The Falls

4. ENVIRONMENTAL CONSEQUENCES

Introduction

General Methodology for Analyzing Impacts

In accordance with the Council on Environmental Quality (CEQ) regulations, direct, indirect and cumulative impacts are described (40 CFR 1502.16) and the impacts are discussed in terms of their intensity in the context of the resource (40 CFR 1508.27). Where appropriate, mitigating measures for adverse impacts are also described and incorporated into the evaluation of impacts. The specific methods used to assess impacts for each resource may vary; therefore, these methodologies are described under each impact topic.

Type of Impact

The types of impacts discussed in this GMP/EA include the following:

Direct: Impacts that would occur as a result of the proposed action at the same time and place of implementation (40 CFR 1508.8).

Indirect: Impacts that would occur as a result of the proposed action but later in time or farther in distance from the action (40 CFR 1508.8).

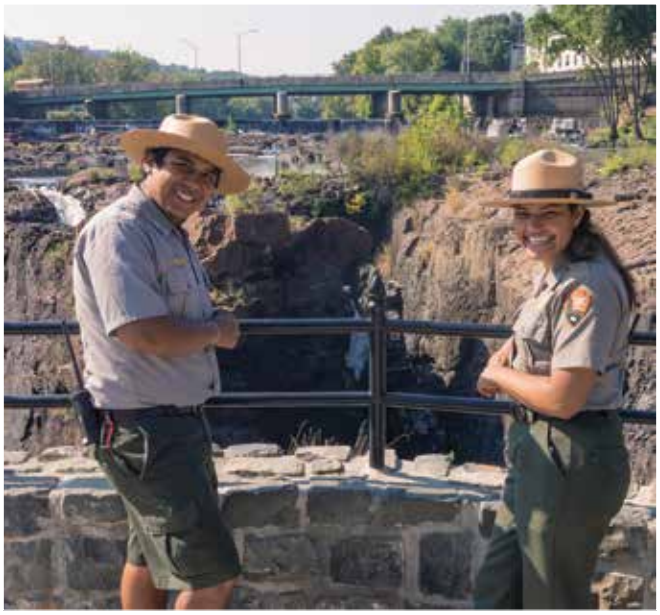
Cumulative: Defined as "the impact on the environment which results from the incremental impact of the action when added to other past, current and reasonably foreseeablefuture actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7).

Adverse: An impact that causes an unfavorable result to the resource when compared to the existing conditions.

Beneficial: An impact that would result in a positive change to the resource when compared to the existing conditions.

Cumulative Impact Analysis Methodology

Other actions in the surrounding area were identified that, although unrelated to Paterson NHP's GMP, may have impacts on the same resources or values, resulting in an additive (cumulative) effect when considered in combination with the impacts of the alternatives in this plan. Cumulative impacts were then determined by generally assessing the impacts of those other actions and combining those impacts with the impacts of the alternatives to estimate an overall cumulative impact and identify the contribution of the alternative.



The following list of plans and projects, which were described in the "Related Plans and Projects" section of chapter 1, were identified as contributing to cumulative impacts in combination with the impacts of the alternatives evaluated in this GMP/EA:

- **The Levine Reservoir Containment Project** has the potential to contribute cumulative impacts to cultural landscapes, historic structures, water resources, and visitor use and experience.

Assessing Impacts Using CEQ Criteria

The conclusion section at the end of each impact analysis contains a discussion of the relative importance of the impacts of the alternatives in terms of the intensity of the impact in the context of the resource, according to the definitions found in the CEQ regulations (40 CFR 1508.27):

(a) **Context**—This means that the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance would usually depend upon the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant.

Context provides comparative or surrounding information to help give impacts meaning. Context can be resource-specific; for example, the size or distribution of a population(local, regional, global); the uniqueness of the resource; the number of affected individuals; agency mandates; duration of the impact (permanent or temporary) and more.

There can also be overall context that applies to all affected resources. The NPS is an agency with a "conservation" mandate and identifies fundamental resources and values in its general management plans, defined as those resources or values that are critical to achieving a park's purpose or maintaining its significance. These resources and values collectively capture the essence of the park and provide overall context for evaluating the relative severity of an impact; e.g., the degree to which an alternative would help or hurt these resources would be important in assessing the relative importance of the impacts of that alternative. The fundamental resources identified for Paterson NHP, described in chapter 1 of this GMP/EA, and how they shape the park's purpose and significance, provide overall context for discussing the impacts of the alternatives. In addition, resource-specific context is presented in the "Methods" section under each resource topic and applies across all alternatives.

