cumulative effect on floodplains.

There would be no impairment of floodplains or values as a result of park actions under Alternative D.

Impacts of Alternative E

Similar effects as those described under Alternative C are applicable to Alternative E (long- and short-term, negligible, and adverse). Although visitor use and development would be expanded and distributed throughout the park under Alternative E, the overall intensity of effects would be the same due to mitigative measures. Cumulative effects would be the same as those described under Alternative D (long- and short-term, minor to moderate, and adverse).

There would be no impairment of floodplains or values as a result of park actions under Alternative E.

Impacts of Alternative F, the Preferred Alternative

The same effects as those described under Alternative D are applicable to Alternative F.

TERRESTRIAL ECOLOGICAL RESOURCES

Regulations and Policies

The regulations and policies that guide National Park Service actions with respect to terrestrial ecological resources are presented in the "Servicewide Mandates and Policies" section of Chapter 1 and in Appendix A.

Methodology

The issues regarding terrestrial ecological resources identified during public meetings and planning workshops included general concerns about habitat preservation, habitat fragmentation, and direct effects of land disturbance on forests and wildlife as a result of construction and operation of park facilities, management practices, and urban growth in the watershed. Habitat fragmentation is the breaking up of a continuous habitat, an ecosystem, or a land use type into smaller, isolated fragments. This can occur when a road, utility easement, or some sort of land use change disrupts the continuity of the ecosystem. Habitat fragmentation has been determined to be one of the leading causes in the loss of biodiversity in an ecosystem, second only to the outright loss of the habitat. The smaller the remaining patches of habitat, or the smaller the populations of wildlife, the greater the chance of local extinction and loss of biodiversity (Primack 1993). Fragmentation of terrestrial habitats is an issue because of the geographic setting of the park in urban/suburban setting.

Three types of fragmentation effects have been distinguished: patch size effects, edge effects, and isolation effects (Johnson 2001). Patch size effects are those that result from the reduction of habitat size to a point that species can no longer maintain a viable population. This often occurs with wide ranging species such as the Florida panther, but it can occur on a smaller scale with species with specific habitat requirements for breeding and reproduction. The edges of these patches are especially susceptible to proliferation of invasive species. The destruction of the adjacent habitat enables opportunistic species to become established. These opportunistic species may include weedy, invasive plants or predators such as raccoons, feral dogs and cats, or brown-headed cowbirds. Isolation from similar habitats inhibits the dispersal opportunities of species and their eventual decline as a population. The loss of inter-population connectivity among isolated remnants reduces population viability. The terrestrial habitats around the park are already highly fragmented, with limited greenspace and associated terrestrial ecological resources. The park could, therefore, become increasingly important as a refuge for some resident plants and animals as well as migratory species of animals.

The assessment of the direct effects of the alternatives on terrestrial ecological resources as a result of land disturbance during construction of park facilities was completed by relating the expected degree of construction activity and activities to the types of expected changes in habitat extent and quality in the park and whether mitigation would be required and/or effective. Potential beneficial effects were estimated by assessing the potential for addition of new areas to the park that would provide a means of conserving additional areas of forest and wildlife habitat. Potential effects of operation of park facilities were addressed by qualitatively assessing potential effects of visitor use and other forms of use on terrestrial plant and animal communities.

The cumulative effects of the alternatives with respect to fragmentation were assessed by qualitatively assessing the potential of each alternative to create increased fragmentation of terrestrial habitats in the park, in addition to the expected levels of fragmentation in the areas surrounding the park.

The threshold criteria for terrestrial ecological vegetation and wildlife are presented in Tables 28 & 29.

The primary assumption for this assessment was that potential effects on terrestrial resources within the park are related to the amount of land disturbance caused by proposed projects during construction and operation. It was also assumed that the amount of allowable construction inside the park would be relatively small for all of the alternatives, including Alternative A.

Table 28. Impact Thresholds for Terrestrial Ecological Resources-Vegetation

Negligible: Individual native plants may occasionally be affected, but measurable or perceptible changes in plant community size, integrity, or continuity would not occur.
Minor: Effects on native plants would be measurable or perceptible. The natural function and character of the plant community would not be affected and, if left alone, would recover.
Moderate: A change would occur in the natural function and character of the plant community in terms of basic properties (such as growth, abundance, reproduction, distribution, structure, or diversity) but not to the extent that the basic properties of the plant community change.
Major: Effects on native plant communities would be readily apparent and would substantially and permanently change the natural function and character of the plant types.
Duration: Long-term: Takes more than one year to recover. Short-term: Recovers within one year.

Table 29. Impact Thresholds for Terrestrial Ecological Resources-Wildlife

Negligible: Native wildlife species, their habitats, and the natural processes sustaining them would not be affected or the effects would be at or below the level of detection. Effects would not be of any measurable or perceptible consequence to wildlife populations. Habitats would retain adequate ecological integrity to support a full complement of native species.
Minor: An action would result in detectable effects to species and/or their habitats, but it would not be expected to result in substantial population fluctuations, their habitats, or the natural processes (such as competition, dispersal) sustaining them. Occasional responses to disturbance by some individuals could be expected but without interference to feeding, reproduction, or other factors affecting population levels.
Moderate: An action would result in detectable effects on native wildlife, their habitats, or the natural processes sustaining them. Key processes such as dispersal, competition, and/or predation may experience disruptions that would alter the population size and/or distribution, but would return to natural conditions after initial disturbance. Sufficient habitat would remain functional to maintain viable native populations.
Major: An action would result in detectable effects on native wildlife, their habitats, or the natural processes sustaining them. Key processes such as dispersal, competition, and/or predation would be altered permanently. Adverse responses to disturbance by some individuals would be expected, with negative effects on feeding, reproduction, or other factors, resulting in a long-term decrease in population numbers and genetic variability. Habitats may not remain functional for maintaining viable populations.
Duration: Long-term: Takes more than a year to recover. Short-term: Recovers in less than a year.

In addition to these major assumptions, it was also assumed that resource stewardship strategies and many of the other proposed plans and studies outlined in Chapter 5 would not be prepared or implemented under Alternative A but would be more likely to be implemented under the action alternatives due to planned increases in staffing and other actions specific to each alternative. This implies that, under Alternative A, terrestrial ecological resources would not be inventoried or managed beyond what is currently being done, except as part of environmental assessments on specific projects, and that habitat restoration activities would be minimal.

Impairment of terrestrial ecological resources would occur if there was a significant adverse effect to these resources or values whose conservation was (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in this general management plan or other National Park Service planning documents as being of significance.

Impacts of Alternative A

Limited construction activities under Alternative A could result in some disturbance of terrestrial ecological habitats and associated wildlife. However, prior to implementation of proposed actions, such as trail construction, the park would conduct a detailed site-specific survey of the terrestrial vegetation at the project site as part of a tiered environmental assessment. The type, extent, and ecological values of terrestrial habitats at each proposed site would be evaluated and the effects of the proposed project would be assessed. This information would be used to make a decision regarding the feasibility of the proposed site for construction. Implementation of best management practices along with institution of standardized trail construction methods would mitigate potentially adverse effects. In addition, sensitive upland forested areas would be avoided to the extent practicable. These procedures would be implemented under all alternatives.

Due to existing staffing and funding constraints, Alternative A is considered to offer a minimal level of habitat restoration, species inventory, and invasive species control and management. The continuation of current management practices such as the minimization of tree clearing and controlling the presence and distribution of invasive species would maintain the forest in a condition much like that which currently exists, and wildlife in the park that require deciduous forest habitats and riparian corridors in relatively contiguous tracts would continue to benefit from the protection of most of the park's land area.

Trails would continue to be maintained, and erosion would continue to be controlled in problem areas in the same way that they are managed presently. However, under Alternative A these problems could worsen somewhat over time since a resource stewardship strategy or integrated trail system study would not be developed or implemented. Increased soil disturbance and erosion are contributing factors to the spread of invasive plant populations. Such disturbances allow seeds or parts of plants to establish new or expanded populations. Hence, construction of new facilities or trails could lead to the establishment or spread of invasive plants.

New areas could be added to the park providing additional terrestrial habitat; however, due to staffing and funding constraints, these areas would not be managed to the extent possible. The overall effect of this alternative on terrestrial ecological resources would be long-and short-term, minor to moderate, and adverse.

Cumulative Impacts

Adverse cumulative effects from actions inside the park could occur due to fragmentation of terrestrial habitat or spread of invasive species as a result of trail overuse. However, cumulative adverse effects related to ongoing urbanization in the surrounding region and subsequent elimination of forest and wildlife species would be of greater impact to the overall cumulative effect and would be common to all alternatives, including Alternative A.

As communities adjacent to the park become more developed and lose forests and other greenspace, natural habitats within the park will become increasingly isolated. Amplified fragmentation effects on habitats within the park would further degrade the quality of habitats for terrestrial species. However, regional implementation of stream buffer ordinances, greenspace initiatives, and local watershed management plans would have beneficial effects on terrestrial ecological resources within the park. As implementation of these initiatives and programs by local governments becomes more widespread, controls should ultimately be put in place and enforced that would protect and preserve habitat adjacent to the park over the long term, thereby reducing the level of fragmentation. Alternative A would involve the least amount of coordination and planning between the National Park Service and local governments, however, which could hinder the potential of such beneficial effects.

When the beneficial and adverse effects of other past, ongoing, and future plans, projects, and activities affecting terrestrial ecological resources are combined with actions under Alternative A, the resulting cumulative effects would be long- and short-term, moderate to major, and adverse. Adverse effects would be moderate to major because terrestrial ecological resources would continue to be more heavily influenced by urban development in the surrounding area than by activities in the park. These effects would be outside of the park's ability to control, however, and are not related to park actions.

Conclusions

Long- and short-term, minor to moderate, adverse effects on terrestrial ecological resources would occur under Alternative A from minimal construction and maintenance of park facilities and the minimal level of habitat restoration, species inventory, and invasive species control and management.

Terrestrial ecological resources in the park would continue to be primarily influenced by urban development in the surrounding area. This would constitute a long- and short-term, moderate to major, adverse, cumulative effect. These effects would be outside of the park's ability to control, however, and are not related to park actions.

There would be no impairment of terrestrial ecological resources or values as a result of park actions under Alternative A.

Impacts of Alternative B

Alternative B would have a lower relative potential to adversely affect terrestrial ecological resources within the park in comparison with Alternative A since Alternative B would involve fewer construction related activities. Some fragmentation of terrestrial habitat could occur, but because the number of new facilities would be few and in limited areas, this effect would be negligible. Mitigative procedures described for construction projects under Alternative A would be applicable to Alternative B.

When compared with Alternative A, which lacks management zones, much of the park would be left in a natural state with approximately 68 percent of park acreage zoned as either a natural zone or river solitude zone which would involve fewer new facilities and would emphasize less diverse forms of recreation and visitor use. This alternative would place the greatest emphasis on habitat restoration, thereby improving existing conditions. An increase in research and education efforts compared to Alternative A would also provide additional protection of resources by communicating protective measures that could be used by visitors to avoid or minimize effects to terrestrial ecological resources. Implementation of a resource stewardship strategy, which would outline procedures for invasive species control, and an intergrated trail system study would have beneficial effects on terrestrial ecological resources in the park. In addition, there is greater likelihood that new parcels would be added to the park under the action alternatives since there would potentially be more staffing and resources to effectively manage these new areas. Addition of new parcels could aid in lessening the effects of fragmentation. Overall, Alternative B would have a long- and short-term, minor to moderate, beneficial effect on terrestrial ecological resources.

Cumulative Impacts

Cumulative effects would be similar to those described under Alternative A. However, increased staffing proposed for all of the action alternatives could potentially lessen adverse cumulative effects through increased cooperation and coordination with local, county, and state agencies on projects and activities outside of the park that directly and indirectly affect terrestrial ecological resources within the park. In addition, increased educational programs aimed at increased resource awareness could generate interest in their protection outside the park as well. Although the effectiveness of cooperative efforts and education would be difficult to quantify, it is likely that cumulative effects would be slightly less adverse than those described under Alternative A, resulting in a long- and short-term, moderate, adverse, cumulative effect on terrestrial ecological resources under Alternative B.

Conclusions

Alternative B would have long- and short-term, minor to moderate, beneficial effects on terrestrial ecological resources due to a lesser amount of construction than under Alternative A; the emphasis placed on habitat restoration and educational programs; implementation of a resource stewardship strategy, which would address invasive species control and management; and implementation of an integrated trail system study.

Terrestrial ecological species would continue to be more heavily influenced by urban development in the surrounding area than by activities in the park under all of the alternatives, including Alternative B. This would constitute a long- and short-term, moderate, adverse, cumulative effect. These effects would be outside of the park's ability to control, however, and are not related to park actions.

There would be no impairment of terrestrial ecological resources or values as a result of park actions under Alternative B.

Impacts of Alternative C

Alternative C would involve an intermediate level of facility construction and operation activities as compared to Alternative A. Some fragmentation of terrestrial habitat would occur, but because the number of projects would be few and localized in hubs, this effect would be minor. Prior to implementation of construction activities, mitigative procedures described under Alternative A would be implemented.

Alternative C would discourage new entrances to the park while focusing National Park Service supervision, education, and monitoring activities where use is greatest. With more limited access, sites would be better protected from resource damage than under Alternative A, and management zones promoting less diverse recreational opportunities and less developed surfaces (the natural and river solitude zones) would occupy approximately 60 percent of the park. In addition, by centrally locating facilities and educational resources/park information in hubs, it would be possible to inform and educate a greater number of visitors than Alternative A. Increased park staff proposed under this alternative would facilitate this increased level of communication about the park's resources and the need to protect them.

An increase in research efforts and studies compared to Alternative A would also provide additional protection of resources. Preparation and implementation of a resource stewardship strategy and intergrated trail system study under Alternative C would have beneficial effects on terrestrial habitats in the park. Theses plans would include measures and priorities for restoration of degraded habitats, means to control invasive species such as privet and English Ivy, and guidance and standards for trail construction and maintenance. There is also a greater likelihood that new parcels added to the park under Alternative C would be located outside the hubs and connected via trails. Since potentially there would be more staffing and resources to effectively manage these new areas, these new parcels could aid in lessening the effects of fragmentation. Overall, Alternative C would have a long- and short-term, negligible, adverse effect on terrestrial ecological resources.

Cumulative Impacts

Cumulative effects would be the same as described for Alternative B.

Conclusions

Alternative C would have long- and short-term, negligible, adverse effects on terrestrial ecological resources due to the combined effects of an intermediate amount of land disturbance centralized in hubs as compared with Alternative A, the emphasis placed on educational programs, implementation of a resource stewardship strategy, which would address invasive species control and management, and an integrated trail system study.

Terrestrial ecological species would continue to be more heavily influenced by urban development in the surrounding area than by activities in the park under all of the alternatives, including Alternative C. This would constitute a long- and short-term, moderate, adverse, cumulative effect on the terrestrial ecological resources. These effects would be outside of the park's ability to control, however, and are not related to park actions.

There would be no impairment of terrestrial ecological resources or values as a result of park actions under Alternative C.

Impacts of Alternative D

Alternative D would involve the greatest relative level of facility construction and operation activities due to the greater amount of land disturbing activity, and some fragmentation of terrestrial habitat could potentially occur. Prior to implementation of construction activities, mitigative procedures described under Alternative A would be implemented.

Of the five action alternatives, Alternative D dedicates the least amount of acreage (14 percent of the total 10,000 acre designation) to zones emphasizing less diverse recreational opportunities and minimization of new construction. The increased number and types of recreational development associated with Alternative D compared to Alternative A would increase the potential for visitor-related adverse effects on terrestrial ecological species. In addition, visitor use would be expanded and distributed throughout the park, including any lands newly acquired. Connections to existing neighborhoods would be optimized and expanded, and trail links to areas outside the park would be provided. Creation of numerous trails and access points could potentially make it difficult for park staff to prevent habitat damage and could also promote the spread of invasive vegetation. However, potential adverse effects of trail use, soil erosion, and invasive species would be mitigated by developing and implementing a resource stewardship strategy and an integrated trail system study.

Alternative D (and Alternatives E and F) would have a greater emphasis placed on coordination and planning between the National Park Service and local governments than Alternative A which could result in greater stewardship of park resources. Overall, Alternative D would have a long- and short-term, minor to moderate, adverse effect on terrestrial ecological resources.

Cumulative Impacts

Cumulative effects would be the similar to those described for Alternative B. However, Alternative D (and Alternatives E and F) would have a greater increase in staffing levels and greater emphasis placed on coordination and planning between the National Park Service and local governments and organizations than Alternative A. Park managers would be able to use these partnerships to better adapt to changing ecological and social conditions within and external to the park and coordinate regional planning and land management as it affects fragmentation within the park. Coordination with bordering area governments could result in changes to their comprehensive plans to address land use, zoning, permitting and regulatory issues bordering the park. The combined effect of a unified strategy would be an effective public private partnership for increasing values and for preserving the park resources. Hence, Alternative D (and Alternatives E and F) would provide the greatest level of offset in adverse cumulative effects when compared to Alternative A resulting in a long- and short-term, minor to moderate, adverse, cumulative effect on terrestrial ecological resources.

Conclusions

Alternative D would have the greatest relative amount of land disturbing activity and the most widespread level of access in comparison to Alternative A, resulting in the greatest potential for adverse effects on habitat. These effects would be offset somewhat by implementation of a resource stewardship strategy, an integrated trail system study, and the increased educational opportunities and partnerships afforded under this alternative. The overall effect on terrestrial ecological species is long- and short-term, minor to moderate, and adverse.

Terrestrial ecological resources would continue to be more heavily influenced by urban development in the surrounding area than by activities in the park under all of the alternatives. These potential effects would be mitigated to some extent by the greater emphasis that Alternative D places on partnering with local governments resulting in an overall long- and short-term, minor to moderate, adverse, cumulative effect on terrestrial ecological species.

There would be no impairment of terrestrial ecological resources or values as a result of park actions under Alternative D.

Impacts of Alternative E

Similar effects as those described under Alternative C are applicable to Alternative E (long- and short-term, negligible, and adverse). Although visitor use and development would be expanded and distributed throughout the park under Alternative E, the overall intensity of effects would be the same due to mitigative measures. Cumulative effects would be the same as those described under Alternative D (long- and short-term, minor to moderate, and adverse).

There would be no impairment of terrestrial ecological resources or values as a result of park actions under Alternative E.

Impacts of Alternative F, the Preferred Alternative

The same effects as those described under Alternative D are applicable to Alternative F.

RARE, THREATENED AND ENDANGERED SPECIES

Regulations and Policies

The regulations and policies that guide National Park Service actions with respect to rare, threatened and endangered species are presented in the "Servicewide Mandates and Policies" section of Chapter 1 and in Appendix A.

Methodology

The issue identified during public meetings and planning workshops was the potential effect of construction and operation of new facilities on state- and federally-listed species in the park. The direct effects of these resources were assessed in a qualitative manner by comparing the anticipated level of land disturbing activities due to park projects and activities during construction and operation of the action alternatives to Alternative A, and to the expected types and intensities of visitor use. Potential beneficial effects were estimated by assessing the relative potential for addition of new areas to the park that may provide increased habitat for these species, and by whether resource stewardship strategies would be implemented or not. Cumulative effects were addressed by qualitatively assessing the combined relative effect of construction of facilities inside the park on protected species, and by relating the potential effects of development in the surrounding area on these resources. Coordination was also conducted with the Georgia Department of Natural Resources and the U.S. Fish and Wildlife Service to determine the occurrence of protected species in the park (see Chapter 3 and Appendix F for lists of these species).

The impact thresholds for rare, threatened and endangered species used are presented in Table 30.

Table 30. Impact Thresholds for Rare, Threatened and Endangered Species

Negligible: State- and federally-listed species and their habitats would not be affected or the effects to an individual of a listed species or its critical habitat would be at or below the level of detection and would not be measurable or of perceptible consequence to the protected individual or its population. Negligible effect would equate with a "no effect" determination in U.S. Fish and Wildlife Service terms.
Minor: The action would result in detectable effects to an individual (or individuals) of a federally or state listed species or its critical habitat, but they would not be expected to result in substantial population fluctuations and would not be expected to have any measurable long-term effects on species, habitats, or natural processes sustaining them. Minor effects would equate with a "may affect/not likely to adversely affect" determination in U.S. Fish and Wildlife Service terms.
Moderate: An action would result in detectable effects on **i**ndividuals or population of a federally or state listed species, its critical habitat, or the natural processes sustaining them. Key ecosystem processes may experience disruptions that may result in population or habitat condition fluctuations that would be outside the range of natural variation (but would return to natural conditions). Moderate level adverse effects would equate with a "may affect/likely to adversely affect/adversely modify critical habitat" determinations in U.S. Fish and Wildlife Service terms.
Major: Individuals or population of a federally or state listed species, its critical habitat, or the natural processes sustaining them would be measurably affected. Key ecosystem processes might be permanently altered resulting in long-term changes in population numbers and permanently modifying critical habitat. Major adverse effects would equate with a "may affect/likely to adversely affect/adversely modify critical habitat" determinations in U.S. Fish and Wildlife Service terms.
Duration: Not applicable due to definitions in accordance with U.S. Fish and Wildlife Service terminology.

The assumptions for this analysis were that the potential for adverse effects is related to the amount of land that could be potentially disturbed under each alternative during construction and operation and to the level and types of visitor use. It was assumed that the amount of allowable construction inside the park would be relatively small for all of the alternatives, but would vary between alternatives.

In addition to these major assumptions, it was also assumed that resource stewardship strategies or many of the other proposed plans and studies outlined in Chapter 5 would not be prepared or implemented under Alternative A. This implies that rare, threatened and endangered species would not be inventoried beyond what is currently known or identified beyond action specific environmental assessments. Trails would also not be maintained to the extent possible, and the trail system would not be managed in the same way as it would be under an implemented plan. Finally, it was assumed that National Environmental Policy Act environmental assessments would be prepared for site-specific projects under all alternatives, and that this would result in effective avoidance and minimization of potential adverse effects on protected species.

Impairment of rare, threatened and endangered species would occur if there was a significant adverse effect to these resources or values whose conservation was (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in this general management plan or other National Park Service planning documents as being of significance.

Impacts of Alternative A

A limited amount of construction would occur under Alternative A, and as a result, there would be a potential to disturb protected species habitat in the park. Construction could also result in fragmentation of protected species habitat, but because the number of projects would be few, this effect is estimated to be minor. In addition, under all of the alternatives, any construction project would require a National Environmental Policy Act environmental assessment that would include rare, threatened, and endangered species surveys, consideration of alternative sites and designs, and assessments of direct and cumulative effects. Therefore, through this process, effects would be avoided or minimized to the greatest extent possible.

Surveys of numerous protected species of plants and animals in the park have been documented and recorded for areas of possible affect from a given project. Comprehensive park-wide surveys have not yet been conducted. Until these surveys are completed, the park would rely on site-specific surveys for individual construction project sites to assess the potential for effects on protected species. These surveys would not be conducted under Alternative A on a parkwide basis, but would be required for site-specific environmental assessments.

During operation of the park, rare, threatened and endangered species would continue to be protected. However, due to existing staffing and funding constraints, Alternative A is considered to offer the minimum level protection to these species. There is also a greater potential for habitat degradation over time due to potential visitor overuse and trail damage since a resource stewardship strategy or integrated trail system study would not likely be prepared or implemented under this alternative. Trails would continue to be maintained, and erosion would continue to be controlled in problem areas in the same way that they are managed presently; however, under Alternative A these problems could worsen somewhat over time. Increased soil disturbance and erosion are contributing factors to the spread of invasive plant populations. Such disturbances allow seeds or parts of plants to establish new or expanded populations. Hence, construction of new facilities or trails and trail overuse could lead to the establishment or spread of invasive plants.

The overall effects of Alternative A on rare, threatened and endangered species would be long-term, minor, and adverse.

Cumulative Impacts

Adverse cumulative effects from actions inside the park could occur due to fragmentation of habitat or spread of invasive species as a result of trail overuse. However, cumulative adverse effects related to ongoing urbanization in the surrounding region and subsequent elimination of rare, threatened and endangered species would be of greater impact to the overall cumulative effect and would be common to all alternatives, including Alternative A.

As communities adjacent to the park become more developed and lose terrestrial habitat and degrade aquatic habitats through increased runoff and sedimentation, natural habitats within the park will become increasingly degraded and fragmented. However, regional implementation of stream buffer ordinances, greenspace initiatives, local watershed management plans, and total maximum daily load requirements would have beneficial effects on rare, threatened, and endangered species within the park. As implementation of these initiatives and programs by local governments becomes more widespread, controls should ultimately be put in place and enforced that would protect and preserve habitat adjacent to the park over the long term, thereby reducing effects to sensitive species.

Alternative A would involve the least amount of coordination and planning between the National Park Service and local governments, however, which could hinder the potential of such beneficial effects.

When the beneficial and adverse effects of other past, ongoing, and future plans, projects, and activities affecting rare, threatened and endangered species are combined with actions under Alternative A, the resulting cumulative effects would be long-term, moderate to major, and adverse. Adverse effects would be moderate to major because rare, threatened and endangered species would continue to be more heavily influenced by urban development in the surrounding area than by activities in the park; these effects would be more pronounced for aquatic species than terrestrial species. These effects would be outside of the park's ability to control, however, and are not related to park actions.

Conclusions

Long-term, minor, adverse effects on rare, threatened and endangered species would occur under Alternative A from minimal construction and maintenance of park facilities and the minimal level of habitat restoration, species inventory, and invasive species control and management.

Rare, threatened and endangered species in the park would continue to be primarily influenced by urban development in the surrounding area. This would constitute a long-term, moderate to major, adverse, cumulative effect. These effects would be outside of the park's ability to control, however, and are not related to park actions.

There would be no impairment of rare, threatened or endangered species or values as a result of park actions under Alternative A.

Impacts of Alternative B

Alternative B would have a lower relative potential to adversely affect rare, threatened, and endangered species within the park in comparison with Alternative A, since Alternative B would involve fewer construction related activities. Some fragmentation of terrestrial habitat could occur, but because the number of new facilities would be few and in limited areas, this effect would be negligible. Mitigative procedures described for construction projects under Alternative A would be applicable to Alternative B.

When compared with Alternative A, which lacks management zones, much of the park would be left in a natural state with approximately 68 percent of park acreage zoned as either a natural zone or river solitude zone which would involve a lower number of new facilities and would emphasize less opportunities for diverse recreation and visitor use. This alternative would also place the greatest emphasis on habitat restoration, thereby improving existing conditions.

Surveys of numerous protected species of plants and animals in the park have been primarily documented and recorded for areas of possible affect from a given project. Definitive and detailed park-wide surveys have yet to be conducted by the park. However, under Alternative B, such surveys would be completed as part of implementation of a park-wide resource stewardship strategy. Procedures for management and control of invasive species would also be included under this strategy.

An increase in research and education efforts compared to Alternative A would provide additional protection of resources by communicating protective measures and by increasing the information

shared concerning the sensitivity of resources. This could help to avoid or minimize effects to rare, threatened and endangered species. Addition of new parcels could potentially contain protected species or critical habitat and any new parcels added to the park under Alternative B would not be developed with new facilities. Overall, Alternative B would have a long-term, minor to moderate, beneficial effect on rare, threatened and endangered species.

Cumulative Impacts

Cumulative effects would be similar to those described under Alternative A. However, increased staffing proposed for all of the action alternatives could potentially lessen adverse cumulative effects through increased cooperation and coordination with local, county, and state agencies on projects and activities outside of the park that directly and indirectly affect rare, threatened and endangered species within the park. In addition, increased educational programs aimed at increased resource awareness could generate interest in their protection outside the park as well. Although the effectiveness of cooperative efforts and education would be difficult to quantify, it is likely that cumulative effects would be slightly less adverse than those described under Alternative A, resulting in a long-term, minor to moderate, adverse, cumulative effect on rare, threatened and endangered species under Alternative B.

Conclusions

Alternative B would have long-term, minor to moderate, beneficial effects on rare, threatened and endangered species due to a lesser amount of construction than under Alternative A, the emphasis placed on habitat restoration, species inventory, and educational programs; and implementation of a resource stewardship strategy, which would address invasive species control and management.

Rare, threatened and endangered species would continue to be more heavily influenced by urban development in the surrounding area than by activities in the park under all of the alternatives, including Alternative B. This would constitute a long-term, minor to moderate, adverse, cumulative effect. These effects would be outside of the park's ability to control, however, and are not related to park actions.

There would be no impairment of rare, threatened or endangered species or values as a result of park actions under Alternative B.

Impacts of Alternative C

Alternative C would involve an intermediate level of facility construction and operation activities as compared to Alternative A. Some fragmentation of terrestrial habitat could occur, but because the number of projects would be few and localized in hubs, this effect would be minor. Prior to implementation of construction activities, mitigative procedures described under Alternative A would be implemented.

Alternative C would discourage new entrances to the park while focusing National Park Service supervision, education, and monitoring where use is greatest. With more limited access, sites would be better protected from resource damage than in Alternative A, and management zones with opportunities for less diverse recreation and less developed surfaces (the natural and river solitude zones) would occupy approximately 60 percent of the park. In addition, by centrally locating facilities and educational resources/park information in hubs, it would be possible to inform and educate a greater number of visitors than Alternative A. Increased park staff proposed under this alternative

would facilitate this increased level of communication about the park's resources and the need to protect them.

Surveys of numerous protected species of plants and animals in the park have been primarily documented and recorded for areas of possible affect from a given project. Definitive and detailed park-wide surveys have yet to be conducted by the park. However, under Alternative C, such surveys would be completed as part of implementation of a park-wide resource stewardship strategy. Procedures for management and control of invasive species would also be included under this strategy.

An increase in research and education efforts compared to Alternative A would provide additional protection of resources by communicating the sensitivity of resources and measures that could be used by visitors to avoid or minimize effects to rare, threatened and endangered species. Addition of new parcels could potentially contain protected species or critical habitat and any new parcels added to the park under Alternative C would not be part of a hub, and therefore not be included in a zone where facility construction effects are likely. Overall, Alternative C would have a long-term, negligible adverse effect on rare, threatened and endangered species.

Cumulative Impacts

Cumulative effects would be the same as described for Alternative B.

Conclusions

Alternative C would have long-term, negligible, adverse effects on rare, threatened and endangered species due to the combined effects of an intermediate amount of land disturbance centralized in hubs as compared with Alternative A, the emphasis placed on educational programs, expanded species inventories, and implementation of a resource stewardship strategy, which would address invasive species control and management.

Rare, threatened and endangered species would continue to be more heavily influenced by urban development in the surrounding area than by activities in the park under all of the alternatives, including Alternative C. This would constitute a long-term, minor to moderate, adverse, cumulative effect. These effects would be outside of the park's ability to control, however, and are not related to park actions.

There would be no impairment of rare, threatened or endangered species or values as a result of park actions under Alternative C.

Impacts of Alternative D

Alternative D would involve a greater relative level of facility construction and operation activities in comparison with Alternative A due to the greater amount of land disturbing activity, and some fragmentation of terrestrial habitat would potentially occur. Prior to implementation of construction activities, mitigative procedures described under Alternative A would be implemented.

Of the five action alternatives, Alternative D dedicates the least amount of acreage (14 percent of the total 10,000 acre designation) to zones emphasizing less diverse opportunities for recreation and minimization of new construction. The increased number and types of recreational development associated with Alternative D compared to Alternative A would increase the potential for visitor-

related adverse effects on rare, threatened and endangered species. In addition, visitor use would be expanded and distributed throughout the park. Connections to existing neighborhoods would be optimized and expanded, and trail links to areas outside the park would be provided. Creation of numerous trails and access points could potentially make it difficult for park staff to prevent habitat damage and could also promote the spread of invasive vegetation. However, potential adverse effects of trail use, soil erosion, and invasive species would be mitigated by developing and implementing a resource stewardship strategy and an integrated trail system study.

Surveys of numerous protected species of plants and animals in the park have been primarily documented and recorded for areas of possible affect from a given project. However, under Alternative D, such surveys would be completed as part of implementation of a park-wide resource stewardship strategy. Procedures for management and control of invasive species would also be included in this strategy.

Alternative D (and Alternatives E and F) would have a greater emphasis placed on coordination and planning between the National Park Service and local governments and organizations than Alternative A which could result in greater stewardship of park resources. Addition of new parcels could aid in lessening the effects of fragmentation and provide critical habitat protection for sensitive species not yet identified. Overall, Alternative D would have a long-term, negligible to minor, adverse effect on rare, threatened and endangered species.

Cumulative Impacts

Cumulative effects would be the similar to those described for Alternative B. However, Alternative D (and Alternatives E and F) would have a greater increase in staffing and greater emphasis placed on coordination and planning between the National Park Service and local governments and organizations than Alternative A. Park managers would be able to use these partnerships to better adapt to changing ecological and social conditions within and external to the park and coordinate regional planning and land management as it affects the park. Partnerships could be facilitated with local governments in the form of buffering property adjacent to the park. Bordering area governments could consider changes to their comprehensive plans to address land use, zoning, permitting and regulatory issues within the watershed. The combined effect of a unified strategy would be an effective public private partnership for increasing values and for preserving the park resources. Hence, Alternative D (and Alternatives E and F) would provide the greatest level of offset in adverse cumulative effects when compared to Alternative A resulting in a long-term, minor to moderate, adverse, cumulative effect on rare, threatened and endangered species.

Conclusions

Alternative D would have the greatest relative amount of land disturbing activity and the most widespread level of access in comparison to Alternative A resulting in the greatest potential for adverse effects on habitat. These effects would be offset somewhat by implementation of a resource stewardship strategy, expanded species inventories, an integrated trail system study, and the increased educational opportunities and partnerships afforded under this alternative. The overall effect on rare, threatened and endangered species is long-term, negligible to minor, and adverse.

Rare, threatened and endangered species would continue to be more heavily influenced by urban development in the surrounding area than by activities in the park under all of the alternatives. These potential effects would be mitigated to some extent by the greater emphasis that Alternative D places

on partnering with local governments resulting in an overall long-term, minor to moderate, adverse, cumulative effect.

There would be no impairment of rare, threatened and endangered species or values as a result of park actions under Alternative D.

Impacts of Alternative E

Similar effects as those described under Alternative C are applicable to Alternative E (long-term, negligible, adverse). Although visitor use and development would be expanded and distributed throughout the park under Alternative E, the overall intensity of effects would be the same due to mitigative measures. Cumulative effects would be the same as those described under Alternative D (long-term, minor to moderate, and adverse).

There would be no impairment of rare, threatened and endangered species or values as a result of park actions under Alternative E.

Impacts of Alternative F, the Preferred Alternative

The same effects as those described under Alternative D are applicable to Alternative F.

PRIME AND UNIQUE FARMLAND

Regulations and Policies

The regulations and policies that guide National Park Service actions with respect to prime and unique farmlands are summarized in the "Servicewide Mandates and Policies" section of Chapter 1 and in Appendix A.

Methodology

This impact topic was not specifically mentioned by the public as a topic of concern. It is included to address planning team concerns regarding possible effects associated with prime farmland in areas where construction activity is zoned as appropriate. A number of the soil types in the park have been classified as prime farmlands (Figure 11), but no unique farmland has been identified within park boundaries. Effects on prime farmlands were addressed by identifying where these resources are located within the park, and then relating anticipated effects of construction and operation of park facilities. Thresholds for this impact topic are presented in Table 31.

Table 31. Impact Thresholds for Prime Farmlands

Negligible: Productivity or fertility of soils would not be affected or these effects would be below or at levels of detection. Any effects on soil productivity or fertility would be slight and would return to normal shortly after completion of project activities.
Minor: The effects on soil productivity or fertility would be detectable, but these effects would be small. If mitigation was needed to offset adverse effects, it would be relatively simple to implement and would likely be successful.
Moderate: The effect on soil productivity or fertility would be readily apparent and would result in a change in the soil character over a relatively wide area.

Table 31. Impact Thresholds for Prime Farmlands

Major: The effect on soil productivity or fertility would be readily apparent and would substantially change the character of the soils over a large area in and outside of the park. Mitigation measures to offset adverse effects would be needed, and their success would not be assured.	
Duration:	Long-term: Recovery of soils would take more than 1 year. Short-term: Recovery of soils would take less than 1 year.

The major assumption for this assessment was that potential effects on prime farmland within the park are related to the amount of land disturbance caused by construction and operation of park facilities. It was assumed that the amount of allowable construction inside the park would be relatively small for all of the alternatives. It was also assumed that during operation, the amount of disturbance of prime farmlands would be negligible. Effects of the action alternatives were further assessed based on the relative percentage of prime farmland acreage occurring within zones where new construction is permissible.

Impairment of prime farmland would occur if there was a significant adverse effect to these resources or values whose conservation was (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park , (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in this general management plan or other National Park Service planning documents as being of significance.

Impact of Alternative A

Prime farmland is distributed throughout the park (Figure 11). Erosion and runoff generated from impervious surfaces could potentially affect the productivity and fertility of prime farmland. Under Alternative A, the amount of construction proposed within the park would be limited, and efforts would be made to avoid construction in areas containing prime farmland. Should a project be proposed that would affect prime farmland in the future, a site specific environmental assessment would be completed, and the effects would be further addressed. Best management practices would also be implemented during construction to minimize soil erosion. In addition, no projects have been identified to date that would affect prime farmlands.

Under Alternative A, the management of prime farmland would be minimal, and resource stewardship strategies would not be implemented. Erosional effects associated with trail overuse and creation of unauthorized trails would not be mitigated as effectively without an integrated trail system study, which would not be implemented under Alternative A. The overall effect of Alternative A on prime farmland would be long- and short-term, negligible, and adverse.

Cumulative Impacts

The cumulative adverse effects of construction, maintenance and operation activities within the park on prime farmlands under Alternative A would be negligible, since this alternative would involve small amounts of construction and operation of new facilities in the park. However, since a resource stewardship strategy or integrated trail system study would not be implemented, these soil types would not be as protected as they would be if plans were in place.

The cumulative effects of development in the area surrounding the park on prime farmland would be caused by effects of erosion from new construction and runoff from impervious surfaces in the area surrounding the park, and would be difficult to control under any alternative. However, regional

implementation of such initiatives as erosion control permitting and certification programs, and local watershed management plans and ordinances would have beneficial effects on prime farmland within the park. Alternative A would involve the least amount of coordination and planning between the National Park Service and local governments, however, which could hinder the potential of such beneficial effects.

When the beneficial and adverse effects of other past, ongoing, and future plans, projects, and activities affecting prime farmlands are combined with actions under Alternative A, the resulting cumulative effects would be long- and short-term, minor, and adverse. Adverse effects would be minor because prime farmlands would continue to be influenced by urban development in the surrounding area. These effects would be outside of the park's ability to control, however, and are not related to park actions.

Conclusions

Long- and short-term, negligible, adverse effects on prime farmlands would occur under Alternative A from minimal construction and maintenance of park facilities, avoidance of prime farmlands during construction, and lack of implementation of a resource stewardship strategy.

Prime farmland in the park would continue to be influenced by urban development in the surrounding area. This would constitute a long- and short-term, minor, adverse, cumulative effect. These effects would be outside of the park's ability to control, however, and are not related to park actions.

There would be no impairment of prime farmlands or values as a result of park actions under Alternative A.

Impacts of Alternative B

Alternative B would have a lower potential to affect prime farmlands in comparison with Alternative A since this alternative would have a smaller amount of construction and a greater emphasis on restoration. Site-specific environmental assessments tiered to this general management plan would be conducted for any ground disturbing projects, identifying prime farmlands and avoiding them whenever practicable. Best management practices would also be implemented to minimize soil erosion to avoid adverse effects.

When the location of prime farmland (Figure 11) is compared to the locations of zones in which new construction would be considered appropriate under Alternative B, little overlap is observed compared to Alternative A. Implementation of a resource stewardship strategy and integrated trail system study would also serve as additional management tools for erosion control and management of prime farmland, and increased education and outreach proposed under this alternative could increase resource awareness. The overall effect of Alternative B on prime farmland would be long- and short-term, negligible, and beneficial.

Cumulative Impacts

Cumulative effects would be similar to those described under Alternative A. Increased staffing proposed for all of the action alternatives, however, could potentially lessen adverse cumulative effects through increased cooperation and coordination with local, county, and state agencies on projects and activities outside of the park that directly and indirectly affect prime farmland within the park. In addition, increased educational programs aimed at increased resource awareness could generate

interest in their protection outside the park as well. Although the effectiveness of cooperative efforts and education would be difficult to quantify, it is likely that cumulative effects would be slightly less adverse but similar to Alternative A, resulting in long- and short-term, minor, adverse, cumulative effect on prime farmland under Alternative B.

Conclusions

Alternative B would have long- and short-term, negligible beneficial effects on prime farmlands, since the amount of construction proposed within the park would be limited, the overlap of prime farmland with zones allowing new development would be the least of all the other alternatives, including Alternative A, new management tools would be developed and implemented, and increased educational programs could increase resource awareness.

Prime farmland in the park would continue to be primarily influenced by urban development in the surrounding area. This would constitute a long- and short-term, minor, adverse, cumulative effect. These effects would be outside of the park's ability to control, however, and are not related to park actions.

There would be no impairment of prime farmlands or values as a result of park actions under Alternative B.

Impacts of Alternative C

Whereas the majority of potential effects would be centralized at hubs and prime farmland could be avoided where practical, the result would be long- and short-term negligible, beneficial compared to Alternative A. Cumulative effects associated with Alternative C would be similar to Alternative B.

There would be no impairment of prime farmlands or values as a result of park actions under Alternative C.

Impacts of Alternative D

Alternative D would have the highest potential to affect prime farmlands, since this alternative would involve more construction, maintenance and operation activities in comparison with Alternative A. Visitor activities would include more active forms of recreation over a wider area of the park, and park access would be less restricted than under Alternative A which could result in adverse effects associated with soil erosion.

When the location of prime farmland is compared to the locations of zones in which new construction would be considered appropriate, the greatest relative amount of overlap is observed when compared to Alternative A. However, as is the case with all of the alternatives, site-specific environmental assessments tiered to this general management plan would be conducted for any ground disturbing projects, identifying prime farmlands and avoiding them whenever practicable. Best management practices would also be implemented to minimize soil erosion, and development and implementation of a resource stewardship strategy and integrated trail system study would lessen adverse effects. The overall effect of Alternative D on prime farmland would be long- and short-term, minor, and adverse.

Cumulative Impacts

Cumulative effects would be the similar to those described for Alternative B. However, Alternative D (and Alternatives E and F) would have greater staffing increases and greater emphasis placed on coordination and planning between the National Park Service and local governments than Alternative A. Park managers would be able to use these partnerships to better adapt to changing ecological and social conditions within and external to the park and coordinate regional planning and land management as it affects the park. Coordination with bordering area governments could result in changes to their comprehensive plans to address land use, zoning, permitting and regulatory issues for areas bordering the park. The combined effect of a unified strategy would be an effective public private partnership for increasing values and for preserving the park resources. Hence, Alternative D (and Alternatives E and F) would provide a greater offset in adverse cumulative effects when compared to Alternative A resulting in a long and short-term, minor, adverse, cumulative effect on prime farmlands.

Conclusions

Alternative D would have the highest overall relative potential to affect prime farmlands, since this alternative would involve greatest amount of construction, maintenance and operation activities in comparison with Alternative A. These effects would be offset somewhat by implementation of a resource stewardship strategy and an integrated trail system strategy resulting in a long- and short-term, minor, adverse effect. The same level of cumulative effect would also be observed due to the emphasis Alternative D places on partnering with local governments.

There would be no impairment of prime farmlands or values as a result of park actions under Alternative D.

Impacts of Alternative E

Effects of Alternative E are similar to those described for Alternative B, resulting in long- and short-term, negligible, and beneficial effects. Cumulative effects would be the same as those described under Alternative D (long- and short-term, minor, and adverse).

There would be no impairment of prime farmlands or values as a result of park actions under Alternative E.

Impacts of Alternative F, the Preferred Alternative

The same effects as those described under Alternative D are applicable to Alternative F.

ARCHEOLOGICAL RESOURCES

Regulations and Policies

The regulations and policies that guide National Park Service actions with respect to archeological resources are presented in the "Servicewide Mandates and Policies" section of Chapter 1 and in Appendix A.

Methodology

This section provides an evaluation of potential effects on archaeological resources within the area described in the "Geographic Area Covered by the General Management Plan" section of Chapter 1. The archaeological resource evaluation consists of comparing conditions that would occur under each of the alternatives with Alternative A.

Regulations for implementing the National Environmental Policy Act and the National Historic Preservation Act require the analysis of the effects of proposed actions on important cultural resources. Unfortunately, each of the acts has a different set of definitions for assessing effects on cultural resources. To comply with the requirements of both acts, this general management plan and environmental impact statement uses both definition sets to evaluate effects on the cultural resources of the park.

The following discussion is an attempt to correlate the differing requirements of the National Historic Preservation Act and the National Environmental Policy Act in a way that effects on cultural resources are presented in a thorough, thoughtful, and meaningful manner in this document and compliance with both laws is achieved. For these reasons, the impact criteria for cultural resources are presented in a different format from the other impact topics in this environmental impact statement.

To implement Section 106 of the National Historic Preservation Act, the Advisory Council on Historic Preservation (Advisory Council) has published regulations at 36 CFR 800. These regulations, entitled "Protection of Historic Properties," provide guidance for determining whether a *historic property* (a term that includes archeological sites, historic buildings, structures, landscapes, and objects and properties of traditional, religious, and cultural significance) is eligible for inclusion on the National Register of Historic Places (National Register) and provides a procedure for nominating such properties to the register.

The regulations also explain what constitutes an impact or effect on a historic property listed on or eligible for listing on the National Register. Under Section 106, the effects on archeological resources, historical buildings and structures, and cultural landscapes were identified and evaluated by:

- determining the area of potential effects;
- identifying cultural resources present in the area of potential effects that are either listed in or potentially eligible to be listed in the National Register;
- applying the criteria of adverse effect to all of the listed or potentially eligible cultural resources that could be affected; and
- considering ways to avoid, minimize, or mitigate adverse effects.

The following Section 106 definitions were used in this general management plan/environmental impact statement to characterize the severity or intensity of effects on National Register-listed or -eligible cultural resources:

- A determination of *no historic properties affected* means that either there are no historic properties present or there are historic properties present but the undertaking will have no effect on them (36 CFR 800.4(d)(1)).