(b) **Intensity**—This refers to the severity of impact. Responsible officials must bear in mind that more than one agency may make decisions about partial aspects of a major action. The following should be considered in evaluating intensity:

(1) Impacts that may be both beneficial and adverse. A significant effect may exist even if the federal agency believes that on balance the effect would be beneficial.

(2) The degree to which the proposed action affects public health or safety.

(3) Unique characteristics of the geographic area such as proximity to historic or cultural resources, parklands, prime farmlands, wetland, wild and scenic rivers, or ecologically critical areas.

(4) The degree to which the effects on the quality of the human environment are likely to be highly controversial.

(5) The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.

(6) The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.

(7) Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.

(8) The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register

of Historic Places or may cause loss or destruction of significant scientific, cultural or historical resources.

(9) The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.

(10) Whether the action threatens a violation of federal, state, or local law or requirements imposed for the protection of the environment.

Intensity of the impacts is discussed by considering the relevant factors from the list under CEQ definition item b, "Intensity," above. Intensity factors that do not apply to a given resource topic and/or alternative are not discussed.

Junior Rangers

Impacts on Cultural Resources

The NPS is charged with management and protection of cultural resources through a variety of guidance documents, policy, and legislation followed by NPS managers to avoid or minimize, to the greatest degree practicable, adverse impacts on park resources and values. Cultural resources are nonrenewable and adverse impacts can consume, diminish, or destroy these resources in such a way that they cannot be recovered. In addition to NEPA, for which this document has been prepared, the primary regulatory and policy framework for cultural resources managed by the NPS includes the following:

Director's Order 28: Cultural Resources Management Guidelines (NPS 1998a) is the fundamental guidance document for the management of cultural resources in the national park system and contains park management standards and other requirements for cultural resources.

Director's Order 28A: Archeology (NPS 1998b) provides a common management framework for planning, reviewing, and undertaking archeological activities and other activities that may affect archeological resources in the national park system.

NPS Management Policies (NPS 2006b) outlines NPS management policies for cultural resources including the identification and evaluation of cultural resources, the integration of this information in planning and decision making, and the stewardship to ensure that cultural resources are preserved and protected.

Executive Order 11593, "Protection and Enhancement of the Cultural Environment," requires federal agencies to support the preservation of cultural properties they manage and to direct their policies, plans, and programs in such a way that federally owned sites, structures, and objects of historical, architectural, or archeological significance are preserved, restored, and maintained. Agencies are required to locate, inventory, and nominate all properties under their jurisdiction or control that appear to qualify for listing in the National Register. It also directs agencies to reconsider any plans to transfer, sell, demolish, or substantially alter any property determined to be eligible for the National

Register and to afford the Advisory Council on Historic Preservation an opportunity to comment on any such proposal.

The Archaeological Resources Protection Act of 1979 complements requirements of the Antiquities Act through the strengthening of the permitting process for conducting archeological fieldwork on federal and Indian lands, establishing more rigorous fines/ penalties for unauthorized excavation on and removal of resources from federal and Indian lands, and prohibiting public disclosure of the nature and location of archeological resources on federal and Indian lands.

Cultural Landscapes

Preliminary evaluations of Paterson NHP describe the cultural landscape as a component of the larger NHL Historic District. No formal cultural landscape inventory or National Register nomination has been completed for the park to identify its significance and contributing features. Therefore, the National Register nomination for the NHL District (completed in 1976) will provide the basis for analysis of the park cultural landscape. A preliminary cultural resource study undertaken by the NPS in 2012 will be used to supplement the National Register nomination information for the analysis of impacts.
The resource-specific context for assessing the impacts of the alternatives includes the following:

- The degree to which the integrity of the cultural landscape containing fundamental resources—those vital to the park's purpose and significance—is retained as the plan is implemented.
- The degree to which the proposed management of cultural landscapes complies with the park's enabling legislation by providing for appropriate programs for preservation and interpretation of important cultural resources.
- The ability of a cultural landscape to continue to represent and convey historical events and themes determined to be fundamental to Paterson NHP—these themes are related primarily to the industrial history of Paterson.

Alternative A: Establishing a New National Park (No Action Alternative)

Impacts of Alternative A (Cultural Landscapes)
Under alternative A, the NPS would continue to manage the cultural landscape using existing policy and guidelines, including NPS Management Policies (NPS 2006b). The current condition of the cultural landscape would continue to be researched and the history of the site analyzed.

The stabilization of the former ATP site's river wall would result in beneficial impacts to cultural landscapes as the river wall is a predominant landscape feature of landscape and NHL District. Stabilization of the wall would return the wall to a state more closely resembling its historic appearance, would help to preserve the remaining character-defining features of the wall, and would bolster the stability of the associated landscape which it currently retains.

Construction of a walkway along the top of the river wall would result in both beneficial and adverse impacts. Beneficial impacts would result from the removal of overgrown and invasive vegetation which would open up historic viewsheds and prevent future deterioration of the river wall and some of the remaining mill foundations. Construction of the walkway, however, could potentially result in removal or alteration of other mill foundations or ruins. These foundations and ruins are generally considered to be in poor to very poor condition and have undergone previous historic documentation. While still considered an adverse impact, documentation of the resources would assist in mitigating adverse impacts and removal of unstable ruins would eliminate current safety concerns and allow greater public access to those areas of the former ATP site.

The remainder of the former ATP site would remain gated and blocked off from visitor access. Overgrown vegetation would continue to impact the viewsheds within the park and cause further damage to historic structures as roots pull foundations apart. The lack of vegetation control, along with the potential for continued vandalism and deterioration from lack of structural maintenance, would result in adverse impacts to the cultural landscape.

Other areas of Paterson NHP, such as Overlook Park, Valley of the Rocks and areas surrounding the raceway system, would continue to be managed as they are. Underused and deteriorated elements of the landscape, such as the S.U.M. Steam Plan Foundation and the raceway system would continue to detract from the landscape and differ greatly from their historic appearances resulting in adverse impacts. Additional adverse impacts associated with overgrown vegetation, litter, and graffiti in underutilized areas of the park, such as Upper Raceway Park, would continue, but partnership efforts to clean and maintain these areas would help to minimize the adverse impacts. Unchecked vegetation growth throughout the park would continue to adversely impact on the cultural landscape as key views that are an essential part of the cultural landscape would remain obstructed.

The NPS would continue to provide technical assistance to, and work with, property owners and the city of Paterson to encourage protection and preservation of the cultural landscape. These cooperative efforts, if successful, would result in beneficial impacts to cultural landscape. Minor aesthetic improvements, such as regular cleaning of statues and painting, would improve the appearance of the cultural landscape. This baseline management and preservation would help to lessen further deterioration or loss of elements of the landscape, but elements in disrepair, would continue to detract from the historic appearance of cultural landscape.

The partial rehabilitation of Hinchliffe Stadium would have beneficial impacts on the cultural landscape due to the stabilization of the historic structure. Although outside the boundary of the NHL District, the stadium is a major component of the viewshed and rehabilitation of the stadium's façade would help to return its appearance to its historic condition, thereby improving the appearance of the viewshed.

Cumulative Impacts

Past, present and reasonably foreseeable projects and activities that have had or could have adverse cumulative impacts on the cultural landscapes at Paterson NHP include the Levine Reservoir containment project. The Levine Reservoir containment project would result in the construction of two above-ground water tanks to replace the existing in-ground open water containment system. The circa 1885 reservoir is considered to be a contributing feature to the NHL District. Its removal would alter the historic appearance of the cultural landscape and the new, above-ground tanks could create a visual distraction, changing the character of the viewshed. The SHPO recommended mitigation through the use of documentation, sensitive design, and additional vegetative screening. The adverse impacts resulting from changes to the character-defining features of the NHL District could be reduced if those mitigation measures are implemented.

The loss of a contributing resource to the NHL District would result in an overall adverse impact from these past, present, and reasonably foreseeable future actions. When combining the impacts of the reservoir project with the impacts of alternative A, the cumulative impact would be adverse. Alternative A would contribute an adverse increment to the cumulative impact on cultural landscapes.