- A determination of *no adverse effect* means there is an effect, but the effect would not meet the criteria of an adverse effect; that is, it will not diminish the characteristics of the cultural resource that qualify it for inclusion in the National Register (36 CFR 800.5(b)).

- An *adverse effect* occurs whenever an effect alters, directly or indirectly, any characteristic of a cultural resource that qualifies it for inclusion in the National Register. For example, this could include diminishing the integrity (or the extent to which a resource retains its historic appearance) of its location, design, setting, materials, workmanship, feeling, or association. Adverse effects also include reasonably foreseeable effects caused by the alternatives that would occur later in time, be farther removed in distance, or be cumulative (36 CFR 800.5(a)(1)).

Because cultural resources are nonrenewable, all adverse effects on National Register-eligible cultural resources in the park would be long-term and would have a high level of concern. The only exception to this is the potential for short-term effects associated with elements of a cultural landscape, such as vegetation.

The Council on Environmental Quality (1978) regulations for implementing the National Environmental Policy Act and Director's Order 12 (NPS 2001b) call for a discussion of the appropriateness of mitigation with an analysis of how effective the mitigation would be in reducing the intensity of a potential effect (for example, reducing the intensity of an effect from major to moderate or minor). However, any reduction in intensity of effect from mitigation is an estimate of the effectiveness of mitigation under *only* under the National Environmental Policy Act. The level of effect as defined by Section 106 is *not* similarly reduced, because cultural resources are nonrenewable, and adverse effects that consume, diminish, or destroy the original historic materials or form will result in a loss in the integrity of the resource that can never be recovered. Therefore, even if actions determined to have an adverse effect under Section 106 may be mitigated, the effect remains adverse.

A Section 106 summary follows the cultural resources impact analysis for the alternatives. The Section 106 summary is intended to address the requirements of National Historic Preservation Act and is an assessment of the effect of the undertaking (implementation of the alternative) on cultural resources, based on the criteria of effect and adverse effect in the Advisory Council's regulations.

The following thresholds used for assessing the intensity of potential effects on archeological resources are presented in Table 32 and include both National Environmental Policy Act and National Historic Preservation Act terminology.

Table 32. Impact Thresholds for Archeological Resources

Negligible: Effect is at the lowest levels of detection - barely measurable with no perceptible consequences, either adverse or beneficial, to archeological resources. For purposes of Section 106, the determination of effect would be *no historic properties affected.*
Minor: The action would affect one or more archeological sites with low data potential and no significant ties to a living community's cultural identity. The site disturbance would be confined to a small area with little, if any, loss of important information potential. For purposes of Section 106, the determination of effect would be *no adverse effect.*
Moderate: The action would affect one or more archeological sites with modest data potential and possible ties to a living community's cultural identity. Site disturbance would be noticeable. For purposes of Section 106, the determination of effect would be *adverse effect*.
Major: The action would affect one or more archeological sites with medium or higher data potential, or sites or districts listed in, or considered eligible for the National Register and/or having possible ties to a living community's cultural identity, resulting in loss of site or district integrity. Site disturbance or resource degradation would be highly visible. For purposes of Section 106, the determination of effect would be *adverse effect*.
Duration: Long-term: Not applicable. Short-term: Not applicable.

The major assumptions used in this analysis were that the potential for adverse effects on archeological resources is related primarily to the degree of physical disturbance of sites in the park from such things as construction, facility operations, visitor use, and natural causes. Alternatives involving higher levels of physical disturbance in relation to Alternative A have a higher potential to adversely affect archeological resources.

Specifically, the potential for an alternative to diminish the significance or integrity of the site(s) to the extent that its National Register eligibility is affected was used as the primary criteria for estimating effects. Beneficial effects were assessed based on the potential to maintain, preserve or stabilize sites. In addition, it was also assumed that development and implementation of a resource stewardship strategy and a collections management plan would help avoid, minimize or reduce the potential adverse effects of National Park Service actions.

Impairment of archeological resources would occur if there was a significant adverse effect to archeological resources or values whose conservation was (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in this general management plan or other National Park Service planning documents as being of significance.

Impacts of Alternative A

As discussed in Chapter 3, there is a high probability that there are unknown prehistoric and historic archeological resources within the boundaries of the park. Under Alternative A, current management practices would continue, and the archeological knowledge base would not be expanded through additional studies, surveys, or research due to staffing and funding constraints. Any ground-disturbing activities associated with Alternative A would have the potential to adversely affect such sites.

Until a National Register evaluation for any site is completed, it is assumed that the site is eligible for listing on the register. As described in the section entitled "Servicewide Mandates and Policies," the National Park Service is required to protect archeological resources within the park. Therefore, prior

to undertaking any construction activity under Alternative A, the National Park Service would develop an environmental assessment or another appropriate compliance document, and:

- Conduct cultural resources surveys of the area of potential effect, including trail alignments;
- Document all cultural resources that are discovered during the survey;
- Systematically evaluate each site to determine its significance and integrity to support eligibility for inclusion in the National Register;
- Determine eligibility in consultation with the Georgia State Historic Preservation Officer and, if appropriate, the Advisory Council on Historic Preservation; and
- Wherever feasible, revise project designs so that any proposed new facilities would not disturb National Register-eligible sites.

Changes in project location or design could substantially reduce the potential for construction-related adverse effects to archeological resources. If project relocation would be impossible, the National Park Service would work with the Georgia State Historic Preservation Officer to facilitate the determination of eligibility process and to develop appropriate mitigation measures.

The integrity of some sites would continue to be degraded by natural processes such as wind and water erosion, encroachment by vegetation, or by vandalism or inadvertent damage by visitors. These processes could result in non-construction related effects on archeological resources. Because Alternative A would not involve establishment of specific cultural resource zones within the park, and would not result in implementation of a resource stewardship strategy or a collections management plan, the level of protection for archeological resources in the park under Alternative A would be considered to be less than that proposed in any of the action alternatives.

Archeological resources in most of the metropolitan Atlanta area have been disturbed as a result of development and urban sprawl. Therefore, protection and preservation of archeological sites within the park is important on a regional level, as these resources represent former conditions throughout a broader area.

Long-term, direct and indirect, minor to major, adverse effects would occur under Alternative A from natural causes, from looting and other inappropriate visitor use, development on privately owned parcels, and from a general lack of information about the locations and significance of archeological sites (unknown resources cannot be adequately managed or protected). Conversely, the protection afforded sites within the park by their location (e.g. they would be less vulnerable to development pressures), by public education, and by ranger patrols would have long-term, minor, beneficial effects by helping to preserve sites for the future.

Cumulative Impacts

Over time, fire, wind, flooding, natural processes, and human activities have added to, modified, or destroyed cultural sites, both within and outside of the park. Because of their age and non-renewable nature, archeological sites are especially vulnerable to deterioration and loss.

The park's sites are part of a larger cultural continuum that includes surrounding areas as well. Thus, ongoing resource losses across a broad geographic area reduce the numbers and types of sites that are

available for research and interpretation, leaving a skewed vision of past cultures for the future. Lack of resource stewardship strategies and collections management plans would contribute to these adverse effects.

Similar human activities and natural processes are expected to continue into the future. Development in the Atlanta area has affected numerous sites, and development continues to move outward along the river. As the area becomes more urban and more heavily used, there would be continuing and possibly increased potential for moderate to major damage to area sites. However, on-going park programs and site avoidance during future ground disturbing activities in the park would help slow the negative trend of site deterioration and loss of information described above. Future site-specific environmental assessments would be required for new projects, and the compliance document would include mitigation measures to reduce adverse effects. Also, because archeological sites are located within the park, they are less vulnerable to large-scale development, looting, or inappropriate use. Thus, some future minor benefits to archeological sites would accrue from park management actions.

When the beneficial and adverse effects of other past, ongoing, and future plans, projects, and activities affecting archeological resources are combined with actions under Alternative A, the resulting cumulative effects would be long-term, moderate to major, and adverse. Adverse effects would be moderate to major because the numbers and extent of sites affected in the region would far outweigh the benefits of park programs on resources within park boundaries.

Conclusions

Long-term, direct and indirect, minor to major, adverse effects to archeological resources would result from natural causes, inappropriate visitor use, development on privately owned parcels, and a lack of information about the locations and significance of archeological sites.

Avoidance and other mitigation measures would help reduce adverse effects of new park construction, and long-term, minor benefits to sites would result from visitor education, ranger patrols, and protection from large development projects.

Cumulative effects on archeological resources would be long-term, moderate to major, adverse and long-term, minor, beneficial. There would be no impairment of archeological resources or values as a result of park actions under Alternative A.

Impacts of Alternative B

Under Alternative B, development in the park would be reduced or minimized when compared to Alternative A, and most new facilities would be built outside the park. In many cases, sites chosen for development would be likely to have some existing facilities or have been previously disturbed by utility lines, access roads, or existing structures. New development areas within the park would be limited in size and numbers, and could include such visitor facilities as small gravel parking lots, primitive trails, and interpretive signage.

As previously discussed, almost certainly there are unknown prehistoric and historic archeological resources within the boundaries of the park. Any ground-disturbing activities associated with Alternative B would have the potential to adversely affect such sites. To ensure that any adverse effects from future park operations and development under this alternative would be avoided or minimized, all unevaluated sites would be considered eligible for the National Register until an evaluation is completed.

Prior to any ground disturbing activities, appropriate environmental and cultural compliance would be completed and, as described under Alternative A, surveys, documentation, and analysis of findings would be undertaken to identify potential National Register properties. Wherever possible, the project would be relocated to avoid impacts on any National Register-eligible sites, and mitigating measures would be developed as appropriate. Thus construction-related activities would have long-term, negligible to minor, adverse effects on archeological resources.

Much of the park would be left in a natural state under natural and river solitude zones so that structured experiences would allow visitors to experience the park's resources in a more natural venue. That is, visitor use would be focused on the river, primitive areas, unpaved trails, and other less developed facilities. By structuring the visitor experience, less damage to archeological resources from vandalism and looting would be expected.

Visitor use patterns in heavily used areas could be changed to improve resource conditions, contributing to regrowth of vegetation on sites, helping to shield them from erosion and unauthorized collecting. Parcels added to the park would remain in, or be restored to, a largely natural state.

Modest new facilities such as gravel parking lots, primitive trails and interpretive signs would encourage visitors to stop to learn about sites. The size and types of these proposed new facilities could tend to limit the numbers of visitors that come to an archeological site at one time. This would help reduce damage to the site. By keeping access to the park at present levels, other than modest new facilities at areas to be interpreted, cultural sites would suffer fewer direct effects from visitor use than under Alternative A.

When compared with Alternative A, which lacks management zones, approximately 8.7 percent of the 10,000-acre park would be within cultural resource zones. The cultural resource zones would include cultural resources of all types, such as archeological sites, historic structures and buildings, objects, and cultural landscapes. These zones would help ensure resource protection, especially for those sites listed on or eligible for the National Register, while giving visitors an opportunity to learn about and enjoy cultural resources. Benefits to cultural sites would accrue as visitors become educated about the protection of cultural sites, and develop a sense of stewardship.

Creation of the cultural resource zones and minimizing facilitated recreational opportunities also would be beneficial by focusing visitor use on sites that could accommodate use without causing resource damage. Many of the archeological resources located in primitive areas and away from of the trails frequently used by visitors would be less vulnerable to trampling and "wear and tear", looting, vandalism, and inappropriate uses, which would be considered a moderate benefit. Conversely, the frequent presence of visitors is often a deterrent to looting and inappropriate collecting, so the solitary nature of the visitor experience could also have minor, adverse effects on some more isolated resources.

Alternative B would highlight inventory, preservation and maintenance of archeological sites within the cultural resource zones. Monitoring, ranger staffing, and educational programs would be increased, helping to provide greater protection of archeological resources. Areas in newly added parcels with significant cultural resources would be managed to protect values in accordance with *NPS Management Policies* (NPS 2006f) and the *NPS Cultural Resource Management Guideline* (1998).

Development and implementation of resource stewardship strategies and collections management plans would aid the park in identifying and managing their resources more effectively. These plans

would help establish priorities and schedules for resource treatment, and define measures for site maintenance, protection and preservation, both within and outside of the cultural resource zones.

The identification and systematic inventory of archeological resources in the cultural resource zones during the implementation of Alternative B would offer an opportunity to add to the knowledge of the prehistory and history of both the park and the entire vicinity.

In comparison with Alternative A, Alternative B would have long-term, moderate beneficial effects to archeological resources and long-term, negligible to minor, adverse effects.

Cumulative Impacts

As described for Alternative A, past natural processes and human activities have created, modified and destroyed cultural sites along the Chattahoochee River. Archeological resources in most of the metropolitan Atlanta area have been previously disturbed or eliminated by as a result of historical land clearing practices, development and urban sprawl. Unfortunately, some of these processes and activities are expected to continue into the future, and adverse effects are likely to increase as the surrounding area becomes increasingly urbanized. Therefore, improvements to, and preservation of, archeological sites within the park are important on a regional level, as these resources represent former conditions throughout the area.

Several of the actions proposed in Alternative B would tend to slow the deterioration of sites or minimize loss. Reducing or minimizing development and establishment of cultural resource zones in the park would help focus visitor use in areas where such use would not harm resources and would heighten resource appreciation. Increased monitoring, ranger patrols, and visitor education would also tend to slow loss of sites and build stewardship.

It is expected that as urban development spreads outward from Atlanta, ongoing and future human activities and natural processes in the broader area would have moderate to major adverse effects on archeological sites. When the moderately beneficial and negligible to minor adverse effects of actions under Alternative B are combined with these other ongoing and future moderate to major adverse effects in the broader region, the resulting cumulative effects would be long-term, moderate to major, and adverse. Effects would be of this intensity because the number of potentially adversely affected sites outside the park would be so much higher than the number protected within the park.

Conclusions

Under Alternative B, establishment of cultural resource zones, minimizing facilitated recreational activities, and changing visitor use patterns would benefit cultural sites by focusing visitor use on areas that could best accommodate use without resource damage. Development of resource stewardship strategies and collections management plans, inventory and preservation of sites, increased visitor education and interpretation, and enhanced site monitoring and ranger patrols all would contribute to long-term, moderate benefits to archeological resources. Some long-term, direct and indirect, negligible to minor, adverse effects on archeological resources would result from development, visitor use, and natural processes.

Cumulative effects from ongoing and future human activities and natural processes in the region would be long-term, moderate to major, and adverse. Effects would be of this intensity because the number of potentially adversely affected sites outside the park would be so much higher than the number protected within the park.

There would be no impairment of archeological resources or values as a result of park actions under Alternative B.

Impacts of Alternative C

Under Alternative C, three strategic areas or hubs would be developed to provide information, interpretation and services to visitors and would include administrative facilities for park staff. Construction and visitor-use effects would be centralized within these developed hubs, minimizing the need to construct facilities in other parts of the park, and reducing the potential for impact to archeological sites. The rest of the park would remain relatively undeveloped.

As discussed in Chapter 3, there is a high probability that there are unknown prehistoric and historic archeological resources within the boundaries of the park. Any ground-disturbing activities associated with the Alternative C would therefore have the potential to affect such sites. Until evaluation is completed, all unevaluated sites would be considered eligible for the National Register.

Concentration of new facilities in three areas, rather than scattered across the park, would make it easier to avoid cultural sites during development. However, prior to any ground disturbing activities, appropriate environmental and cultural compliance would be completed and, as described under Alternative A, surveys, documentation, and analysis of findings would be undertaken to identify potential National Register properties. Wherever possible, the project would be relocated to avoid any discovered National Register-eligible sites, and mitigating measures would be developed as appropriate.

The initial amount of construction area and land disturbing activity for the hubs, access roads, and trails would be greater than expected future development under Alternative A. However, with mitigation as described above and in Table 7, ground-disturbing actions proposed in Alternative C would have only long-term, direct, negligible to minor, adverse effects on archeological resources.

Cultural resource management zones would occupy approximately 7.8 percent of the total 10,000-acre park, and would include archeological sites, historic structures and buildings, objects, and cultural landscapes, as compared with Alternative A, which would not have any cultural resource zones. Identification efforts, supervision, maintenance and monitoring efforts would be focused on the cultural resource zones in areas where the need is greatest, and site monitoring and numbers of rangers and educational programs would be increased, helping to provide greater protection of archeological resources. However, under this alternative, the Fort Peachtree area would not be included in a cultural resource zone, and would not receive the same benefits as other areas with cultural resource zones. Fort Peachtree is a replica of an early day fort built on what originally was a large Indian village. Although the fort itself is a modern replica, there may be some potential for archeological resources in the vicinity of the fort.

Establishment of cultural resource zones would help ensure resource protection, especially for those sites listed on or eligible for the National Register, while giving visitors an opportunity to learn about and enjoy cultural resources. By systematically identifying and documenting archeological resources in the cultural resource zones during implementation of Alternative C, researchers would learn about the history and prehistory of the park and the area. This added knowledge would be interpreted to visitors who could gain a better understanding and appreciation of park resources. This inventory and documentation also would offer an opportunity to add to the knowledge of the prehistory and history of both the park and the entire vicinity.

Selected sites within the cultural resource zones that could withstand public use and that are amenable to interpretation could be "hardened" (trails and walls to direct visitor use, collection of diagnostic surface artifacts, signing, etc.) so that resources could be protected while visitors gain valuable insights about the park's archeological resources. By focusing visitor use patterns into these developed hubs, archeological sites in other parts of the park would see less foot traffic and "wear and tear." The integrity of some sites would continue to be degraded by natural processes such as wind and water erosion, but better monitoring would allow preventative measures to be instituted before sites are damaged.

Most archeological sites in newly added areas of the park would be somewhat less vulnerable to potential looting or inappropriate uses than under Alternative A because they would be left undisturbed in natural areas. A few of the sites in newly acquired areas could suffer damage because of their particular location or visibility.

Alternative C would discourage new entrances to the park while focusing National Park Service supervision, education, and monitoring where use is greatest. With more limited access, sites would be better protected from looting and vandalism than under Alternative A. That is, the more ad hoc trails, roads, bicycle routes, etc. that run through an area, the more potential for damage to vulnerable sites from disturbance, overuse or looting, and these multiple access routes would be difficult for park rangers to patrol.

Implementation of a resource stewardship strategy and a collections management plan would help establish priorities and schedules for resource treatment, and define measures for site maintenance, protection and preservation, both within and outside of the cultural resource zones. Areas in newly added parcels with significant cultural resources would be managed to protect values in accordance with *NPS Management Policies* (NPS 2006f) and the *NPS Cultural Resource Management Guideline* (1998). Knowledge of the numbers and types of resources present within the park would be increased by the archeological work under this alternative. New interpretation and education efforts and coordination of public/private partnerships would also help build stewardship and resource protection.

In summary, long-term, negligible to minor, adverse effects on sites would result from natural causes, development, and visitor use, while establishment of cultural resource zones, focusing visitor use in hubs, centralized access, and implementation of cultural resource stewardship strategies and collections plans would have long-term, moderate benefits.

Cumulative Effects

Cumulative effects would be the same as described for Alternative B.

Conclusions

Effects on archeological resources from natural processes and visitor use and from developing the hubs, access roads, and trails would be long-term, direct and indirect, negligible to minor, and adverse. Alternative C would also result in long-term, direct and indirect, moderate benefits from: establishment of cultural resource zones, implementation of collections management plans and resource stewardship strategies, concentration of development in the hubs following survey and analysis of the area of potential effect, increased monitoring and ranger presence, focused visitor use in hubs, increased interpretation and education resulting in improved stewardship, and centralized access to the park.

Cumulative effects from ongoing and future human activities and natural processes in the region would be long-term, moderate to major, and adverse. Effects would be of this intensity because the number of potentially adversely affected sites outside the park would be so much higher than the number protected within the park.

There would be no impairment of archeological resources or values as a result of park actions under Alternative C.

Impacts of Alternative D

Alternative D would involve a greater relative level of facility construction and operation activities in comparison with Alternative A, and more ground disturbance would occur, primarily in the developed zones. Visitor use would be expanded and distributed throughout the park, including newly acquired parcels. New facilities would be developed or existing facilities would be refurbished, and connections to existing neighborhoods would be optimized and expanded. Trail links to areas outside the park would be provided.

As previously described, there is a high probability that there are unknown prehistoric and historic archeological resources within the boundaries of the park. Any ground-disturbing activities associated with the Alternative D would therefore have the potential to affect such sites. Until a National Register evaluation for any site was completed, it would be assumed that the site is eligible for listing on the register.

With mitigation (as described in Table 7), sites in the area of potential project effect would be identified, documented, and their National Register eligibility evaluated prior to initiation of development actions that would have the potential to threaten site integrity. However, because of the extent of development, and its scattered nature, Alternative D would still have a somewhat higher relative potential for construction-related adverse effects to archeological resources.

Of the five action alternatives, Alternative D dedicates less acreage (6.8 percent of the total 10,000 acre designation) to the cultural resource/historic resource zones than any of the others. In addition, the Island Ford area would contain two developed zones and a natural area recreation zone, but neither the National Register-eligible Island Ford Complex nor Fort Peachtree would be included within a cultural resource/historic resource zone. Thus, it is possible that archeological resources associated with these complexes could be threatened by development, inappropriate recreational uses, looting, and vandalism, a moderate adverse effect.

Under any alternative, the integrity of some sites would be degraded by natural processes such as wind and water erosion, or by vandalism or inadvertent damage by visitors. By establishing cultural resource zones; by increasing monitoring, numbers of rangers, and education programs; and by implementing a resource stewardship strategy and a collections management plan, Alternative D would provide more protection, monitoring, and interpretation of archeological sites than Alternative A, thereby providing a long-term, moderate benefit.

Public/private partnerships created under Alternative D and a National Park Service proactive outreach program could provide greater stewardship of resources within the park; however, the level of protection from natural degradation and human activities provided by such stewardship is difficult to assess.

Under Alternative D, numerous types of facilities would be appropriate and widely distributed. Creation of numerous trails and other easy means of access from adjacent neighborhoods to these facilities would make it difficult for ranger patrols to prevent vandalism and inappropriate uses.

Despite "hardening" of sites to help manage cultural resources, the increased number and types of recreational development associated with Alternative D, by comparison to Alternative A would increase the potential for visitor-related effects and vandalism. Some sites could be heavily impacted by "wear and tear" from heavy visitor use that diminishes their integrity. Because fewer acres would be placed within cultural resource zones, because of the increased types and distribution of facilities, and because of multiple routes of access from neighborhoods there would be long-term, direct and indirect, moderate, adverse effects on archeological resources under Alternative D.

Cumulative Impacts

Cumulative effects would be the same as described for Alternative B.

Conclusions

Alternative D would provide more protection, monitoring, and interpretation of archeological sites than Alternative A and would have long-term, moderate benefits on archeological sites by establishing cultural resource zones; by increasing monitoring, numbers of rangers, and education programs; and by implementing resource stewardship strategies and collections management plans. However, this alternative would result in more visitors in sensitive areas and higher potential for site deterioration and loss from inappropriate recreational uses and vandalism. Adverse effects would also occur because easy access from neighborhoods would make monitoring and site protection difficult. Implementation of this alternative would have long-term, direct and indirect, moderate adverse effects on archeological resources.

Cumulative effects from ongoing and future human activities and natural processes in the region would be long-term, moderate to major, and adverse. Effects would be of this intensity because the number of potentially adversely affected sites outside the park would be so much higher than the number protected within the park.

There would be no impairment of archeological resources or values as a result of park actions under Alternative D.