Conclusion

Alternative A, overall, would result in both adverse and beneficial impacts to cultural landscapes. Adverse impacts would primarily be the result of a lack of overarching cultural landscape management planning ongoing deterioration of elements of the cultural landscape from overgrown vegetation, lack of use, vandalism, and a lack of regular maintenance. The adverse impacts would continue to distort the appearance of the cultural landscape, but the park would continue to work with partners to ensure that fundamental resources of the landscape are preserved and documented. Beneficial impacts would primarily result from stabilization of the river wall along the former ATP site and partial rehabilitation of Hinchliffe Stadium. These beneficial impacts would help to preserve fundamental resources associated with the landscape, but would not be expected to greatly improve the condition of the overall cultural landscape. These impacts would not threaten the integrity of the cultural landscape or the ability of the park to convey its historical significance. Technical assistance and cooperation between the NPS and its partners would continue to provide an appropriate level of programming to convey the significance of, and importance of protecting, the park's cultural resources.

Alternative B: Landscape Exploration

Impacts of Alternative B (Cultural Landscapes)

Under this alternative, the park's cultural landscape would be rehabilitated for visitor use, recreation, and interpretation. As with alternative A, beneficial impacts would result from the continued technical assistance support the NPS would provide to the city of Paterson and other land holders within the park.

Beneficial impacts associated with stabilization of the ATP river wall under alternative B would be the same as described under alternative A above. Alternative B would have additional beneficial impacts through improvements to the Scenic Falls and River Area would include repairing deteriorating landscape features, such as parking lots, sidewalks, and historic structures. Alternative B would include the removal of hazardous and particularly dilapidated ruins and industrial objects, especially in the ATP site in order to improve visitor safety; however, this would also result in some adverse impacts from removal of some historic materials and elements of the landscape. In the long term, the fundamental resources of the cultural landscape would be preserved and enhanced due to improved maintenance and visitor access, clearing of historically significant views, and removal of overgrown vegetation, resulting in beneficial impacts.

Proposed actions affecting contributing resources to the historic districts within the urban cultural landscape would generally involve studies and investigations that would provide additional material for public education and interpretation, increasing awareness and appreciation of the historic district resources, and support for their preservation. These actions would result in beneficial impacts to the cultural landscape through public education on the importance of those resources. Under this alternative, the rehabilitation of historic pathways and other site circulation systems for visitor access would result in beneficial impacts to the cultural landscape due to the stabilization and rehabilitation of these features resulting in an improved appearance. The addition of limited new pedestrian circulation routes in the Valley of Rocks and ATP site could result in temporary adverse impacts due to alteration of the existing historic landscape during construction of the new circulation, such as possible removal of historic materials along the alignment of the new paths. However, some of the adverse impact of this action would be offset by the beneficial impacts resulting from improved access such as opening up historical views, and providing additional access for maintenance and stabilization of fundamental cultural landscape elements.

Under this alternative, the stabilization of ruins for preservation without additional rehabilitation for new uses would result in a negligible adverse impact on the cultural landscape, as some hazardous materials mitigation would likely be required. Hazardous materials mitigation required for visitor use of the landscape would result in temporary adverse impacts to the cultural landscape as historic materials such as industrial objects and ruins could be disturbed and/or may require removal for safety reasons. Following remediation, some adverse impacts could remain due to the removal of historic materials for safety reason, but improved conditions of remaining historic resources in the landscape would be a beneficial impact.

Vegetation management in this alternative would be undertaken to enhance and open views of the Passaic River, Great Falls, the industrial landscape of the city, and historic structures, resulting in beneficial impacts to the cultural landscape, as the existing vegetation is largely non-contributing to the historic character of the landscape. Under this alternative, the raceway features would be preserved and potentially reused for compatible uses; components of the raceways may be restored and re-watered for interpretation or other uses such as flood control and storm water management. It is possible that this new use of the raceways could have adverse impacts including increased chances of damage and wear to the raceways' historic materials. Rehabilitation would be anticipated to result in adverse impacts to the cultural landscape due to removal of historic material or other alterations to the raceways and surrounding landscape to accommodate re-watering or alternative uses. Beneficial impacts would occur as well, such as the return of a use closer to the original function of the raceways and the improvement of storm water management in the landscape, allowing better water management to prevent damage to the landscape and structures from flooding.

Cumulative Impacts

Past, present and reasonably foreseeable projects and activities would have adverse impacts on cultural landscapes as described under alternative A. It is believed that the management actions proposed under alternative B would contribute a beneficial increment to the overall cumulative impact, offsetting the adverse impacts of these other projects. When the impacts on cultural landscapes as a result of alternative B are combined with other projects in the study area, beneficial cumulative impacts would be expected.