Impacts of Alternative E

Alternative E is similar to Alternative B in that it would provide for solitude, and access would be located strategically throughout the park. Approximately 8 percent of the park would be included in historic resource zones, which would have similar management as cultural resource zones. Development within the historic resource zones would be appropriate within the particular cultural context.

Under this alternative, the Island Ford area would be included in one of the historic resource zones, so archeological resources associated with this complex would be less threatened by inappropriate recreational uses, looting, and vandalism than under Alternative A. The Peachtree Fort area, which has the potential to contain archeological remains from the Indian village that was situated here prior to construction of the fort, would be included in a developed zone resulting in some potential for adverse effects to archeological resources in this area.

Development in Alternative E is similar to and slightly increased from development in the Alternative C, and substantially more than Alternative A. Mitigation as described in Table 7 would help ensure archeological resources would have only negligible to minor, adverse effects from development. As previously described, there is a high probability that there are unknown prehistoric and historic archeological resources within the boundaries of the park. Any ground-disturbing activities associated with Alternative E would therefore have the potential to affect such sites. Until a National Register evaluation for any site was completed, it would be assumed that the site is eligible for listing on the register.

Expanded recreational opportunities would include creation of rustic and river zones where fishing and boating would be allowed under state law and private property rights, and most locations would retain their natural conditions. Visitor access areas would have low-impact development such as trails and boat ramps within the historic resource zone.

Natural processes and human actions would continue to degrade archeological sites, but by establishing historic resource zones; increasing monitoring, numbers of rangers, and education and interpretive programs, Alternative E would provide more protection, monitoring, and interpretation of archeological sites than Alternative A. Implementation of a resource stewardship strategy and collections management plans would help establish priorities and schedules for resource treatment, and define measures for site maintenance, protection and preservation. Long-term, direct and indirect, moderate benefits would also come from increased knowledge about the park's sites, resource stewardship; and improved management of sites. The park would continue to work with other entities to provide greater resource stewardship but the level of protection from natural degradation and human activities provided by such stewardship is difficult to assess.

In summary, natural processes and construction activities associated with implementation of Alternative E would have long-term, indirect and direct, negligible to minor, adverse effects on archeological resources. Establishment of historic resource zones, increases in ranger presence, monitoring, education and interpretation programs, implementation of collections management plans and a resource stewardship strategy, and inclusion of the Island Ford complex in a historic resource zone all would have long-term, direct and indirect, moderate to major, benefits on archeological sites.

Cumulative Impacts

Cumulative effects would be the same as described for Alternative B.

Conclusions

Adverse effects on archeological resources from natural processes, visitor use, and development of new facilities, would have long-term, direct and indirect, negligible to minor, adverse effects on archeological resources because mitigation measures would help reduce potential for site damage.

Establishment of historic resource zones with additional ranger presence and monitoring, new educational programs, and implementation of resource stewardship strategies and collections management plans would have long-term, direct and indirect, moderate to major benefits to archeological resources.

Cumulative effects from ongoing and future human activities and natural processes in the region would be long-term, moderate to major, and adverse. Effects would be of this intensity because the

number of potentially adversely affected sites outside the park would be so much higher than the number protected within the park.

There would be no impairment of archeological resources or values as a result of park actions under Alternative E.

Impacts of Alternative F, the Preferred Alternative

As previously described, there is a high probability that there are unknown prehistoric and historic archeological resources within the boundaries of the park. Any ground-disturbing activities associated with Alternative F would therefore have the potential to affect such sites. Until a National Register evaluation for any site was completed, it would be assumed that the site is eligible for listing on the register.

Implementation of Alternative F would have almost the same effects as described for Alternative E. Approximately the same number of acres would be protected and managed in historic resource zones. A collections management plan and resource stewardship strategy would be implemented and would set priorities and define which properties would require what type of maintenance, and how often. Increased monitoring, numbers of rangers, and educational programs would help protect sites.

Under this alternative, the Island Ford area would be included in one of the historic resource zones, so archeological resources associated with this complex would be less threatened by inappropriate recreational uses, looting, and vandalism than under Alternative A, which has a moderate beneficial effect. Fort Peachtree would be within a developed zone. Formerly this area was an Indian village, so there is some potential for minor adverse effects on buried resources in this area.

Initially, there would be some slight potential for damage to archeological sites under Alternative F because of the development of hardened recreational areas. In the long run, however, hardened recreational areas would help structure visitor use, and reduce potential effects on cultural sites in the vicinity.

Alternative F would provide more protection, monitoring, and interpretation of archeological sites than Alternative A, a long-term, moderate benefit.

In summary, natural processes and construction activities associated with implementation of Alternative F would have long-term, direct, minor, adverse effects on archeological resources. Establishment of historic resource zones, increases in ranger presence, monitoring, education and interpretation programs, implementation of a collections management plan and resource stewardship strategy, and inclusion of the Island Ford area in a historic resource zone all would have long-term, direct and indirect, moderate to major benefits on archeological sites.

Cumulative Impacts

Cumulative effects would be the same as described for Alternative B.

Conclusions

Protection of sites within historic resource zones, implementation of a collections management plan and resource stewardship strategy, use of mitigation measures to reduce potential effects of development, increased ranger presence and site monitoring would have long-term, moderate to

major, beneficial effects in preserving these resources for the future. Natural processes and construction activities associated with implementation of Alternative F would have long-term, indirect and direct, minor, adverse effects on archeological resources.

Cumulative effects on archeological resources would be the same as described for Alternative B, which are long-term, moderate to major, and adverse.

There would be no impairment of archeological resources or values as a result of park actions under Alternative F.

CULTURAL LANDSCAPES, HISTORIC BUILDINGS, STRUCTURES AND OBJECTS

Regulations and Policies

The regulations and policies that guide National Park Service actions with respect to cultural landscapes, historic buildings, structures and objects are presented in the "Servicewide Mandates and Policies" section of Chapter 1 and in Appendix A.

Methodology

The analysis of impacts to historical buildings, structures, landscapes and objects is based on the same effects criteria and definitions as the archeological resources analysis. Historic structures, buildings, and objects are a vital component of the park's landscapes. For this reason, the following discussion will include cultural landscapes with historic structures, buildings, and objects. Please refer to the previous section for a description of the methods that were applied. The thresholds for this impact topic are presented in Table 33.

Table 33. Impact Thresholds for Cultural Landscapes, Historic Buildings, Structures and Objects

Negligible: The activity would not have the potential to cause effects on historic structures, buildings, districts or landscapes that would alter any of the characteristics that would qualify the resource for inclusion in or eligibility for the National Register. For purposes of Section 106, the determination would be *no historic properties affected*.
Minor: The action would affect one or more a features of a structure, building, district, landscape, or an object that is eligible for or listed in the National Register, but it would neither alter its character-defining features nor diminish the integrity of the property. For purposes of Section 106, the determination of effect would be *no adverse effect*.
Moderate: The action would alter one or more character-defining features of the structure, building, district, object or landscape. While the overall integrity of the resource would be diminished, the property would retain its National Register eligibility. For purposes of Section 106, the determination of effect would be *adverse effect*.
Major: The action would alter character-defining features of the structure, building, district, object or landscape, seriously diminishing the overall integrity of the resource to the point where its National Register eligibility may be in question. For purposes of Section 106, the determination of effect would be *adverse effect*.
Duration: Long-term: Effects endure after construction and are permanent and irreversible. Short-term: Elements of a cultural landscape such as vegetation recovers in less than one year. For structures, effect is temporary, construction-related and fully reversible.

Impacts of Alternative A

Alternative A does not include establishment of any cultural resource zones, nor does it address additional parcels or treatment of historic structures and landscapes under the expanded boundaries. Due to existing staffing and funding constraints, Alternative A is considered to offer a minimal level

protection to historic buildings, structures, landscapes and objects. No new major initiatives would be expected to occur, and cultural landscape reports would not be developed to aid in the identification and management of landscapes.

The park contains a variety of historic buildings, structures, landscapes and objects that are significant to the historical development of the Chattahoochee River corridor and the greater Atlanta area. In the area surrounding the park, the rural agrarian landscapes and their structural components are rapidly disappearing under the pressure of development. Some of these resources are among the last remaining examples of their construction or landscape types left in the region.

Appropriate treatment is required for National Register-listed properties, particularly where stewardship of the resource can be shared with a public or private entity, but no wholesale program would exist for the inventory, protection, and preservation of unevaluated or potentially eligible resources under Alternative A.

Under this alternative, those resources that have been identified would continue to be protected at current levels. However, few of the historic buildings, structures, landscapes and objects in the park would be afforded enhanced protection and preservation treatment. In addition, because structures are an integral part of, and contribute to, the park's cultural landscapes, effects to structures would have a corresponding negative effect to the cultural landscape.

Historic buildings, structures, landscapes and objects in the park are subject to degradation by natural processes such as wind and water erosion, vegetation growth, insects and age. Alternative A offers no increased level of protection from degradation and damage for park-owned historic buildings, structures, landscapes and objects. The resources would continue to be maintained at present levels.

Historic structures within the park boundary but not owned by the National Park Service might not receive routine maintenance or might be altered in a manner that diminishes or destroys their historic integrity. If historic resources are not monitored, maintained or receive increased levels of protection and preservation, Alternative A would have long-term, direct, minor to major, adverse effects on these resources.

Cumulative Impacts

As with archeological resources, past natural events and human actions have had both adverse and beneficial effects on historic structures and landscapes. Many of the buildings and landscapes in the park have been maintained and preserved, both by the National Park Service and by private owners. Other structures and landscapes have suffered adverse effects from past detrimental effects of time, weather, vandalism, neglect, and fire.

Under Alternative A, a resource stewardship strategy, historic structures plans, or cultural landscape reports would not likely be implemented, and research into historic properties would not be initiated. The limited construction, maintenance and operation activities in the park related to historic buildings, structures, landscapes and objects would continue as at present. It is likely that these limited efforts would not be able to keep pace with ongoing and future maintenance and research needs of the various historic structures and landscapes.

When the adverse and beneficial effects of these past actions and events are added to the ongoing and expected future effects from park operations and development, this alternative would have a long-

term, moderate to major, adverse, cumulative effect on historic buildings, structures, landscapes and objects.

Conclusions

Some of the park's historic buildings, structures, landscapes and objects are among the last remaining examples of their construction types, architectural styles, or landscape examples in the region. Alternative A would not afford optimum research opportunities or enhanced protection and preservation for these properties, resulting in long-term, direct and indirect, minor to major, adverse effects and long-term, moderate to major, adverse, cumulative effects.

There would be no impairment of historic buildings, structures, landscapes, objects or values as a result of park actions under Alternative A.

Impacts of Alternative B

Some of the historic structures and landscapes in the park are among the last remaining examples of their construction types and designs in the region. Protection and enhancement of the park's historic built environment would help preserve these cultural sites and landscapes that were significant in the historical development of the Chattahoochee River corridor in the greater Atlanta area, and that relate to several broad historic contexts described in Chapter 3.

Cultural resource zones established under Alternative B would encompass the majority of the National Register-listed or eligible historic buildings, structures, landscapes and objects identified to date in the park. These historic properties would be afforded enhanced protection and preservation treatment through the development and implementation of systematic integrated inventory, research, and preservation programs in the cultural resource zones. Conversely, establishment of cultural resource zones could tend to focus maintenance efforts on certain areas, while those historic properties outside of the cultural resource zones could suffer from lack of attention. Isolated sites could be more vulnerable to vandalism and damage to historic structures, landscapes and objects would result in diminished integrity of the component historic landscapes as well. To help avoid such adverse effects, historic resources would be managed according to a resource stewardship strategy. This strategy would set priorities, help define which properties would require what type of maintenance, and how often. The plan would also help determine the best possible ways to "harden" the site so that significant character-defining elements of the property or the landscape would not be damaged by overuse or improper visitor use.

Rehabilitation of historic structures would occur, with some historic structures being returned to their original uses and others being rehabilitated and adaptively reused. All work would adhere to the Secretary of the Interior's Standards for the Treatment of Historic Properties (1995) and would be compatible with component landscapes. Reuse or adaptive use of historic structures would be extremely important in maintaining the structures, because the frequent presence of staff and visitors would help with resource monitoring and identifying structural problems early on. Areas in newly added parcels with significant cultural resources would be managed to protect values in accordance with *NPS Management Policies* (NPS 2006f) and the *NPS Cultural Resource Management Guideline* (1998).

Creation of cultural resource zones with interpretive signage and modest access, parking, and hiking facilities also would focus interpretive efforts on the resources within the zones and would accompany enhanced educational and research opportunities. These interpretive efforts would enable visitors to

better understand and appreciate these resources, and help to build a sense of stewardship. Increased ranger presence in the cultural resource zones would also help reduce potential vandalism and inappropriate uses.

Because development would be minimized under this alternative, existing cultural landscapes would not suffer additional effects from development. Addition of small parking areas and primitive trails would be done in a manner that would not intrude on the historic ambiance of a cultural resources site or landscape. Reduction of recreational sites and facilities in newly acquired areas would help protect historic structures and landscapes from overuse and from intrusive developments.

Provisions of Alternative B would have a long-term, major, beneficial effect on most of the park's historic structures, especially those situated in the cultural resource zones. Historic structures located outside the zones could suffer long-term, negligible to minor, adverse effects because of their isolation, and potential lack of monitoring or patrols.

Cumulative Impacts

Past impacts of natural processes and human actions on the built environment along the Chattahoochee River would be the same as described for Alternative A. Outside of the park, these effects are ongoing and would be expected to continue in the future as urban Atlanta and other developed areas increase in size and complexity.

In comparison with Alternative A, Alternative B would have a lower potential to result in adverse cumulative effects on historic buildings, structures, landscapes and objects within the park. A few historic properties outside the cultural resource zones might not receive optimal treatment, but those in the cultural resource zones would benefit. Reducing recreational sites and facilities, creation of cultural resource zones, implementation of a resource stewardship strategy, increased ranger presence, resource monitoring, and enhanced interpretative opportunities and access all would help maintain and improve the integrity of existing historic properties in the park.

When the long-term, major benefits of the programs and actions proposed in Alternative B are added to the major, adverse effects of continued urban growth and development in the area, a long-term, moderate to major, adverse, cumulative effect to historic properties would accrue. Effects would be moderate to major and adverse because the size of the area and the number of resources affected by this plan are small when compared with the acreage and affected resources in development outside the park.

Conclusions

Provisions of Alternative B could have long-term, negligible to minor, adverse effects on some historic resources located outside of the cultural resource zones. The majority of the park's historic structures, buildings, objects, and landscapes would gain long-term, major, benefits from placement in cultural resource zones, minimal development within the park, increased monitoring and ranger presence, rehabilitation and adaptive use/reuse, and enhanced interpretation leading to increased stewardship.

Long-term, moderate to major, adverse, cumulative effects on historic properties would result from the large-scale on-going urbanization and development of the region surrounding the park. Effects would be moderate to major and adverse because of the large number of resources outside the park that would be disturbed or lost to development in the future, compared with the number of resources protected inside the park.

There would be no impairment of historic buildings, structures, landscapes, objects or values as a result of park actions under Alternative B.

Impacts of Alternative C

Cultural resources zones established under Alternative C would encompass the majority of the National Register -listed or eligible historic buildings, structures, landscapes and objects in the park; the exception of those resources located within the Fort Peachtree area, including a replica of the early day fort built on the site of a major Creek Indian settlement by the City of Atlanta Bureau of Water. This reconstruction was done in a manner well suited to visitor use, so effects of this alternative on the structural elements of this site would be negligible.

As a result of creating the cultural resource zones, implementation of Alternative C would result in greater protection of historic structures and landscapes in the park than that offered under Alternative A. These historic properties would be afforded enhanced protection and preservation treatment through the development and implementation of systematic integrated inventory, research, and preservation programs. Conversely, establishment of cultural resource zones could tend to focus maintenance efforts on certain areas, while those historic properties outside of the cultural resource zones could suffer from lack of attention. Isolated sites could be more vulnerable to vandalism and damage to historic structures, landscapes and objects could result in diminished integrity of the component historic landscapes as well.

To help avoid damage to historic properties, the resources would be managed according to a resource stewardship strategy and a collections management plan that would set priorities and define which properties and resources would require what type of treatment and how often, would help establish priorities and schedules for resource treatment, and define measures for site maintenance, protection and preservation, a long-term, indirect, moderate, beneficial effect. The plan would help determine the best possible ways to "harden" the site so that significant character-defining elements of the property or the landscape would not be damaged by overuse or improper visitor use.

In comparison to Alternative A, the increased monitoring and ranger staffing levels included in Alternative C would offer slightly greater protection from degradation, vandalism or inadvertent damage by visitors to resources located outside of the cultural resources zones.

Rehabilitation of historic structures would occur, with some historic structures being returned to their original uses and others being rehabilitated and adaptively reused. All work would adhere to the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (1995), and would be compatible with component landscapes. Adaptive use would help preserve structures because the frequent presence of park staff and other would highlight the presence of small problems early on, and provide the opportunity to correct problems before resource damage occurs. Areas in newly added parcels with significant cultural resources would be managed to protect values in accordance with *NPS Management Policies* (NPS 2006f) and the *NPS Cultural Resource Management Guideline* (1998).

Under Alternative C, increased monitoring, ranger presence, resource stewardship strategies and a collections management plan, and centralized access/development would reduce potential adverse effects on historic resources from natural processes and human activities so that overall effects would be long-term, direct and indirect, negligible to minor, and adverse. Implementation of Alternative C would have a far greater potential for preservation and interpretation of historic buildings, structures, landscapes and objects than Alternative A. This would constitute a long-term, major, beneficial effect.

Cumulative Impacts

Cumulative effects would be the same as described for Alternative B.

Conclusions

Under Alternative C, creation of hubs and establishment of cultural resource zones would focus visitor use and park on areas that could best accommodate use without damage to historic resources. Cultural resource stewardship strategies and collections management plans, rehabilitation and adaptive use of structures, increased visitor education and interpretation, increased monitoring and ranger patrols all would contribute to long-term, moderate to major benefits to historic resources. In addition, some long-term, direct and indirect, negligible to minor, adverse effects on historic resources from human activities and natural processes would occur.

Cumulative effects would be the same as described for the Alternative B, long-term, moderate to major, and adverse. Effects would be adverse and moderate to major because the number of historic resources that would receive moderate to major benefits from protection within the park is relatively small when compared to the large number outside the park likely to have major adverse effects from natural processes and human activities.

There would be no impairment of historic structures, buildings, landscapes, objects, or values as a result of park actions under Alternative C.

Impacts of Alternative D

Alternative D would establish seven cultural resources zones, in contrast with Alternative A, which would not provide any. The cultural resource zones that would be established as part of Alternative D would encompass a portion of the National Register-listed or National Register-eligible historic buildings, structures or objects in the park; the exceptions being resources located in the Fort Peachtree and Island Ford areas. However, Fort Peachtree has been reconstructed, and the area adapted for public use, so effects on historic resources in this area would be negligible to minor.

Implementation of Alternative D would, however, result in more resource protection and preservation than Alternative A. Historic resources in the cultural resource zones would be documented and interpreted. Rehabilitation, reuse, and adaptive use would help preserve structures because the frequent presence of park staff and other would highlight the presence of small problems early on, and provide the opportunity to correct problems before resource damage occurs.

Alternative D would offer slightly greater protection from degradation, vandalism or inadvertent damage by visitors to resources located outside of the cultural resources zones due to increased monitoring and ranger staffing levels as compared to Alternative A, and historic properties both within and outside of the cultural resource zones would benefit from implementation of a cultural resource stewardship strategy and a collections management plan. These plans would help establish priorities and schedules for resource treatment, and define measures for maintenance, protection and preservation, a moderate long-term indirect effect.

Under this alternative, the Island Ford area would contain two developed zones and a natural area recreation zone. The Island Ford complex, a property eligible for the National Register, is located here. It is likely that protection of archeological resources associated with the Island Ford complex

would be much more difficult because of the proximity of development and recreational facilities, and some adverse effects would be expected.

Historic properties both within and outside of the cultural resource zones would benefit from enhanced monitoring and ranger presence. Conversely, increased means of access into the park from neighborhoods would make it more difficult to control vandalism and inappropriate uses of buildings and structures, resulting in minor to moderate, adverse effects. The extensive and widely scattered developments under this alternative would have the potential to introduce intrusive modern elements into cultural landscapes or areas defined as potential cultural landscapes. Once these developments are in place, the landscape could not be easily returned to its former status.

In summary, the overall effects of this alternative on historic buildings, structures, landscapes and objects would be long-term, direct and indirect, minor to moderate adverse and long-term, direct and indirect, moderate beneficial.

Cumulative Impacts

Cumulative effects would be the same as described for Alternative B.

Conclusions

Effects of Alternative D would be long-term, direct and indirect, minor to moderate, and adverse due to increased numbers of recreational facilities and means of access into the park that could result in damage to structures and sites. Introduction of modern developments into the historic landscape also would have minor to moderate adverse effects. Because the Island Fort complex would not be included in a cultural resource zone, there could be some potential damage to the buildings and its associated landscape from development and inappropriate recreational uses.

Long-term, indirect and direct, moderate beneficial effects of protection and preservation would accrue from development of cultural resource zones, rehabilitation, reuse, and adaptive use of historic structures, implementation of resource stewardship strategies and collections management plans, increased monitoring and ranger presence.

Cumulative effects on historic buildings, structures, landscapes and objects would be long-term, moderate to major, and adverse because of the extensive and on-going nature of urban development in the Atlanta region.

There would be no impairment of historic buildings, structures, landscapes, objects, or values as a result of park actions under Alternative D.

Impacts of Alternative E

Historic resource zones would be established under Alternative E, and would encompass the majority of the National Register -listed or eligible historic buildings, structures, landscapes and objects in the park. The structures within the Fort Peachtree area would be included in the developed zone; however, these structures are a replica of the early day fort, reconstructed in a manner suitable for visitor use so effects of this zoning would be negligible. As a result of creating the historic resource zones, implementation of Alternative E would result in greater protection of these types of cultural resources in the park than that offered under Alternative A.

Because cultural resources in historic resource zones would be documented, rehabilitated, reused, adaptively used, and interpreted, the implementation of Alternative E would have a greater potential for preservation and interpretation of historic buildings, structures, landscapes and objects than Alternative A. Historic properties both within and outside of the historic resource zones would benefit from implementation of a resource stewardship strategy and collections management plan, which would help establish priorities and schedules for resource treatment, and define measures for site maintenance, and protection and preservation of resources. This would constitute long-term, moderate to major benefits.

Alternative E would offer slightly greater protection from degradation, vandalism or inadvertent damage by visitors to resources located outside of the historic resources zones or in developed zones due to proposed increased monitoring and ranger staffing levels as compared to Alternative A. Effects from visitor use and natural processes would be long-term, negligible to minor, and adverse.

In summary, the overall effect of Alternative E on historic buildings, structures, landscapes and objects would be long-term, direct and indirect, negligible to minor and adverse, as well as long-term, direct and indirect, moderate to major beneficial.

Cumulative Impacts

Cumulative effects would be the same as described for Alternative B.

Conclusions

Implementation of Alternative E would help protect and rehabilitate and reuse buildings, structures, landscapes, and objects within the historic resources zones. Increased ranger presence, monitoring, interpretation, and implementation of a resource stewardship strategy and a collections management plan park would have long-term, moderate to major, beneficial effects in preserving these resources for the future compared to Alternative A. Effects from visitor use and natural processes would be long-term, negligible to minor, and adverse.

Cumulative effects on historic buildings, structures, landscapes and objects would be the same as described for Alternative B, long-term, adverse, and moderate to major.

There would be no impairment of historic buildings, structures, landscapes, objects or values as a result of park actions under Alternative E.

Impacts of Alternative F, the Preferred Alternative

Alternative F would have similar impacts on historic buildings, structures and objects as described for Alternative E, a long-term, moderate to major, beneficial effect. However, because of the increased development of hardened recreational facilities and expanded recreational opportunities, cultural landscapes could suffer long-term, minor, adverse effects.

Cumulative Impacts

Cumulative effects would be the same as described for Alternative B.

Conclusions

Alternative F would have similar impacts on historic buildings, structures and objects as described for Alternative E, long-term, moderate to major beneficial effects. However, because of the increased development of hardened recreational facilities and expanded recreational opportunities, some cultural landscapes could suffer long-term, minor adverse effects.

Cumulative effects on archeological resources would be the same as described for Alternative B, long-term, moderate to major, and adverse.

There would be no impairment of historic structures, buildings, landscapes, objects or values as a result of park actions under Alternative F.

SECTION 106 SUMMARY

Five action alternatives (B through F) and one "No Action Alternative-A" are contained in this Final General Management Plan/Environmental Impact Statement. These action alternatives present differing scenarios for the management of the Chattahoochee River National Recreation Area over the next 15 to 20 years. These alternatives were developed to present viable solutions to issues identified in Chapter 1. This document analyzes the potential impacts associated with possible implementation of each of the alternatives, and outlines a series of best management practices that would help avoid adverse effects on cultural resources.

Archeological Resources

A number of studies provide data concerning the park's archeological resources as well as the status of archeological research and previous work at the park. These studies are listed in Chapter 3 and additional references are included in the park's Historic Resource Study (NPS 2005a). One hundred ninety seven prehistoric and historic archeological sites have been previously recorded within the boundaries of the park and include prehistoric artifact scatters, camps, rock shelters, open habitations, villages, quarries, a mound, earthworks, and fish weirs/rock dams. Historic sites with structural components include a bridge, three mills (one with a race), a cotton gin, a dam, a fence, a still, and nine structural foundations.

Only part of the park has been systematically surveyed or inventoried, and precise information about the location, characteristics, and significance of the majority of known archeological resources in the park is incomplete. Locational data is poorly documented so recertification of the survey data sets would be included as a task to be completed as part of a future cultural resources stewardship strategy for the park.

Two archeological sites recorded within the park have been listed on the National Register of Historic Places, 19 archeological sites have been recommended eligible for history, 72 have been recommended not eligible for listing, and the 104 remaining sites have not been evaluated in terms of their eligibility for listing on the Register. Until a National Register evaluation for any site was completed, it would be assumed that the site is eligible for listing on the register.

Wherever new construction is proposed (either within the park or externally), the area of potential effect would be inventoried and resources would be evaluated for National Register eligibility. As appropriate, an environmental assessment or environmental impact statement would be completed for these future, site-specific undertakings. A number of mitigation measures/best management practices are included in this document and would be applicable to future projects (for a full list of Best Management Practices see Table 7, "Mitigation Measures of the Action Alternatives".)

Wherever possible, the project would be structured to avoid National Register-eligible sites. If the site(s) could not be avoided, the National Park Service would develop additional mitigation and protection measures in consultation with the Georgia State Historic Preservation Officer.

Cultural resource zones/historic resource zones are proposed for all of the action alternatives. These resource zones proposed for the action alternatives would encompass some of the park's significant archeological sites. These resource zones would have a greater potential for inventory, preservation and protection for archeological sites than the other zones. Generally speaking, recreational activities would be situated in areas lacking archeological resources, or where sites could accommodate use without damage. Modest new facilities such as gravel parking and unpaved trails could be added at these types of sites to provide visitors a more structured experience, one with enriched interpretive and educational experiences that would encourage stewardship. Areas in newly added parcels with significant cultural resources would be managed to protect values in accordance with *NPS Management Policies* (2006f) and the *NPS Cultural Resource Management Guideline* (1998).

In all action alternatives, monitoring, ranger staffing, and educational programs would be increased, helping to provide greater protection of archeological resources. Development of resource stewardship strategies and collections management plans would aid the park in identifying and managing their resources more effectively by establishing priorities and schedules for resource treatment and by defining measures for site maintenance, protection, and preservation, both within and outside of the cultural resource zones. The identification and systematic inventory of archeological resources in the cultural/historic resource zones would increase the knowledge of the numbers and types of resources present within the park, and offer an opportunity to add to the knowledge of the prehistory and history of both the park and the surrounding area.

Once planning for improvements under the preferred alternative has begun, an appropriate site specific environmental document (likely an environmental assessment) would be developed to address potential impacts on cultural sites. Section 106 compliance would be included as part of or along with the development of this environmental document.

Historic Buildings, Structures, Landscapes, and Objects

Thirty-one historic structures or buildings have been recorded within the river corridor. Eighteen of these historic structures are listed on the park's List of Classified Structures (LCS). The park's historic resource study (NPS 2005a) identified five historic contexts that covered the major themes in American and Georgia history that impacted the river corridor: 1) American Indians, prehistory-1835; 2) Settlement and Agricultural Development, 1717 -1930; 3) The River as a Source of Energy, 1830-

present; 4) Landscape of Conflict, prehistory-present; and 5) The River as Recreation, prehistory-present.

These contexts were used in the recent National Register evaluations of structures within the park. Historic structures associated with early settlement and agricultural development that were found to be eligible for the National Register include the circa 1840 Hyde Farm Complex, which contains examples of antebellum and postbellum farmsteads in the upper Georgia Piedmont. Power House (a circa 1845 property that is representative of small farmsteads in the river corridor) was listed on the National Register in 2001. The Hyde Farm Complex and the Power House property are potentially eligible for the National Register as a landscape as well as a grouping of historic structures.

Scribner Cemetery (circa 1880) is a small family cemetery associated with an area homestead, while the Jones and Settles bridges (circa 1880 and circa 1904 respectively) reflect area modes of transportation as roadways replaced ferries in the area.

Three distinct concentrations of National Register-eligible sites associated with the industrial development of the Chattahoochee River corridor are within the study area. These sites include the Roswell Manufacturing Company (1838-1976) and Allenbrook (circa 1840) the Laurel/Ivy Woolen Mills (circa 1870-1917, listed on the National Register), and the Marietta Paper Mill/Sope Creek Mill ruins (circa 1854-1902, listed on the National Register).

Several of these properties (Settles Bridge, Laurel/Ivy Woolen Mills, and the Marietta Paper Mill Ruins or Sope Creek Mill ruins) have been recorded both as historic structures and as archeological sites.

The Gold Branch Unit/Morgan Falls rifle pits/picket posts (1864) is a National Register-eligible historic structure(s) associated with the Civil War in this area. Other rifle pits (Island Ford areas) are potentially eligible properties, pending additional research.

The Island Ford Lodge property was found to be eligible for the register and illustrates use of the rustic style of architecture for an early 20th century country retreat along the river. The Collins-Yardum House, also an extant example of a country home in the study area, has been recommended eligible for the register.

The original Fort Gilmer, now known as Fort Peachtree, is not listed on or eligible for the National Register but forms an important part of the cultural resource story of the region.

The following have not yet had a formal cultural landscape inventory to identify their important character-defining elements but have been identified as landscapes within the park that have sufficient integrity to be considered potentially eligible for the National Register: the Scribner Cemetery/Farmstead, the Island Ford complex, the Collins-Yardum complex, Sope Creek Ruins, Allenbrook-Ivy Mill complex, Rogers Homestead, an Hyde-Farm/Power House (NPS 2005a).

Alternatives

Under Alternative B, Alternative C, Alternative D, Alternative E, and Alternative F many of the park's known historic structures, buildings, and landscapes would be included within the cultural/historic resource zones described above for archeological resources. The mitigation measures described above for archeology would precede construction and would include systematic inventory, evaluation, resource protection, and avoidance. Appropriate environmental compliance and mitigation measures would be developed for and precede the undertaking.

Wherever possible, the project would be structured to avoid National Register-eligible sites. If the site(s) could not be avoided, the National Park Service would develop additional mitigation and protection measures in consultation with the Georgia State Historic Preservation Officer. Areas in newly-added parcels with significant cultural resources would be managed to protect values in accordance with *NPS Management Policies* (2006f) and *NPS-28, Cultural Resource Management Guideline* (1998).

Increased monitoring, ranger staffing, and educational programs, and development of collections and cultural resource stewardship strategies would establish priorities and schedules for maintenance, protection, and preservation of historic resources in the park.

This General Management Plan/Environmental Impact Statement will be sent to the Georgia State Historic Preservation Officer, 14 Tribal Historic Preservation Officers, and affiliated American Indian tribes for their review and comment.

An environmental assessment or other appropriate site specific environmental compliance document would be prepared prior to implementation of any actions described in this General Management Plan/Environmental Impact Statement that would affect cultural sites. Applying 36 CFR 800.5, the implementing regulations of the National Historic Preservation Act (revised regulations effective August 5, 2004) that address the criteria of effect and adverse effect, the National Park Service finds that implementation of Alternative B, Alternative C, Alternative E, and Alternative F would have an effect on National Register-eligible and listed archeological resources and historic structures, buildings, objects and cultural landscapes, but that this effect would not be adverse (No Adverse Effect).

Conversely, Alternative D would have somewhat more potential to adversely affect cultural resources. This alternative includes the potential for the greatest amount of construction of any of the action alternatives, and because of the extent and scattered nature of the new developments, the likelihood of damage to sites, even with prior survey analysis, and protection, would be slightly increased. There would be potential for new developments to introduce intrusive elements into cultural landscapes. Increased access from neighborhoods into the park would make it more difficult for patrols to prevent vandalism and inappropriate uses of sites.

Of the five action alternatives, Alternative D dedicates less acreage to the cultural resource/historic resource zones than any of the other alternatives. Under this alternative, the Island Ford area would contain two developed zones and a natural area recreation zone, but the National Register-eligible Island Ford complex would not be included within a cultural resource zone, increasing the potential for damage from inappropriate recreational uses, looting, and vandalism.

TRANSPORTATION

Regulations and Policies

The regulations and policies that guide National Park Service actions with respect to transportation resources are presented in the "Servicewide Mandates and Policies" section of Chapter 1 and in Appendix A.

Methodology

Transportation issues identified during public meetings and planning workshops primarily included concerns about traffic in the region in general, as well as concerns over the effects of transportation and traffic in the park on surrounding local and regional transportation patterns, how plan implementation would affect the use of both paved and unpaved trails, connections between adjacent communities and the park, and management of non-motorized transportation in the park. In addition, concern was expressed regarding the effects of off-road bicycle use on water quality and erosion.

All of these issues have been incorporated into a qualitative assessment of the potential effects of the alternatives on regional and local transportation resources. Thresholds for these generalized types of effects are presented in Table 34.

Table 34. Impact Thresholds for Local and Regional Transportation

Negligible: There would be no measurable effect on local or regional transportation.
Minor: Potential effects would be identified between the alternatives and local and regional transportation. However, those effects would be minor and could readily be reconciled to the satisfaction of all parties.
Moderate: Substantive potential effects would be identified between the alternatives and local and regional transportation. Although the effects could probably be reconciled by negotiation, this could require an amendment to or variance from the plan, policy, or control.
Major: A readily apparent effect would be identified between the alternatives and local and regional transportation. The effect probably could not be reconciled by negotiation and would result in a situation that was substantially out of compliance with land use plans, policies, or controls of a local, regional, state, or other federal organization or agency.
Duration: Long-term: Persists beyond the development of an alternative and includes the operation phase. Short-term: Occurs only during the duration of the project construction or alternative development phase.

The definition of effects on motorized transportation resources was estimated by comparing relative increases in traffic volumes under each alternative to known problem areas in the vicinity of the park, and areas with short- and long-term improvements being planned by the Georgia Department of Transportation. This information included the following:

- Roadways currently impacted by the park
- Currently congested roadways
- Roadways with planned short-range improvements
- Roadways with planned long-range improvements

Information on the above factors was obtained from the *Atlanta Region Transportation Planning Fact Book* (Atlanta Regional Commission 2005a), *Mobility 2030, Volume I: 2030 Regional Transportation Plan (*Atlanta Regional Commission 2004), the *Atlanta Regional Congestion Management Process (CMP) Update 2005* (Atlanta Regional Commission 2006a), and the *Atlanta Region Transportation Improvement Program*: 2006 – 2011 (Atlanta Regional Commission 2006c). Information from these plans, which is summarized in Chapter 3 and Appendix H, was related to the projected degree of effect at areas that were identified as being congested and/or where short- and long-term improvements are planned. The degree of effect was then assigned based on the estimated degree of congestion that

would result from construction of new National Park Service facilities in the vicinity of the identified areas.

An assessment of the relative cumulative effect of the alternatives on proposed future transportation projects in the vicinity of the park was also conducted. A list of future transportation projects in the area is provided in Appendix H. These include roads, bikeways, pedestrian facilities, and transit projects.

Because of the generic nature of this general management plan/environmental impact statement, highly detailed projections of specific traffic patterns and changes in volumes of traffic at specific locations were not possible. The designation of negligible, minor, moderate, or major adverse effects are therefore relative terms based on known and expected transportation problem areas and areas where improvements are planned. The effect designations are intended to indicate that a particular alternative would have a greater effect on the number of trips generated and effects on area roadways as compared with other alternatives and other areas of the park.

A primary assumption used in this analysis is that the amount of traffic generated by the alternatives would be dependent on the total acreage of zones that allow development (Table 24). Alternatives allowing a greater degree of development would be expected to have a greater potential to cause increased levels of adverse local and regional transportation effects. It is also assumed that the overall amount of adverse transportation-related effects generated by the park, although heavy in certain areas such as the Cochran Shoals area near Johnson Ferry road, would be relatively minor in comparison with the traffic generated and characteristic of the surrounding metropolitan Atlanta area.

An additional assumption was that alternatives with a greater amount of development and vehicular accessibility would be assumed to attract more visitors to the park in the future, and would have greater relative transportation-related effects. These areas would primarily include park entrances, zones allowing development, and the hubs (hubs are only proposed under Alternative C). As traffic volumes increase, transportation-related effects would include increased levels of traffic congestion on park roads and parking lots, increased noise levels in the park, and increased amounts of vehicle emissions. In addition, it was assumed that all transportation-related effects would be localized to park entrances.

All roads and other transportation-related facilities proposed under Alternative A are within National Park Service ownership and jurisdiction. Chapter 9 of the National Park Service's *Management Policies 2006* (NPS 2006f) provides guidance for management of park access and circulation systems. While there are no legal restrictions to the traffic management actions associated with any of the alternatives, their implementation in the park would require coordination with local, regional, and federal transportation and planning agencies.

The effects on types, availability, and management of trails, trail connectivity, and efforts to improve and manage non-motorized transportation (bicycles) within the park were qualitatively determined by analyzing the percent acreage of zoning allowing various types of trails and the level of coordination with local governments and private organizations that would be proposed under each alternative which would dictate the degree of trail connectivity.

Impacts of Alternative A

Under Alternative A, existing levels of access and other transportation features within the park would be maintained, and very few changes in park transportation features would occur. The majority of accessible park land would therefore continue to be located in the southern portion of the park, in proximity to the higher population densities of the park corridor. This would facilitate bicycle and pedestrian access to the park and would reduce travel distances for vehicle trips for those living near the park. Park-related transportation effects would be localized to park entrances and would be negligible compared to regional transportation effects, which will likely continue to worsen in the future. Park-related effects would increase during special events; however, continued use of shuttle services during those events would mitigate these effects. This form of mitigation would be common to all alternatives. The projected long-term transportation effects are, therefore, long-term, negligible, and adverse under Alternative A.

Limited new trails would be constructed under Alternative A, and an integrated trail system study would not be developed and implemented. Use of unauthorized trails in the park would continue to increase. Inappropriate use of off-road bicycles in certain areas and use of improperly designed and maintained trails would increase over time due to limitations of park staff to enforce proper use of existing trails. The effect would be increased erosion, rutting, and potential resource damage. These adverse effects associated with off-road bicycle use would increase over current levels in the park, since an intergrated trail system study would not be implemented. Efforts to increase connectivity with trails systems being developed in the area surrounding the park by local governments would be limited since an intergrated trail system study would not be implemented and limited coordination and partnerships with local governments and private organizations would occur. The overall effect on the availability, management, and connectivity of trails would be long-term, minor to moderate, and adverse.

Alternative A is estimated to have a long-term, negligible, adverse effect on an individual's decision to walk or ride a bicycle to get to the park.

Cumulative Impacts

Regional growth in the metropolitan Atlanta area is the primary reason for the projected increases in traffic volumes around the park. No matter which management actions are taken in the park, traffic in the region is expected to continue to increase in the future. The cumulative effects of Alternative A on transportation in the park and on the surrounding region would be long-term, moderate, and adverse. This level of cumulative effect would be the same under all alternatives and could vary somewhat in intensity depending on whether regionally-planned improvements on congested roadways near the park are funded and implemented. In certain areas, roadways that are currently congested are not planned for improvement.

Several city and county governments bordering the park have developed trails and recreation plans that propose linkages to the park trails system. In addition, regional growth has prompted an increased demand to use the park for off-road bicycling. Under Alternative A, current paved and unpaved trails throughout the park would continue to be managed in the same way, additional trails would not likely be planned, and an intergrated trail system study would not be implemented. These effects would be parkwide. The lack of improved connectivity would extend throughout the park, since expanded programs to partner with the surrounding local governments would not be implemented. The

cumulative effect of Alternative A on the availability, management, and connectivity of trails would be long-term, minor to moderate, and adverse.

Several new multi-use trails and bicycle lanes are proposed or are in the construction phase in areas near the park. The addition of such facilities would have a long-term, minor, beneficial, cumulative effect on an individual's decision to walk or ride a bicycle to get to the park.

Conclusions

Under Alternative A, existing levels of access and other transportation features within the park would be maintained and, very few changes in park transportation features would occur. Park-related transportation effects would be localized to park entrances and would be negligible compared to regional transportation effects, which will likely continue to worsen in the future. The projected long-term transportation effects are long-term, negligible, and adverse under Alternative A. The cumulative effects of Alternative A on transportation in the park and on the surrounding region would be long-term, moderate, and adverse. This level of cumulative effect would be the same under all alternatives and could vary somewhat in intensity depending on whether regionally-planned improvements on congested roadways near the park are funded and implemented.

Limited new trails would be constructed under Alternative A, and an integrated trail system study would not be developed and implemented. Efforts to increase connectivity with trails systems being developed in the area surrounding the park by local governments would be limited since coordination and partnerships with local governments and private organizations would be limited. The overall direct and cumulative effects on the availability, management, and connectivity of trails would be long-term, minor to moderate, and adverse.

Alternative A is estimated to have a long-term, negligible, adverse effect on an individual's decision to walk or ride a bicycle to get to the park. However, several new multi-use trails and bicycle lanes are proposed or are in the construction phase in areas near the park. The addition of such facilities would have a long-term, minor, beneficial, cumulative effect on an individual's decision to walk or ride a bicycle to get to the park.

Impacts of Alternative B

A key assumption in assessing transportation-related effects is that increased levels of development and vehicular accessibility in the park would attract more visitors to the park in the future, and would have greater relative transportation-related effects. Under Alternative B, construction of new visitor facilities would be less than what is proposed under Alternative A; however, it is likely that motorized vehicle patterns in the park would continue to exhibit patterns and problems similar to those described for Alternative A, since there is little the park can do to influence traffic patterns in the surrounding Atlanta metropolitan area. The projected long-term transportation effects are, therefore, long-term, negligible, and adverse under Alternative B.

Alternative B would have a long-term, moderate, adverse effect on the availability and types of trails in the park, since fewer new trails would be constructed compared to Alternative A. However, an intergrated trail system study would be developed and implemented, which would benefit the management of the trail system and associated visitor experience. Trails in areas that are currently being overused could be phased out and managed effectively under the plan. Use of unauthorized trails in the park would decrease over time as the integrated trail system study is implemented. Implementation of an integrated trail system study would also aid in efforts to increase connectivity

with trails systems being developed in the area surrounding the park. The level of partnering under Alternative B would increase compared to Alternative A which could possibly improve these efforts. Implementation of Alternative B would an over long-term, negligible, beneficial effect on the availability, management, and connectivity of trails.

The primary form of non-motorized transportation in the park is the bicycle. Alternative B would have a long-term, moderate, adverse effect on an individual's decision to walk or ride a bicycle to get to the park, since uses of bicycles would be the most limited under this alternative. Off-road bicycling would be permissible in the developed zone and natural area recreation zone which constitutes approximately 23 percent of the park under Alternative B. The fewest number of bicycle trails would be available under this alternative since Alternative B emphasizes less diverse forms of recreation.

Cumulative Impacts

Regional growth in the metropolitan Atlanta area is the primary reason for the projected increases in traffic volumes around the park. No matter which management actions are taken in the park, traffic in the region is expected to continue to increase in the future. The cumulative effects of Alternative B on motorized transportation in the park and on the surrounding region would be long-term, moderate, and adverse. Areas currently experiencing congestion would be expected to continue to do so in the future if planned improvements do not take place. This level of cumulative effect would be the same under all alternatives.

Several city and county governments bordering the park have developed trails and recreation plans that propose linkages to the park trails system. In addition, regional growth has prompted an increased demand to use the park for off-road bicycling. Under Alternative B, fewer new trails would be constructed when compared to Alternative A. Under Alternative B, the cumulative amount of trail availability would be lower than any of the other alternatives. However, trails throughout the park would be managed under an intergrated trail system study which would aid in efforts to increase connectivity with trails systems being developed in the area surrounding the park. The level of partnering under Alternative B would also be increased when compared to Alternative A which could possibly improve these efforts. Implementation of Alternative B would constitute an overall long-term, negligible, beneficial, cumulative effect on the availability, management, and connectivity of trails.

Several new multi-use trails and bicycle lanes are proposed or are in the construction phase in areas near the park. The addition of such facilities would allow a greater opportunity for a visitor to walk or ride a bike to the park. However, the use of bicycles in the park (at least off-road bicycles) would be the most limited under Alternative B. Therefore, the overall cumulative effect on an individual's decision to walk or ride a bicycle to get to the park would be long-term, minor, and adverse.

Conclusions

It is likely that motorized vehicle patterns in the park would continue to exhibit patterns and problems similar to those described for Alternative A. The projected long-term transportation effects are, therefore, long-term, negligible, and adverse. Regional growth in the counties in the metropolitan Atlanta area is the primary reason for the projected increases in traffic volumes around the park. No matter which management actions are taken in the park, traffic in the region is expected to continue to increase in the future. The cumulative effects of Alternative B on motorized transportation in the park and on the surrounding region would be long-term, moderate, and adverse.

Alternative B would have direct and cumulative long-term, negligible, beneficial effects on the availability, management, and connectivity of trails since fewer new trails would be constructed compared to Alternative A but an integrated trail system study and an increased level of partnering with local governments and private organizations would be implemented.

An intergrated trail system study would be developed and implemented and partnering with Alternative B would have a long-term, moderate, adverse effect on an individual's decision to walk or ride a bicycle to get to the park, since uses of bicycles would be the most limited under this alternative. However, the cumulative effect would be long-term, minor, and adverse since new multi-use trails and bicycle lanes are proposed or are in the construction phase in areas near the park.

Impacts of Alternative C

Under Alternative C, approximately 40 percent of the park would be zoned for a more facilitated experience, and up to three hubs would be located in the southern, central and northern ends of the park. Alternative C would result in increased numbers of trips made by visitors to hubs in the park, and a relatively higher degree of transportation effects as compared with those produced by Alternative A. This alternative could have a greater effect on surface roads where hubs would be located, since more facilities would be centralized in these areas compared to more dispersed facilities under Alternative A. However, this would only occur where zoning would be appropriate for an increased number of parking areas or a change the type of visitor experience as compared to Alternative A.

The locations of the proposed hubs have yet to be determined, and detailed, site-specific impacts of projects proposed would be addressed in future environmental assessments, tiered to this general management plan/environmental impact statement. Possible site-specific traffic solutions such as traffic calming measures or altered traffic flow patterns in and out of the hubs would be identified. This could result in improved conditions, which could have a beneficial effect on transportation resources in the park. Overall, however, the effects on transportation under Alternative C would be long-term, minor to moderate and adverse.

Under Alternative C, an intermediate amount of new trail construction would be appropriate when compared to Alternative A. An intergrated trail system plan would also be implemented, which would result in a beneficial effect on trail management, resource protection, and the associated visitor experience. Trails in areas that are currently being overused could be phased out and managed effectively under this alternative. Use of unauthorized trails in the park would decrease over time as the integrated trail system plan is implemented. Implementation of an integrated trail system study would also aid in efforts to increase connectivity with trails systems being developed in the area surrounding the park. In addition, the level of partnering and coordination with local governments and private organizations would be increased under Alternative C when compared to Alternative A. Implementation of Alternative C would have an overall long-term, minor to moderate, beneficial effect on the availability, management, and connectivity of trails.

The primary form of non-motorized transportation in the park is the bicycle. Alternative C would have a long-term, minor to moderate, beneficial effect on an individual's decision to walk or ride a bicycle to get to the park, since uses of bicycles would be considered appropriate in more areas under this alternative than under Alternative A. Off-road bicycling would be permissible in the developed zone and natural area recreation zone which constitutes approximately 33 percent of the park under Alternative C. An increased number of bicycle trails would be available under this alternative since Alternative C emphasizes both passive and active forms of recreation.

Cumulative Impacts

Regional growthin the counties in the metropolitan Atlanta area is the primary reason for the projected increases in traffic volumes around the park. No matter which management actions are taken in the park, traffic in the region is expected to continue to increase in the future. The cumulative effects of Alternative C on motorized transportation in the park and on the surrounding region would be long-term, moderate, and adverse. Areas currently experiencing congestion would be expected to continue to do so in the future if planned improvements do not take place. This level of cumulative effect would be the same under all alternatives.

Several city and county governments bordering the park have developed trails and recreation plans that propose linkages to the park trails system. In addition, regional growth has prompted an increased demand to use the park for off-road bicycling. Under Alternative C, a moderate amount of new trails would be operated and constructed when compared to Alternative A and trails throughout the park would be managed under an intergrated trail system study which would aid in efforts to increase connectivity with trails systems being developed in the area surrounding the park. In addition, the level of partnering under Alternative C would be increased when compared to Alternative A which would contribute to these efforts. Implementation of Alternative C would constitute a long-term, minor to moderate, beneficial, cumulative effect on the availability, management, and connectivity of trails.

Several new multi-use trails and bicycle lanes are proposed or are in the construction phase in areas near the park. The addition of such facilities would allow a greater opportunity for a visitor to walk or ride a bike to the park. In addition, bicycle use would be more appropriate under Alternative C than under Alternative A since active and passive forms of recreation would be accommodated. Therefore, the overall cumulative effect on an individual's decision to walk or ride a bicycle to get to the park would be long-term, minor to moderate, and beneficial.

Conclusions

Transportation and traffic problems in the park and surrounding area would continue to increase under any of the alternatives, since traffic and transportation patterns and characteristics are largely controlled by factors outside the park. Overall, Alternative C would have a long-term, minor to moderate, adverse, direct effect and long-term, moderate, adverse, cumulative effect on transportation and traffic in the park and surrounding area, due to traffic congestion.

Alternative C would have a direct and cumulative, long-term, minor to moderate, beneficial effect on the availability, management, and connectivity of trails since an intermediate amount of new trail construction would be appropriate when compared to Alternative A and because an integrated trail system study and an increased level of partnering with local governments and private organizations would be implemented.

Alternative C would have a direct and cumulative, long-term, minor to moderate, beneficial effect on an individual's decision to walk or ride a bicycle to get to the park, since uses of bicycles would be considered appropriate in more areas under this alternative than under Alternative A.

Impacts of Alternative D

Under Alternative D, approximately 85 percent of the park would be relatively accessible to visitors and zoned for a more facilitated experience. However, only a very small percentage of the park would

actually be used for construction of transportation related facilities such as roads and parking lots. Under this alternative, access would be dispersed throughout the 48-mile corridor at strategic locations. This would facilitate bicycle and pedestrian access to the park, and could reduce travel distances for vehicle trips.

As compared to Alternative A, more facilities would be constructed and operated under Alternative D. This would result in increased numbers of trips made by visitors to the park, and a relatively higher degree of transportation effects as compared with those produced by Alternative A. However, detailed site-specific transportation analyses would be conducted as part of tiered environmental assessments for future proposed projects and measures to minimize or reduce effects. As part of these environmental assessments, possible site-specific traffic solutions such as traffic calming measures or altered flow patterns at park access points would be identified. This would result in improved localized conditions. The overall effects of Alternative D would be long-term, moderate, and adverse as a result of these factors.

Under Alternative D, a greatest amount of new trail construction would be appropriate when compared to Alternative A. An integrated trail system study would also be implemented, which would benefit trail management, resource protection, and the associated visitor experience. Trails in areas that are currently being overused could be phased out and managed effectively under this alternative. Use of unauthorized trails in the park would decrease over time as the integrated trail system plan is implemented. Implementation of an integrated trail system study would also aid in efforts to increase connectivity with trails systems being developed in the area surrounding the park. In addition, the level of partnering and coordination with local governments and private organizations would be the greatest under Alternative D when compared to Alternative A. Implementation of Alternative D would constitute a long-term, moderate, beneficial, effect on the availability, management, and connectivity of trails.

The primary form of non-motorized transportation in the park is the bicycle. Alternative D would have a long-term, moderate, beneficial effect on an individual's decision to walk or ride a bicycle to get to the park, since uses of bicycles would be considered appropriate in the most areas of the park under this alternative than under Alternative A. Off-road bicycling would be permissible in the developed zone and natural area recreation zone which constitutes approximately 79 percent of the park under Alternative D. An increased number of bicycle trails would be available under this alternative since Alternative D emphasizes diverse forms of recreational access and use.

Cumulative Impacts

Regional growth in the counties in the metropolitan Atlanta area is the primary reason for the projected increases in traffic volumes around the park. No matter which management actions are taken in the park, traffic in the region is expected to continue to increase in the future. The cumulative effects of Alternative D on motorized transportation in the park and on the surrounding region would be long-term, moderate, and adverse. Areas currently experiencing congestion would be expected to continue to do so in the future if planned improvements do not take place. This level of cumulative effect would be the same under all alternatives.

Several city and county governments bordering the park have developed trails and recreation plans that propose linkages to the park trails system. In addition, regional growth has prompted an increased demand to use the park for off-road bicycling. Under Alternative D, a greater amount of new trails would be operated and constructed when compared to Alternative A, and trails throughout the park would be managed under an integrated trail system study which would aid in efforts to increase

connectivity with trails systems being developed in the area surrounding the park. In addition, the proposed level of partnering under Alternative D would be greater when compared to Alternative A which would contribute to these efforts. Implementation of Alternative D would constitute a long-term, moderate, beneficial, cumulative effect on the availability, management, and connectivity of trails.

Several new multi-use trails and bicycle lanes are proposed or are in the construction phase in areas near the park. The addition of such facilities would allow a greater opportunity for a visitor to walk or ride a bike to the park. In addition, bicycle use would be more appropriate under Alternative D than under Alternative A since increased access for more diverse forms of recreation would be accommodated. Therefore, the overall cumulative effect on an individual's decision to walk or ride a bicycle to get to the park would be long-term, moderate, and beneficial.

Conclusions

Alternative D would result in a greater level of construction and operation of more facilities, and provide greater access throughout the park corridor in comparison with Alternative A. Transportation and traffic problems in the park and surrounding area would continue to increase under any of the alternatives, since traffic and transportation patterns and characteristics are largely controlled by factors outside the park. Overall, Alternative D would have a direct and cumulative, long-term, moderate, adverse effect on transportation and traffic in the park and surrounding area, due to traffic congestion.

Alternative D would have a direct and cumulative, long-term, moderate, beneficial effect on the availability, management, and connectivity of trails since more new trail construction would be appropriate, an integrated trail system study would be implemented, and an increased level of partnering would be coordinated to improve trail connectivity with surrounding local and county parks when compared to Alternative A.

Alternative D would have a direct and cumulative, long-term, moderate, beneficial effect on an individual's decision to walk or ride a bicycle to get to the park, since uses of bicycles would be considered appropriate in the most areas of the park under this alternative than under Alternative A.

Impacts of Alternative E

Similar effects as those described under Alternative D are applicable to Alternative E. Although only 45 percent of the park would be readily accessible to visitors and zoned for a more facilitated experience, the dispersed nature of access and lack of hubs would result in transportation effects the same as described for Alternative D. The same level of partnering to enhance trail connectivity throughout the park would also be the same as that described for Alternative D. In addition, off-road bicycling would be permissible in the developed zone, natural area recreation zone, and rustic zone which constitutes approximately 65 percent of the park which is comparable to Alternative D.

Cumulative effects are the same as described for Alternative D.

Impacts of Alternative F, the Preferred Alternative

The same effects as those described under Alternative D are applicable to Alternative F. Approximately 66 percent of the park would be readily accessible to visitors and zoned for a more facilitated experience, which is a level similar to Alternative D. The dispersed nature of access and lack

of hubs would also result in transportation effects the same as described for Alternative D. The same level of partnering to enhance trail connectivity throughout the park would also be the same as that described for Alternative D. In addition, off-road bicycling would be permissible in the developed zone, natural area recreation zone, and rustic zone which constitutes approximately 62 percent of the park which is comparable to Alternative D. Individual preferences as to where these zones occur may result in differences in opinion regarding the benefits of Alternatives E and F.

Cumulative effects are the same as described for Alternative D.

VISITOR AND COMMUNITY VALUES

Regulations and Policies

The regulations and policies that guide National Park Service actions with respect to visitor and community values are presented in the "Servicewide Mandates and Policies" section of Chapter 1 and in Appendix A.

Methodology

This section provides an assessment of the potential effects of each alternative on visitor and community values as described in the "Traditional Park Character and Visitor Experiences" portion of Chapter 3. Public comments submitted during public meetings and planning workshops were used as an indication of the range of public concerns regarding visitor and community values. These issues included the following:

Recreational Opportunities

- The public appeared to be mostly satisfied with the range of recreational opportunities offered by the park, although the majority of comments dealt with trails and the need for an improved trail system that would provide increased connectivity.
- The ability to use motorized boats throughout the entire park corridor.
- Individual and physically challenging recreation such as bicycling, boating, fishing, jogging, and hiking.
- The traditional, familiar character of the park's recreational opportunities and the publics' desire to see this character maintained.

Visitor Experience

- Scenery, opportunities to learn about the natural world, natural quiet, and the ability to hear natural sounds were noted as desirable features of the park.
- The historic resources present within the park and their appreciation by visitors.
- The lasting value of the park as a gathering place for family and friends.
- The importance of shared experiences such as walking, picnicking, bicycling, horseback riding, and participating in other activities that have come to be associated with the park.

Traditional Character

- The importance of protecting the park's natural qualities, not only for the ecological resources, but also for its restorative value to people within an urban setting.
- Preserving and protecting the natural and traditional character of the park from disturbance.
- Park actions will not conflict with land use plans, policies, or controls.

The effects of each alternative on these three issue areas then were estimated by qualitatively comparing the anticipated visitor experience for various prescribed uses under each alternative.

The assumptions used in this analysis were that: (1) under Alternative A, the existing management program for visitor experience would be extended into the future, and that few or no new programs for visitors would be planned and implemented; (2) the type of facilities for visitors would remain relatively unchanged under Alternative A and only a small number of new facilities would be constructed; (3) under any of the alternatives, new areas could be added to the park (up to a maximum of 10,000 acres), but, due to funding constraints, it's unlikely that these new areas could managed to their full potential under Alternative A; (4) Alternative C would provide more types and numbers of visitor facilities and programs than Alternative B in three hubs; (5) Alternatives D, E, and F would provide the highest number and greatest variety of visitor facilities and programs; (6) many of the resource stewardship strategies and management plans listed in Chapter 5 would not be developed and implemented under Alternative A, but would be developed and implemented under any of the five action alternatives.

Thresholds used to define the effects of the alternatives on visitor and community values are presented in Table 35. The thresholds were designed to assess the effects on the three issue areas (and subcategories) listed above:

Table 35. Impact Thresholds for Visitor and Community Values

Negligible: Visitors would not be affected, or changes in visitor experience and/or understanding would be below or at the level of detection. Visitors would not likely be aware of the effects associated with the alternative. Accessibility for individuals with disabilities would not be affected, or effects would not be noticeable or measurable.
Minor: Changes in visitor experience and/or understanding would be detectable, although the changes would be slight. Visitors could be aware of effects associated with the alternative, but only slightly. Changes to reduce or increase accessibility would be noticeable, but would affect only a small portion of the individuals with mobility-related disabilities who use the park.
Moderate: Changes in visitor experience and/or understanding would be readily apparent. Visitors would be aware of the effects associated with the Alternative and would likely be able to express an opinion about the changes. Changes to reduce or increase accessibility would be readily apparent to many individuals with mobility-related disabilities who use the park.
Major: Changes in visitor experience and/or understanding would be readily apparent and would have important consequences. Visitors would be aware of the effects associated with Alternative And would likely express a strong opinion about the changes. The effects on accessibility would be readily apparent to most individuals with mobility-related disabilities who use the park and would substantially change their ability to access and experience park features and resources.
Duration: Long-term: Changes would be recognized for more than one year. Short-term: Changes would be recognized for less than one year.

Impacts of Alternative A

Visitor Experience — Under Alternative A, visitor and community values would continue to be shaped by present management policies and programs. The park would continue to provide opportunities for solitude in more remote areas, as well as more active forms of recreation in areas such as Sope Creek and Cochran Shoals. The present opportunities to participate in park programs (interpretation) and education programs would continue. This includes education programs with area schools and a program for training teachers in the field of environmental education and special events such as the fall and spring festivals. Only limited additional park staff resources would be available to expand educational or research programs in the park or local communities, however. Few, if any, new visitor outreach programs would be developed and the visitor experience would not be expanded over the current teacher education program and research program. Coordination with local trail planning organizations and connectivity of new trails system would be similar to existing levels, and no integrated trails planning effort would be conducted or implemented. The quality of the visitor's experience would be diminished as visitation increases and services remain at current levels. Trail construction methods, monitoring, and restoration efforts would be similar to current practices. This alternative would have an overall long-term, moderate, adverse effect on visitor experiences since no new programs, facilities or increase in park staff levels would be expected to occur to accommodate an anticipated increase in future park visitation.

Recreational Opportunity — Under Alternative A, recreational opportunities that currently exist in the park (Table 21) would continue to be available, similar to existing conditions. These recreational opportunities would continue into the future unless resource management concerns arise. These opportunities include the existing system of trails (hiking, walking, bicycling, and horse), various river access facilities for fishing and boating, and maintenance of the administration building, restroom facilities, picnic facilities, parking lots, and roads. The availability and diversity of recreational opportunities would continue as currently managed. Some trails are relatively degraded and many unauthorized trails are causing soil erosion. Some areas are over-crowded and would continue to experience this problem.

Few, if any, new or expanded recreational opportunities would be available under Alternative A. A limited number of new trails would be constructed, but an integrated trail system study would not be developed and implemented, and the number of unauthorized trails and associated erosional effects would increase. Future limits on visitor numbers may be required due to an expected increase in park visitors and the continued need to protect and preserve the park's cultural and natural resources. Areas currently used for certain types of recreational activities could become increasingly crowded, and boating, hiking or fishing in high-use areas could become a more social rather than a solitary experience. Crowded conditions would worsen as competition grows for limited recreational opportunities. The overall effect on recreational opportunities under Alternative A would be variable depending on location in the park and visitor preferences.

Although, the continued availability of existing recreational opportunities throughout the park would result in a beneficial effect, the majority of comments received expressed a preference for a more facilitated park experience with expanded forms of recreation. Hence, the overall effect of Alternative A on recreational opportunities would be long-term, moderate, and adverse.

Traditional Character — As the population in the region grows, increased park visitation would be expected. Park staff would have increased difficulty protecting the natural and cultural features of the park that are valued by visitors, due to limitations in the numbers of park staff. Although visitors

would continue to have access to the wide variety of established opportunities described in Chapter 3, park staff and park management resources would face increasing pressure to address infrastructure problems, a need for additional administration and operations support, and increasing resource threats from natural degradation and visitor-related effects. This would result in an adverse effect on the ability to protect park resources, and the overall character of the park would be diminished because of a lack of suitable interpretive, education, and management programs. The continued availability of existing park resources to visitors, however, would result in a simultaneous beneficial effect.

During public meetings and workshops, the public expressed concern over protection of natural and cultural resources. Under Alternative A, additional resource stewardship strategies and management plans would not be developed or implemented. Without additional park staff to address these increasing concerns in resource protection, adverse effects on traditional park character and visitor experience would occur, as it would be increasingly difficult to maintain the traditional character of the park over time. Under Alternative A, none of the proposed park actions would conflict with land use plans, policies, or controls. In addition, none of the actions that take place inside the park during construction or operation would conflict with land use plans, policies, or controls in the surrounding areas.

Overall, Alternative A would have a long-term, moderate, adverse effect on the traditional character of the park since park management would face increasing pressure to address infrastructure problems, administration and operations support would be lacking, and it would be increasingly difficult to maintain the traditional character of the park over time due to increased resource threats.

Cumulative Impacts

Under Alternative A, the quality of the experience for the average visitor would decrease over time as a result of the cumulative effects of increasing numbers of visitors from the rapidly growing urban and suburban area surrounding the park, and the associated potential for reduction in the quality of the park's natural and cultural resources and decline in traditional character. The current level of staffing and facilities, education and outreach programs, recreational offerings, and natural and cultural resource management would continue at present levels throughout the park, but would not be expanded to meet the growing demand for more services to reach a much broader and diverse audience.

Many local and county governments surrounding the park have adopted greenspace initiatives and parks and recreation planning efforts that could potentially have a beneficial cumulative effect on visitor experience. Increased opportunities for recreation and enjoyment of greenspace outside of the park could reduce overcrowding and overuse of resources within the park. However, under Alternative A, park staff would not be able to increase the level of partnerships or coordination with local governments. This would reduce the ability to establish connectivity with surrounding parks which could promote shared facilities and programs.

When the beneficial and adverse effects of other past, ongoing, and future plans, projects, and activities affecting visitor and community values are combined with actions under Alternative A, the resulting cumulative effects would be long-term, moderate to major, adverse. Adverse effects would be moderate to major because regional growth would be the defining factor in assessing cumulative effects.

Conclusions

Although, the continued availability of existing recreational opportunities throughout the park would result in a beneficial effect, the majority of comments received expressed a preference for a more facilitated park experience with expanded forms of recreation. Hence, the overall effect of Alternative A on recreational opportunities would be long-term, moderate, and adverse.

This alternative would have an overall long-term, moderate, adverse effect on visitor experiences since no new programs, facilities or related increase in park staff levels would be expected to occur. The same level of effect would also be applicable to the traditional character of the park since park management would face increasing pressure to address infrastructure problems, administration and operations support would be lacking, and it would be increasingly difficult to maintain the traditional character of the park over time due to increased resource threats.

Cumulative effects on visitor and community values would be long-term, moderate to major, adverse, primarily due to regional growth.

Impacts of Alternative B

Visitor Experience —Under this alternative, approximately 68 percent of the park would be designated as either a river solitude zone or a natural zone with fewer facilities compared to Alternative A. Trails would be preferentially located away from the river and motorized boating would not be allowed in the river solitude zone. Alternative B would provide a relatively high level of opportunity for visitors to experience isolation, a feeling of closeness to nature, and solitude and tranquility. The variety of visitor experiences would be lowest under this alternative.

Compared to Alternative A, there would be increased education opportunities and ranger contact. Increased research opportunities would also be provided as well as opportunities for the park to coordinate with local agencies for monitoring and protection of park resources. This alternative would allow visitors to experience fewer encounters with other people while in the park compared to Alternative A. Alternative B would have a long-term, moderate to major beneficial, effect on visitors who value solitude and isolation, but it would also have a long-term, moderate to major, adverse effect on visitors who value a more facilitated park experience. However, the majority of comments received expressed a preference for a more facilitated park experience.

Recreational Opportunity - In comparison with Alternative A and the other action alternatives, Alternative B would provide visitors with a higher relative opportunity to achieve solitude and isolation and the lowest potential to experience more active and diverse forms of recreation. Approximately 68 percent of the park would be zoned to emphasize the experience of isolation and solitude under this alternative. As a result, this alternative would provide a greater relative opportunity for nature photography, wildlife observation, and similar types of recreational experiences. This alternative would provide visitors with a moderate degree of challenge and risk with respect to outdoor activities, and would require moderate to high knowledge of outdoor recreation skills.

Alternative B would also provide the river solitude zone, which would provide opportunities for enjoying relatively quiet stretches of the river, since motorized watercraft would not be permitted in this zone. Those that prefer to use motorized watercraft on the river in areas designated river solitude zones would be directed to other zones along the river. In addition, trails would not be developed along the riverbank, but would be placed further inland and away from the river. This type of zone does not currently exist and would not be provided under Alternative A. The overall effect on

recreational opportunities under Alternative B would be variable depending on location in the park and visitor preference.

Off-road bicycling would only be permissible in the developed and natural area recreation zones which would constitute approximately 23 percent of the park under Alternative B. Alternative B would provide less opportunity for off-road bicycling when compared to other alternatives, yet provide more opportunities than Alternative A.

Development and implementation of a resource stewardship strategy would benefit visitors in terms of defined preservation and protection measures that would enhance the visitor's recreational experience over the long-term. This alternative would have a long-term, moderate to major, beneficial effect on visitors who value solitude and isolation and less diverse forms of recreation, but it would have a long-term, moderate to major, adverse effect on visitors who value more active forms of recreation and diverse park use such as motorized boating and off-road bicycling.

Traditional Character— The traditional character of the park would be maintained under Alternative B as compared to Alternative A, through changes in management policy, to include development and implementation of a resource stewardship strategy and other management plans, as well as an emphasis on habitat restoration. Alternative B provides opportunities for increased park contact with visitors, and education programs designed to improve the visitor's understanding and appreciation of the natural and cultural resources in the park. This alternative would, therefore, allow for improved management and protection of park resources. Visitors would continue to have access to a variety of established recreational activities described in Chapter 3 yet, less diversity of opportunity than Alternative A due to restriction of motorized watercraft (see discussion under "Recreational Opportunity.") Increased staff levels would provide an opportunity to increase the level of agency coordination to help protect park resources from adverse effects to the watershed. Since it is assumed that park managers would have additional resources to effectively identify and manage degradation of natural and cultural resources, Alternative B would have a long-term moderate, beneficial effect on traditional character and experiences in the park.

Under Alternative B, none of the proposed park actions would cause conflicts with land use plans, policies, or controls. In addition, none of the actions that take place inside the park during construction or operation would conflict with land use plans, policies, or controls in the surrounding areas.

Cumulative Impacts

Growth in the surrounding area is expected to result in an increased demand for a variety of visitor experiences as compared with current visitor uses. Although the park would still be used as a means of seeking solitude and isolation for enjoyment of scenery and other passive forms of visitor experience, there would be pressure to change this as the area surrounding the park grows. Growth in the surrounding area would also cause increased pressure on the park to provide more active forms of recreation, but this would be limited under Alternative B. In addition, the traditional character of the park would be affected by demand for more active and varied forms of recreation and the increase of encroachment around the boundaries of the park.

Many local and county governments surrounding the park have adopted greenspace initiatives and parks and recreation planning efforts that could potentially have a beneficial cumulative effect on visitor experience in the park. Increased opportunities for recreation and enjoyment of greenspace outside of the park could reduce overcrowding and overuse of resources within the park. Under

Alternative B, proposed increase in park staffing levels could potentially increase the level of partnerships or coordination with local governments in an effort to establish connectivity with surrounding parks which could promote shared facilities and programs. Although the effectiveness of cooperative efforts would be difficult to quantify, it is likely that cumulative effects would be slightly less adverse than those described under Alternative A.

When the beneficial and adverse effects of other past, ongoing, and future plans, projects, and activities affecting visitor and community values are combined with actions under Alternative B, the resulting cumulative effects would be long-term, moderate, and adverse. Adverse effects would be moderate because growth in the surrounding area would make it increasingly difficult to maintain solitude within the park which is the underlying theme of Alternative B. Coordination with local governments and organizations would be the key to the successful implementation of this alternative.

Conclusions

Alternative B would result in construction of fewer facilities than Alternative A. Visitor experiences such as serenity, wildlife observation, solitude, and observing nature's beauty would be enhanced to the greatest degree under this alternative. The maximum amount of river solitude and natural zones in the park would be available to visitors under this alternative. Visitor encounter rates would be relatively low. Overall, this alternative would result in a long-term, moderate to major, beneficial effect on visitors who value solitude and isolation, and a long-term, moderate to major, adverse effect on visitors who value more varied, active recreational experiences and supportive facilities.

Alternative B would have a long-term, moderate, beneficial effect on traditional character and experiences in the park by providing an emphasis on improving resource conditions, and education programs designed to improve the visitor's understanding and appreciation of the natural and cultural resources in the park.

Growth in the surrounding area is expected to result in an increased demand for a variety of visitor experiences and more active forms of recreation as compared with current visitor uses resulting in a long-term, moderate, adverse, cumulative effect under Alternative B. Adverse effects would be moderate because growth in the surrounding area would make it increasingly difficult to maintain solitude within the park which is the underlying theme of Alternative B.

Impacts of Alternative C

Visitor Experience — Under Alternative C, approximately 60 percent of the park would be zoned as either a natural zone or river solitude zone. These areas would provide a relatively high level of opportunity for visitors to experience isolation, a feeling of closeness to nature, solitude and tranquility, all within a rapidly growing urban region. However, Alternative C would also provide visitors with other types of experiences and facilities centralized in hubs. Alternative A would not provide hubs and would largely rely on existing facilities and programs for visitors.

More facilitated experiences would be available in the hubs, including an increased likelihood of meeting a park ranger. Visitors would be more likely to obtain information from rangers under Alternative C than under Alternative A because facilities and information would be available from park staff at the hubs. Under this alternative, visitors would experience relatively low numbers of encounters with other people in the majority of the park, while simultaneously being provided with facilities at the hubs. A greater number and diversity of park facilities would be available to visitors under this alternative in the hubs in comparison with Alternative A. The more efficient and cohesive

working environment that this alternative would provide a benefit for park staff, and the dispersed park ranger presence would result in better service to park visitors.

Varied types of experiences would be possible under this alternative, due to the availability of more active forms of traditional recreation accessed via the hubs. However, once a visitor moved away from the hub, the probability of experiencing solitude and isolation would be more likely to increase. This alternative would have a long-term, minor to moderate, beneficial effect on all park visitors since both a facilitated experience and opportunities for solitude would be offered under Alternative C.

Recreational Opportunity — Alternative C would provide visitors with opportunities for less diverse types of recreation over the majority of the park (60 percent), and more active and varied forms of recreation in the developed zones and natural area recreation zones (2.7 and 29 percent, respectively). Alternative C would provide visitors with a moderate degree of challenge and risk with respect to outdoor activities, and would require moderate to high knowledge of outdoor recreation skills, in comparison with Alternative A.

Alternative C would also provide the river solitude zone, which would provide opportunities for enjoying relatively quiet stretches of the river, since motorized watercraft would not be permitted in this zone. Those that prefer to use motorized watercraft on the river in areas designated river solitude zones would be directed to other zones along the river. In addition, trails would not be developed along the riverbank, but would be placed further inland and away from the river. This type of zone does not currently exist and would not be provided under Alternative A.

Off-road bicycling would only be permissible in the developed and natural area recreation zones which would constitute approximately 33 percent of the park under Alternative C. Alternative C would provide an intermediate level of opportunity for off-road bicycling, an increase compared to Alternative A.

Development and implementation of a resource stewardship strategy would benefit visitors in terms of defined preservation and protection measures that would enhance the visitor's recreational experience over the long-term, and integrated trails throughout the park would provide a more pleasant recreational experience for most trail users. Compared to Alternative A, there would be centralized access to trailheads and the river, while simultaneously providing the opportunity for isolation and solitude in the park.

Alternative C could be considered by visitors to have beneficial or adverse effects on their recreational experience depending on the purpose of their visit. Overall, this alternative would have a long-term, minor to moderate, beneficial effect on the majority of park visitors since both active and passive forms of recreation would be accommodated. However, Alternative C is likely to have a long-term, moderate to major, adverse effect on visitors who prefer access for use of motorized boating throughout the entire 48-mile park corridor.

Traditional Character— The traditional character of the park would be maintained under Alternative C through management changes including preparation and implementation of a resource stewardship strategy. Additional changes would include increased communication and contact with visitors, increased education programs, and public/private partnerships designed to improve the visitor's understanding and appreciation of the natural and cultural resources in the park, and to allow for improved management and protection of park resources. Visitors would continue to have access to the wide variety of established recreational activities described in Chapter 3, yet less diversity of opportunity than Alternative A due to restrictions of motorized watercraft (see discussion under

"Recreational Opportunities.") Under Alternative C, park staff could increase the number of visitors they could communicate with due to the central location and availability of facilities in the hubs. The hubs would provide visitors with a known location for obtaining information about recreational opportunities, educational opportunities, resources and their protection, and general park information. Compared to Alternative A, more park rangers would be in the park to interact with visitors. The traditional character of the park would be more effectively communicated to visitors under this alternative as a result. With more park managers there would be an increase in the efficiency and ability to effectively identify, preserve and protect natural and cultural resources. Alternative C would have a long-term, major, beneficial effect on maintaining the traditional character and experiences in the park. This would all be augmented by the creation and operation of the hubs.

Under Alternative C, none of the actions that take place inside the park during construction or operation would conflict with land use plans, policies, or controls ion the surrounding areas.

Cumulative Impacts

Growth in the area and pressure to use the park for more active and varied forms of visitor use would increase under all of the alternatives, putting pressure on the park to provide a wider range of visitor experiences. Under Alternative C, however, the park would provide several hubs that would concentrate visitor activity at up to three selected locations. The operation of several new facilities in hubs would remove those areas for use by visitors who prefer isolation and solitude, but would promote a greater variety of visitor experience, for example, access to a boat ramp, trail, or interpretive facility. The hubs could also include educational facilities (building/kiosks) and centralized access to park rangers and information about park resources that would benefit the visitor. This alternative has been estimated to result in long-term, moderate, beneficial, cumulative effects on visitor experience.

Growth in the surrounding area would also cause increased pressure on the park to provide more active forms of recreation. In comparison to Alternative A, the cumulative effect of Alternative C would result in a lower intensity of effect because it could accommodate a wider variety of recreational opportunities and reduce potential adverse effects of additional recreation by development and implementation of a resource stewardship strategy. This alternative would, therefore, result in long-term, moderate, beneficial, cumulative effects on recreational opportunity.

The relative intensity of the cumulative effect of growth on traditional character of the park would be less than that associated with Alternative A since this alternative can accommodate a wider variety of visitor experiences and recreational activities while minimizing the associated adverse effects of increased recreational use on park resources. Since facilities would be centered in the hubs, the traditional character of the park would be more effectively maintained. In the developed zones and hubs, effects on the traditional character of the park would be minimized through proper site design and location. Implementation of increased numbers and varieties of education and outreach programs, a resource stewardship strategy, and an integrated trail system study would offset potential cumulative effects of growth on traditional character of the park. In addition, a proposed increase in park staffing levels could potentially increase the level of partnerships or coordination with local governments, which could have a beneficial effect on land-use planning in areas adjacent to the park. These programs and plans would result in long-term, minor to moderate, beneficial, cumulative effects on the traditional character of the park.

Conclusions

Varied types of experiences would be possible under this Alternative C, due to the availability of more active forms of traditional recreation accessed via the hubs. However, once a visitor moved away from the hub, the probability of experiencing solitude and isolation would be more likely to increase. This alternative would have a long-term, minor to moderate, beneficial effect on all park visitors since both a facilitated experience and opportunities for solitude would be offered under Alternative C.

Overall, this alternative would have a long-term, minor to moderate, beneficial effect on the majority of park visitors since both active and passive forms of recreation would be accommodated. However, Alternative C is likely to have a long-term, moderate to major, adverse effect on visitors who prefer access to motorized boating throughout the entire 48-mile park corridor.

An increase in park staff in comparison to Alternative A would result in an increase in the efficiency and ability to effectively identify, preserve and protect natural and cultural resources. Alternative C would have a long-term, major, beneficial effect on maintaining the traditional character and experiences in the park. This would be augmented by the creation and operation of the hubs.

Cumulative effects on visitor experience and recreational opportunities would be long-term, moderate, and beneficial, since Alternative C would accommodate a facilitated park experience with expanded forms of active recreation, while also maintaining solitude in the majority of the park. This approach would be further suited to accommodating surrounding growth patterns in comparison to Alternative A.

Implementation of increased numbers and varieties of education and outreach programs, a resource stewardship strategy, and an integrated trail system study would offset potential cumulative effects of growth on traditional character of the park. In addition, a proposed increase in park staffing levels could potentially increase the level of partnerships or coordination with local governments, which could have a beneficial effect on land-use planning in areas adjacent to the park. These programs and plans would result in long-term, minor to moderate, beneficial, cumulative effects on the traditional character of the park.

Impacts of Alternative D

Visitor Experience — Under Alternative D, visitors would be provided with the greatest opportunity for facilitated experience in numerous locations of the park in comparison with Alternative A. Approximately 85 percent of the park would be designated as a natural area recreation zone, cultural resource zone, or developed zone under this alternative. No river solitude zones would be established under this alternative, and approximately 14 percent of the park would be designated as a natural zone.

In developed zones (4.68 percent of the park acreage under this alternative), visitors would experience relatively low levels of solitude and isolation. In comparison with Alternative A, a greater relative amount of facilitated forms of visitor experience such as nature and environmental education would be available in the developed zones distributed along the length of the park under this alternative as compared to Alternative A. Increased visitor and administration/operations facilities would enhance educational and interpretive experiences and options compared to Alternative A. Visitors would experience more encounters with other people under this alternative. In addition, Alternative D also promotes expanded park access via connectivity to surrounding neighborhoods and developments.

This alternative would have a long-term, moderate to major, adverse effect on visitors who value solitude and isolation, and a long-term, moderate to major, beneficial effect on visitors who value more facilitated experiences and park access and use compared to Alternative A.

Recreational Opportunity — In comparison with Alternative A, Alternative D would provide visitors with the lowest relative potential for experiencing solitude and isolation, and an expanded opportunity for more varied, active forms of recreation experiences such as motorized boating, bicycling, horseback riding, and walking and hiking. Compared to Alternative A, this alternative would provide more trails in the park that are connected with trails outside the park. Approximately 74 percent of the park would be zoned to emphasize more active forms of recreation, with more acreage designated as natural area recreation zone. Alternative D would provide visitors with a minor to moderate degree of challenge and risk with respect to outdoor activities, and would require minor to moderate knowledge of outdoor recreation skills, in comparison with Alternative A.

Under this alternative, opportunities for enjoying relatively quiet stretches of the river would still be available, but to a lesser extent than would be available under Alternative B or Alternative C because there would be no designated river solitude zone. Large portions of the park corridor would still be available for photography, watching wildlife, and other passive visitor experiences, however. This alternative would have appreciably more facilities and associated recreational opportunities as compared with Alternative A.

Off-road bicycling would only be permissible in the developed and natural area recreation zones which would constitute approximately 79 percent of the park under Alternative D. Alternative D would provide a greater level of opportunity for off-road bicycling when compared to Alternative A and other alternatives.

This alternative would have a long-term, moderate to major, adverse effect on visitors who value more passive forms of recreation and a long-term, moderate to major, beneficial effect on visitors who value expanded access and more diverse forms of recreation, increased park access points, motorized boating throughout the entire park corridor, and a more social experience.

Traditional Character— The traditional character of the park would be maintained under Alternative D through changes in management policy, to include development and implementation of a resource stewardship strategy and other studies and plans. These changes would include increased communication with visitors, education programs, public/private partnerships designed to improve the visitor's understanding and appreciation of the natural and cultural resources in the park, and improved management and protection of park resources in comparison with Alternative A. In addition, visitors would have access to a variety of established recreational activities described in Chapter 3. The results of these actions would be a long-term, major, beneficial effect on traditional character and experiences in the park. However, this alternative also has a simultaneous potential for having a long-term, minor to moderate, adverse effect on traditional park character, since this alternative would involve a greater relative degree of constructed facilities and the highest rates of dispersed visitation. Under these circumstances, the traditional character of the park, including a higher degree of isolation and solitude, experiencing the natural river environment, and similar values, would not be as achievable as compared to Alternative A.

Under Alternative D, none of the actions that take place inside the park during construction or operation would conflict with land use plans, policies, or controls in the surrounding areas.

Cumulative Impacts

The same intensity of cumulative effects on visitor experience and recreational opportunities described under Alternative C would be applicable to Alternative D; however, effects would be distributed throughout the park and not centralized in hubs. Although, there is the potential for diminished traditional character of the park under Alternative D, the overall cumulative effect would be the same as Alternative C (long-term, minor to moderate, and beneficial) since Alternative D (and Alternative E and F) places greater emphasis on partnering and coordination with local governments. This would allow park managers to have a greater effect on land-use adjacent to the park when compared with Alternative A, which would aid in preserving traditional character. Partnerships could also improve connectivity with other community park-related initiatives, thereby providing an opportunity for shared facilities and programs while also dispersing visitors over a larger area potentially reducing some visitor-related resource impacts.

Conclusions

In comparison with Alternative A, Alternative D would provide visitors with the lowest relative potential for experiencing solitude and isolation, and an expanded opportunity for access and more active forms of recreation experiences such as motorized boating, bicycling, horseback riding, and walking and hiking. The result would be a long-term, moderate to major, adverse effect on visitors who value solitude and isolation, and a long-term, moderate to major, beneficial effect on visitors who value a more facilitated park experience.

Alternative D would have a long-term, moderate to major, adverse effect on visitors who value more solitude and less diverse types of recreation and a long-term, moderate to major, beneficial effect on visitors who value more active forms of recreation, increased park access points, and a more social experience.

The traditional character of the park would be maintained under Alternative D through changes in management policy resulting in a long-term, major, beneficial effect on traditional character and experiences in the park. However, this alternative also has a simultaneous potential for having a long-term, minor to moderate, adverse effect on traditional park character, since a higher degree of isolation and solitude, experiencing the natural river environment, and similar values, would not be as achievable as compared to Alternative A.

Cumulative effects on visitor experience and recreational opportunities would be long-term, minor to moderate, and beneficial, since Alternative D would accommodate a facilitated park experience with expanded forms of active recreation, while also maintaining solitude in the portions of the park. This approach would be further suited to accommodating surrounding growth patterns in comparison to Alternative A.

Although, there is the potential for diminished traditional character of the park under Alternative D, the overall cumulative effect would be long-term, minor to moderate, and beneficial since Alternative D (and Alternatives E and F) places a greater emphasis on partnering and coordination with local governments and organizations which would have a greater effect on land-use adjacent to the park when compared to Alternative A.

Impacts of Alternative E

Visitor Experience — Under Alternative E, visitors would be provided with an intermediate opportunity for a facilitated experience in numerous locations of the park in comparison with Alternative A. Approximately 45 percent of the park would be designated as a natural area recreation zone, historic resource zone, or developed zone under this alternative. In addition, a rustic zone would be created and occupy 28 percent of the park under Alternative E which would allow the same types of activities permissible in the natural area recreation zone but with less facilitation. For example, picnicking would be permissible in the rustic zone but picnic tables would not be provided. Visitor or administrative facilities would also be inappropriate in the rustic zone.

In comparison with Alternative A, a greater relative amount of facilitated forms of visitor experience such as environmental education would be available in the developed zones distributed along the length of the park under this alternative as compared to Alternative A. Increased visitor and administration/operations facilities would enhance educational and interpretive experiences and options compared to Alternative A. Visitors would experience more encounters with other people under this alternative. In addition, Alternative E also promotes expanded park access via connectivity to surrounding neighborhoods and developments and boating and fishing would be allowed in all park waterways. Alternative E would have a long-term, moderate, adverse effect on visitors who value solitude and isolation, and a long-term, moderate to major, beneficial effect on visitors who value more facilitated experiences and park use compared to Alternative A. However, the majority of comments received during public scoping expressed a preference for a more facilitated park experience.

Recreational Opportunity — In comparison with Alternative A, Alternative E would provide visitors with a lower relative potential for experiencing solitude and isolation, and an expanded opportunity for more diverse, active forms of recreation experiences such as motorized boating, bicycling, horseback riding, and walking and hiking. Approximately 45 percent of the park would be zoned to emphasize more active, facilitated forms of recreation and an additional 28 percent of the park contained within the rustic zone would permit active forms of recreation, but it would not be as facilitated. Alternative E would provide visitors with a moderate degree of challenge and risk with respect to outdoor activities, and would require moderate to high knowledge of outdoor recreation skills, in comparison with Alternative A.

Compared to Alternative A, this alternative would provide more trails in the park that are connected with trails outside the park, and off-road bicycling would be permissible in approximately 65 percent of the park under this alternative. In addition, greater river access would provided under Alternative E when compared to Alternative A, and motorized boating and fishing would be allowed in all park waterways in accordance with Georgia State laws and private property rights.

Under this alternative, opportunities for enjoying relatively quiet stretches of the river would still be available, but to a lesser extent that would be available under Alternative B and Alternative C because there would be no designated river solitude zone. Large portions of the park corridor would still be available for photography, watching wildlife, and other passive visitor experiences. This alternative would have more facilities and associated recreational opportunities as compared with Alternative A.

This alternative would have a long-term, moderate, adverse effect on visitors who value more passive forms of recreation and a long-term, moderate to major, beneficial effect on visitors who value more

diverse, active forms of recreation, increased park access points, motorized boating throughout the entire park corridor, and a more social experience.

Traditional Character— The traditional character of the park would be maintained under Alternative E through changes in management policy, to include development and implementation of a resource stewardship strategy and other studies and plans. These changes would include increased communication with visitors, education programs, public/private partnerships designed to improve the visitor's understanding and appreciation of the natural and cultural resources in the park, and improved management and protection of park resources in comparison with Alternative A. In addition, visitors would have access to a variety of established recreational activities described in Chapter 3. The results of these actions would be a long-term, major, beneficial effect on traditional character and experiences in the park. However, this alternative also has a simultaneous potential for having a long-term, minor, adverse effect on traditional park character, since this alternative would involve a moderate degree of constructed facilities and an increased rate of dispersed visitation when compared to Alternative A. Under these circumstances, the traditional character of the park, including a higher degree of isolation and solitude, experiencing the natural environment, and similar values, would not be as achievable as compared to Alternative A.

Under Alternative E, none of the actions that take place inside the park during construction or operation would conflict with land use plans, policies, or controls ion the surrounding areas.

Cumulative Impacts

Cumulative effects would be the same as those described under Alternative D.

Conclusions

In comparison with Alternative A, Alternative E would provide visitors with a lower relative potential for experiencing solitude and isolation, and an expanded opportunity for more diverse, active forms of recreation experiences such as motorized boating, bicycling, horseback riding, and walking and hiking. The result would be a long-term, moderate, adverse effect on visitors who value solitude and isolation, and a long-term, moderate to major, beneficial effect on visitors who value a more facilitated park experience.

Alternative E would have a long-term, moderate, adverse effect on visitors who value more solitude and less diverse opportunities for recreation and a long-term, moderate to major, beneficial effect on visitors who value more diverse, active forms of recreation, increased park access points, and a more social experience. Motorized boating and fishing would be allowed in all park waterways in accordance with Georgia State laws and private property rights.

The traditional character of the park would be maintained under Alternative E through changes in management policy resulting in a long-term, major, beneficial effect on traditional character and experiences in the park. However, this alternative also has a simultaneous potential for having a long-term, minor, adverse effect on traditional park character, since a higher degree of isolation and solitude, and similar values, would not be as achievable as compared to Alternative A.

Cumulative effects on visitor experience and recreational opportunities would be long-term, moderate, and beneficial, since Alternative E would accommodate a facilitated park experience with expanded forms of active recreation, while also maintaining solitude in the portions of the park. This

approach would be further suited to accommodating surrounding growth patterns in comparison to Alternative A.

Although, there is the potential for diminished traditional character of the park under Alternative E, the overall cumulative effect would be long-term, minor to moderate, and beneficial since Alternative E (and Alternatives D and F) places a greater emphasis on partnering and coordination with local governments and other organizations which would have a greater effect on land-use adjacent to the park when compared to Alternative A.

Impacts of Alternative F, the Preferred Alternative

Visitor Experience — Under Alternative F, visitors would be provided with a greater opportunity for a facilitated experience in numerous locations of the park in comparison with Alternative A. Approximately 62 percent of the park would be designated as a natural area recreation zone, historic resource zone, or developed zone under this alternative. In addition, a rustic zone would be created and occupy approximately 8.5 percent of the park under Alternative F which would allow the same types of activities permissible in the natural area recreation zone but with less facilitation. For example, picnicking would be permissible in the rustic zone but picnic tables would not be provided. Visitor or administrative facilities would also be inappropriate in the rustic zone.

In comparison with Alternative A, a greater relative amount of facilitated forms of visitor experience such as nature and environmental education would be available in the developed zones distributed along the length of the park under this alternative as compared to Alternative A. Increased visitor and administration/operations facilities would enhance educational and interpretive experiences and options compared to Alternative A. Visitors would experience more encounters with other people under this alternative. In addition, Alternative F promotes a greater expanded park access when compared to Alternative A via connectivity to surrounding neighborhoods and developments and access to boating and fishing in all park waterways.

Alternative F would have a long-term, moderate to major, adverse effect on visitors who value solitude and isolation, and a long-term, moderate to major, beneficial effect on visitors who value more facilitated experiences and park use compared to Alternative A.

Recreational Opportunity — In comparison with Alternative A, Alternative F would provide visitors with a lower relative potential for experiencing solitude and isolation, and an expanded opportunity for more diverse, active forms of recreation experiences such as motorized boating, bicycling, horseback riding, and walking and hiking. Approximately 45 percent of the park would be zoned to emphasize more active, facilitated forms of recreation and an additional 8.5 percent of the park contained within the rustic zone would permit active forms of recreation, but it would not be as facilitated. Alternative F would provide visitors with a minor to moderate degree of challenge and risk with respect to outdoor activities, and would require minor to moderate knowledge of outdoor recreation skills, in comparison with Alternative A.

Compared to Alternative A, this alternative would provide more trails in the park that are connected with trails outside the park, and off-road bicycling would be permitted in approximately 62 percent of the park. In addition, greater river access would provided under Alternative F when compared to Alternative A, and motorized boating and fishing would be allowed in all park waterways in accordance with Georgia State laws and private property rights.

Under this alternative, opportunities for enjoying relatively quiet stretches of the river would still be available, but to a lesser extent that would be available under Alternative B and Alternative C because there would be no designated river solitude zone. Large portions of the park corridor would still be available for photography, watching wildlife, and other passive visitor experiences. This alternative would have more facilities and associated recreational opportunities as compared with Alternative A.

This alternative would have a long-term, moderate to major, adverse effect on visitors who value more passive forms of recreation and a long-term, major, beneficial effect on visitors who value more diverse, active forms of recreation, increased park access points, motorized boating throughout the entire park corridor, and a more social experience. The majority of comments received during public scoping expressed a preference for expanded recreational opportunities and park access.

Traditional Character— The traditional character of the park would be maintained under Alternative F through changes in management policy, to include development and implementation of a resource stewardship strategy and other studies and plans. These changes would include increased communication with visitors, education programs, public/private partnerships designed to improve the visitor's understanding and appreciation of the natural and cultural resources in the park, and improved management and protection of park resources in comparison with Alternative A. In addition, visitors would have access to a variety of established recreational activities described in Chapter 3. The results of these actions would be a long-term, major, beneficial effect on traditional character and experiences in the park. However, this alternative also has a simultaneous potential for having a long-term, minor to moderate, adverse effect on traditional park character, since this alternative would involve a greater relative degree of constructed facilities and the highest rate of dispersed visitation. Under these circumstances, the traditional character of the park, including a higher degree of isolation and solitude, experiencing the natural river environment, and similar values, would not be as achievable as compared to Alternative A.

Under Alternative F, none of the actions that take place inside the park during construction or operation would conflict with land use plans, policies, or controls ion the surrounding areas.

Cumulative Impacts

Cumulative effects would be the same as those described under Alternative D.

Conclusions

In comparison with Alternative A, Alternative F would provide visitors with a lower relative potential for experiencing solitude and isolation, and an expanded opportunity for more active forms of recreation experiences such as motorized boating, bicycling, horseback riding, and walking and hiking. The result would be a long-term, moderate to major, adverse effect on visitors who value solitude and isolation, and a long-term, moderate to major, beneficial effect on visitors who value more facilitated experiences and park use. However, the majority of comments received during public scoping expressed a preference for a more facilitated park experience.

Alternative F would have a long-term, moderate to major, adverse effect on visitors who value more solitude and less diverse forms of recreation and a long-term, major, beneficial effect on visitors who value more diverse, active forms of recreation, increased park access points, and a more social experience. Motorized boating and fishing would be allowed in all park waterways in accordance with Georgia State laws and private property rights.

The traditional character of the park would be maintained under Alternative F through changes in management policy resulting in a long-term, major, beneficial effect on traditional character and experiences in the park. However, this alternative also has a simultaneous potential for having a long-term, minor to moderate, adverse effect on traditional park character, since a higher degree of isolation and solitude, and similar values, would not be as achievable as compared to Alternative A.

Cumulative effects on visitor experience and recreational opportunities would be long-term, moderate, and beneficial, since Alternative F would accommodate a facilitated park experience with expanded forms of active recreation, while also maintaining solitude in the portions of the park. This approach would be further suited to accommodating surrounding growth patterns in comparison to Alternative A.

Although, there is the potential for diminished traditional character of the park under Alternative F, the overall cumulative effect would be long-term, minor to moderate, and beneficial since Alternative F (and Alternatives D and E) places a greater emphasis on partnering and coordination with local governments which would have a greater effect on land-use adjacent to the park when compared to Alternative A.

PARK OPERATIONS

Regulations and Policies

The regulations and policies that guide National Park Service actions with respect to park operations are presented in the "Servicewide Mandates and Policies" section of Chapter 1 and in Appendix A.

Methodology

This section provides an assessment of the potential effects of each alternative on park operations as described in the "Park Operations" portion of Chapter 3. Public comments submitted during public meetings and planning workshops were used as an indication of the range of public concerns regarding park operations which included the numbers and types of visitor facilities, an increase in the operation of education and volunteer programs, and the desire for greater communication between the National Park Service and other agencies, organizations and visitors. The effects of each alternative on these issue areas were then estimated by qualitatively comparing the anticipated park operations for various prescribed uses under each alternative.

The assumptions used in this analysis were that: (1) under Alternative A, the existing management program for visitor experience would be extended into the future, and that few or no new programs for visitors would be planned and implemented; (2) the type of facilities for visitors would remain unchanged under Alternative A and only a small number of new facilities would be constructed; (3) Under any of the alternatives, new areas could be added to the park (up to a maximum of 10,000 acres), but, due to funding constraints, it's unlikely that these new areas could managed to their full potential under Alternative A; (4) Alternative C would provide more types and numbers of visitor facilities and programs than Alternative B in three hubs; (5) Alternatives D, E, and F would provide the highest number and greatest variety of visitor facilities and programs (6) many of resource stewardship strategies and management plans identified in Chapter 5 would not be developed and implemented under Alternative A, but would be developed and implemented under any of the five action alternatives.

Although increased staffing and funding are proposed, it should be noted that implementation of the approved plan will depend on future funding and servicewide priorities. The approval of a general management plan does not guarantee that funding and staffing needed to implement the plan will be forthcoming. Funding for capital construction improvements is not currently shown in National Park Service construction programs, and it is not likely that all potential capital improvements arising from this plan will be totally implemented during the life of this general management plan. Larger capital improvements may be phased over several years, and full implementation of the general management plan could be many years into the future.

Table 36 presents the thresholds used to define the effects of the alternatives on park operations. The thresholds were designed to assess the effects on the issues listed above:

Table 36. Impact Thresholds for Park Operations

Negligible: Park operations would not be affected, or effects would not be noticeable or measurable outside normal variability.
Minor: Effects would be measurable but would not appreciably change park operations. Effects would be noticed by park staff, but probably would not be noticed by visitors.
Moderate: The effects would be readily apparent and would result in a substantial change in park operations in a manner that would be noticeable to staff and visitors.
Major: The effects would be readily apparent and would result in a substantial change in park operations in a manner that would be noticeable to staff and visitors as markedly difference from existing operations.
Duration: Long-term: Changes would be recognized for more than one year. Short-term: Changes would be recognized for less than one year.

Impacts of Alternative A

Under Alternative A, the level of programming, activities, and enforcement would be expected to be maintained. Limited construction of new facilities would occur, but existing visitor facilities in the park would be utilized and maintained as funds allow. The park is currently functioning under a staffing deficit, and would require an additional eight staff (full time equivalents) under Alternative A in order to fulfill enforcement and resource management needs.

The current level of partnerships and cooperation with local governments and private organizations would continue; however, there is an ever increasing demand for park staff to address connectivity with local city and county parks and trails, which would be difficult to achieve with existing staffing levels. New areas could be added to the park under Alternative A; however, due to staffing and funding constraints, these areas would not be managed to the extent possible and could further burden park operations.

Park staff would have increased difficulty protecting the natural and cultural features of the park that are valued by visitors, due to limitations in the numbers of park staff. Although visitors would continue to have access to the wide variety of established opportunities described in Chapter 3, park staff and park management resources would face increasing pressure to address infrastructure problems, a need for additional administration and operations support, and increasing resource threats such as natural degradation and visitor effects to historic resources, erosion, sedimentation, and water quality concerns. Additionally, without the creation of management zoning, park operations would become increasingly difficult to implement resulting in less effective park management. Overall, Alternative A would have a long-term, moderate, adverse effect on park operations.

Cumulative Impacts

Continued growth and development in the area surrounding the park will result in an increased demand for greenspace and a subsequent increase in visitor use. Increased visitor use would, in turn, result in increased pressure on the park to provide more educational and interpretive programs as well as more facilitated forms of recreation. In addition, a regional trend in increased local and county park planning and greenspace initiatives will result in a greater emphasis on trail connectivity, which would require an increased level of partnering with the National Park Service. Current staffing levels and park funding are not sufficient to adequately meet the demands of regional growth.

When the beneficial and adverse effects of other past, ongoing, and future plans, projects, and activities affecting park operations are combined with actions under Alternative A, the resulting cumulative effects would be long-term, moderate, and adverse. Adverse effects would be moderate because coordination and planning between the National Park Service and local governments would not be increased above present levels under Alternative A.

Conclusions

Alternative A would have a long-term, moderate, adverse effect on park operations due to staffing and funding constraints; increased pressure to address infrastructure problems, the need for additional administration and operations support, and increasing resource threats; and the lack of management zoning.

Continued growth and development in the area surrounding the park will result in an increased demand for greenspace and a subsequent increase in visitor use resulting in a long-term, moderate, adverse, cumulative effect on park operations since current staffing levels and park funding are not sufficient to adequately meet the demands of regional growth.

Impacts of Alternative B

Alternative B would result in the construction and operation of fewer new visitor facilities in the park compared to Alternative A, which would result in less maintenance activities for park staff. However, staff workload would be increased by increased levels of habitat restoration and educational programs proposed under this alternative. Increased ranger presence would also be necessary to enforce restoration activities in order to ensure their success. Park operations and ranger contact would continue to be primarily based in the Island Ford area, which would reduce the efficiency of operations in the extreme northern and southern sections of the park. However, Alternative B would not expand access to the park or focus on facilitated forms of recreation, which would reduce the operational burden.

Common to all of the action alternatives is the recommended development and implementation of the studies and plans outlined in Chapter 5. This would include, but not necessarily be limited to, a resource stewardship strategy, an integrated trail system study, a collections management plan, flow studies, a commercial services plan, a comprehensive interpretive plan, and an easement study. While the implementation of these plans and studies would aid in the efficiency of park operations, there would be an adverse effect related to the level of effort and staff required to develop these plans. A staff increase of eight to ten staff to be phased in over the life of this general management plan (typically twenty years) would be proposed under Alternative B, which is the least amount proposed for all of the action alternatives. Thus, park operations would be the most strained by implementation and development of these management tools under Alternative B.

The overall effect on park operations would be long-term, negligible, and beneficial, largely due to the limited amount of development and the emphasis on a less facilitated visitor experience.

Cumulative Impacts

Cumulative effects would be of the same intensity as those described under Alternative A (long-term, moderate, and adverse). Although an increase in park staff would be proposed under Alternative B, which could address the need for greater partnering and coordination with local governments, it is likely that this benefit would be offset by the greater amount of management and enforcement required to effectively implement habitat restoration and management efforts under Alternative B, since effects related regional growth and development would run counter to restoration and the overall goals of Alternative B.

Conclusions

The limited amount of development and the emphasis on a less facilitated visitor experience would benefit park operations under Alternative B. However, park staff would be the most strained by implementation and development of the studies and plans that would be proposed under the action alternatives. Increased ranger presence would also be required to monitor habitat restoration activities. The overall effect on park operations would be long-term, negligible, and beneficial.

Cumulative effects on park operations would be long-term, moderate, and adverse due to the greater amount of management and enforcement required to effectively implement habitat restoration since effects related regional growth and development would run counter to the overall goals of Alternative B.

Impacts of Alternative C

Under Alternative C, strategic hubs, located inside or outside of the 48-mile park, would be developed to provide information, interpretation and services to visitors and would include administrative facilities for park staff. Improved visitor facilities located in centralized areas as well as increased staff levels proposed under Alternative C would offer a greater level of efficiency for park operations when compared to Alternative A. However, Alternative C would result in the construction and operation of more new facilities than Alternative A which require more maintenance, and education, research, and coordination with local governments would be expanded when compared to Alternative A which would also increase the operational burden. It is likely that proposed staff increases would offset the increased workload, however.

Common to all of the action alternatives is the recommended development and implementation of the studies and plans outlined in Chapter 5. This would include, but not necessarily be limited to, a resource stewardship strategy, an integrated trail system study, a collections management plan, flow studies, a commercial services plan, a comprehensive interpretive plan, and an easement study. While the implementation of these plans and studies would aid in the efficiency of park operations, there would be adverse effects related to the level of effort and staff required to develop these plans. A staff increase of eighteen to twenty staff to be phased in over the life of this general management plan (typically twenty years) would be proposed under Alternative C, which is greater than the staffing increase proposed for Alternatives A. Thus, park operations would have an increased amount of strain imposed by implementation and development of these management tools under Alternative C.

The overall effect on park operations would be long-term, moderate, and beneficial, largely due to the efficiency of providing services in hubs.

Cumulative Impacts

Continued growth and development in the area surrounding the park will result in an increased demand for greenspace and a subsequent increase in visitor use. Increased visitor use would, in turn, result in increased pressure on the park to provide more educational and interpretive programs as well as more facilitated forms of recreation. In addition, a regional trend in increased local and county park planning and greenspace initiatives will result in a greater emphasis on trail connectivity, which would require an increased level of partnering with the National Park Service.

The operational efficiency of Alternative C would be well suited to meet increased regional demands for increased park facilities and more educational and interpretive programs. When compared to Alternative A, a hub system would allow park staff to interact with the largest amount of park visitors with the least amount of effort or resources due to centralization of personnel resources. Also, additional staff proposed under Alternative C would allow increased partnering and cooperation with local governments and private organizations without added strain to operations. When the beneficial and adverse effects of other past, ongoing, and future plans, projects, and activities affecting park operations are combined with actions under Alternative C, the resulting cumulative effects would be long-term, moderate, and beneficial.

Impacts of Alternative D

When compared to Alternative A, a greater amount of new facility and trail development and operation would be permissible under Alternative D. The required environmental assessments for such projects as well as implementation of mitigative measures would increase the workload for park staff. Additional maintenance would also be required for operation of new trails and facilities. Facilities would be dispersed throughout the park requiring a greater operational effort when compared to a centralized hub system. In addition, park access would be expanded which would requiring additional enforcement. Education and outreach programs, resource monitoring, and cooperative efforts and partnerships would also be expanded which would increase staff workload. Increased staffing proposed under Alternative D would be beneficial to help offset increased workloads, however.

Common to all of the action alternatives is the recommended development and implementation of the studies and plans outlined in Chapter 5. This would include, but not necessarily be limited to, a resource stewardship strategy, an integrated trail system study, a collections management plan, flow studies, a commercial services plan, a comprehensive interpretive plan, and an easement study. While the implementation of these plans and studies would aid in the efficiency of park operations, there would be adverse effects related to the level of effort and staff required to develop these plans. A staff increase of twenty to twenty-two staff (full time equivalents) to be phased in over the life of this general management plan (typically twenty years) would be proposed under Alternative D, which is greatest staffing increase proposed. Thus, park operations would have the least amount of strain imposed by implementation and development of these management tools under Alternative D.

The overall effect on park operations under Alternative D would be long-term, negligible, and adverse, largely due to the operational requirements to support new trail and facility construction and overall increased access throughout the park.

Cumulative Impacts

Continued growth and development in the area surrounding the park will result in an increased demand for greenspace and a subsequent increase in visitor use. Increased visitor use would, in turn, result in increased pressure on the park to provide more educational and interpretive programs as well as more facilitated forms of recreation. In addition, a regional trend in increased local and county park planning and greenspace initiatives will result in a greater emphasis on trail connectivity, which would require an increased level of partnering with the National Park Service.

Alternative D would be well suited to meet increased regional demands for increased park facilities and more educational and interpretive programs. However, the dispersed nature of such facilities and programs would require a greater operational effort when compared to Alternative A or a centralized hub system. Dispersed access and facilities would also require ranger presence to be more dispersed. However, operational strain would be offset by additional staff proposed under Alternative D. Additional staff would allow increased partnering and cooperation with local governments and private organizations. When the beneficial and adverse effects of other past, ongoing, and future plans, projects, and activities affecting park operations are combined with actions under Alternative D, the resulting cumulative effects would be long-term, negligible, and adverse.

Conclusions

The overall direct and cumulative effects on park operations under Alternative D would be long-term, negligible, and adverse, largely due to the operational strain imposed by new trail and facility construction and the dispersed nature of visitor facilities and requirements to support access throughout the park.

Impacts of Alternative E

Effects would be similar to Alternative D; however, a lesser amount of facility development would be appropriate under Alternative E and the overall effect would be less adverse resulting in a long-term, negligible, beneficial effect on park operations. Cumulative effects would be the same as those described for Alternative D.

Impacts of Alternative F, the Preferred Alternative

The same effects as those described under Alternative E are applicable to Alternative F.

SUSTAINABILITY AND LONG-TERM MANAGEMENT

The National Environmental Policy Act (sec. 101 (b)), and the National Park Service Organic Act require an assessment of the potential of each alternative to produce long-term effects and the potential of foreclosing future options that are available to the National Park Service with regard to managing each park. An alternative is required to allow for sustainable development, which is defined as an action that meets the needs of the present without compromising the ability of future generations to meet their needs (*World Commission on Environment and Development* in National Park Service 2001(a). This section addresses the following three components of the sustainability assessment for each of the alternatives.

The Relationship Between Local Short-Term Uses of The Environment and The Maintenance And Enhancement of Long-Term Productivity - National Environmental Policy Act sec. 102 (c) (iv))

Alternative A

Existing problems related to growth in the surrounding urban and suburban area and watershed are likely to continue with the growth in population, putting additional pressures on the natural and cultural resources in the park. As demand for visitor use and recreation in the park grows, the long-term protection and enjoyment of park resources could be jeopardized. The continuation of existing visitor uses could jeopardize the long-term productivity of the environment. Sedimentation and erosion (primarily from development activity outside the park), if left unchecked, could have continued adverse effects on aquatic, and terrestrial natural resources.

Alternatives B, C, D, E, and F

Existing problems related to growth in the surrounding urban and suburban area and watershed are likely to continue with the growth in population, putting additional pressures on the natural and cultural resources in the park. As demand for recreation in the park grows, the long-term protection and enjoyment of park resources could be jeopardized. Despite implementation of a management strategy to provide more comprehensive protection of cultural and natural resources, there would likely continue to be instances where resources are disturbed by visitors. These impacts would be avoidable only if human use were not allowed in the park. Mitigation measures would be taken where possible to reduce these impacts. Improving the management of natural and cultural resources, along with enhancing research and education activities within the park, and establishing public/private partnerships would contribute to the long-term protection and preservation of resources. Increased coordination with local agencies, organizations, and other cooperative initiatives for resource and use management would further enhance resource protection and preservation. The development of new facilities would support the National Park Service mission while avoiding adverse cumulative impacts to ecosystems or resources. Short-term degradation of local water quality during construction projects would largely be prevented by best management practices. Short-term localized soil erosion (largely prevented by best management practices) and degradation of plant communities along trail construction corridors would be offset by long-term reductions in soil erosion resulting from the repair or realignment of poorly designed or damaged trails.

Any Irreversible or Irretrievable Commitments of Resources That Would be Involved if the Alternative Were Implemented - National Environmental Policy Act (Sec. 102(c) (v))

The National Environmental Policy Act and the National Park Service define irreversible effects as those effects that cannot be changed over the long term or are permanent (National Park Service 2001b). An effect to a resource is irreversible if the resource cannot be reclaimed, restored, or otherwise returned to its condition before the disturbance. An irretrievable commitment of resources refers to the effects to resources that, once gone, cannot be replaced.

Alternative A

There would be a potential for irreversible or irretrievable commitments of cultural resources under Alternative A. These losses could occur because of the lack of data and resources to implement a comprehensive program for cultural resource identification, preservation and protection. In addition, limited amounts of nonrenewable resources would be used for construction projects and park operations, including energy and materials. These resources would be irretrievable once they were committed.

Alternatives B, C, D, E, and F

There would be a potential for irreversible or irretrievable commitments of cultural resources under Alternatives B, C, D, E, an F. The implementation of a management strategy to provide comprehensive protection of cultural resources along with other natural resource protection measures would further reduce but not entirely eliminate the risk that visitors might disturb these resources. In addition, limited amounts of nonrenewable resources would be used for construction of projects and park operations, including energy and materials. These resources would be irretrievable once they were committed.

Any Adverse Impacts That Could Not Be Avoided If the Action Were Implemented– National Environmental Policy Act (sec. 101(c) (ii))

The National Environmental Policy Act and the National Park Service define adverse impacts as those that cannot be fully mitigated or avoided. Where construction activities could potentially disturb cultural resource sites, data recovery and conservation efforts would partly mitigate impacts. However, the disturbance could result in some irretrievable and irreversible loss of archeological resources.

Alternative A

There would be unavoidable adverse effects on natural and cultural resources under Alternative A as a result of the increasing development outside the park. Increased sedimentation and erosion from activities outside the park would continue to degrade water quality and riparian corridors in the park. Mitigation measures would be taken, where park staffing and funding resources allowed, minimizing or reducing these effects. Increased visitation rates would also have the potential to reduce future availability and access to some types of visitor uses and opportunities in certain areas during peak visitation periods because no additional facilities would be provided under Alternative A. This could result in adverse effects on the quality of the visitor experience.

Alternative B

There would be unavoidable adverse effects on natural and cultural resources under Alternative B as a result of the increasing development outside the park. With limited resources, these would tax the park staff's ability to effectively carry out resource protection measures. Mitigation measures would be taken, where resources allow, to reduce these effects. An increase in visitation would have the potential to reduce access to some activities and areas during peak visitation periods because few additional facilities would be provided under Alternative B. This could result in adverse effects on visitor experience and community values. In addition to the above unavoidable impacts, staff increases would require additional operational funding.

Alternative C

There would be unavoidable adverse impacts on natural and cultural resources under Alternative C as a result of the increasing development outside the park that, with limited resources, tax the park staff's ability to effectively carry out resource protection measures. Mitigation measures would be taken, where resources allow, minimizing these impacts. In addition to the above unavoidable impacts, staff increases would require additional operational funding. Centralization of staff resources would be an effective means of making visitor contact and increasing the staff's ability to carry out resource protection measures.

Alternatives D, E, and F

There would be unavoidable adverse impacts on natural and cultural resources under Alternative D as a result of the increasing development outside the park that, with limited resources, tax the park staff's ability to effectively carry out resource protection measures. Mitigation measures would be taken, where resources allow, reducing these impacts. In addition to the above unavoidable impacts, staff increases and increased facility support would require additional operational funding.