Conclusion

Actions proposed under alternative B have the potential to result in adverse and beneficial impacts for cultural landscapes. Adverse impacts are possible due to the hazardous materials mitigation, demolition of ruins, and addition of non-historic features to the landscape to support new visitor uses. Implementation of mitigation measures for actions that have the potential to cause adverse impacts would likely result in a lessening of the degree of impact on cultural landscapes. Beneficial impacts include the creation over the long term of a landscape that more closely resembles its historic character and conveys the park's themes. Beneficial impacts would occur due to the opening up to visitors of currently closed areas and views following remediation, stabilization and rehabilitation of fundamental landscape resources, and improved maintenance of these resources over the long term. Beneficial impacts from the alternative, coupled with mitigation measures, would also help offset adverse impacts. Alternative B would improve the park's ability to interpret and protect the park's cultural landscape by preserving more of its character-defining features and improving the overall condition of the historical landscape. Preservation and rehabilitation efforts would increase the ability of the cultural landscape to convey its significance and provide visitors with a better understanding of the connections between the Passaic River and the industrial history of Paterson.

Alternative C: Industrial Heritage Immersion

Impacts of Alternative C (Cultural Landscapes)

This alternative's focus on an immersive visitor experience would result in a more intensive program of rehabilitation for use of fundamental cultural landscape features than other alternatives. More buildings and ruins would be rehabilitated for visitor access, with vegetation cleared and significant views re-established. The more intensive focus on access and use of structures, including the Colt Gun Mill, Ivanhoe Wheelhouse, S.U.M Building, and various ruins on the ATP site would emphasize the built landscape and its context.

Impacts to the cultural landscape from the addition of new pathways and vegetation removal would be similar to, but greater than, those described in alternative B above. Differing from alternative B, on the ATP site, stabilization and rehabilitation of historic structures and ruins for visitor access and new uses would be anticipated to result in adverse impacts during stabilization and soil remediation efforts. Actions to undertake increased visitor access under this alternative could also result in permanent adverse impacts on the cultural landscape, as additional non-historic features would need to be introduced to support visitor use, accessibility, utilities, and other requirements for reuse. Hazardous materials mitigation required for visitor use of the landscape and structures would be more intensive under this alternative, and could result in adverse impacts to the cultural landscape as contaminated soil and industrial objects may require removal for safety reasons.

Under alternative C, raceway features would be preserved and potentially reused for compatible uses as described above in alternative B. In alternative C, however, additional elements of the raceway system would be rehabilitated and re-watered, resulting in additional beneficial impacts from preserving additional historical material than under alternative B. The actions would also be anticipated to result in additional adverse impacts to the cultural landscape due to possible alterations needed to accommodate re-watering or alternative uses of the raceways and surrounding landscape. More of the historic materials would be preserved in alternative C with less risk of damage from re-watering, but at the same time, using less of

the system for uses such as storm water management could result in less effective management of the current flooding problems, which are expected to increase in frequency and severity due to global warming, meaning higher potential for damage in the future.

Cumulative Impacts

Past, present and reasonably foreseeable projects and activities could have adverse cumulative impacts on cultural landscapes as described under alternative A. It is believed that the management actions proposed under alternative C would contribute noticeable beneficial increments to impacts on cultural landscapes. When the impacts on cultural landscapes as a result of alternative C are combined with other projects in the study area, beneficial cumulative impacts would be expected. Alternative C would contribute a beneficial increment to the overall cumulative impact.

Conclusion

Actions proposed under alternative C have the potential to result in both adverse and beneficial impacts for cultural landscapes similar to those described for alternative B above, but slightly greater due to the increased scope of actions needed to support greater visitor access to the historic industrial landscape.

Alternative C would be expected to result in adverse impacts (addition of non-historic features to support access in the landscape and to rehabilitated structures; disturbance due to hazardous materials removal) and beneficial impacts (long-range planning for preservation; vegetation removal and enhanced access to support significant views). Beneficial impacts include the creation over the long term of a landscape that more closely resembles its historic character and conveys the park's themes.

Beneficial impacts from the alternative, coupled with mitigation measures, would help offset adverse impacts. Potential impacts on cultural landscapes would be expected to be greater in this alternative than under the no action alternative or alternative B. The proposed actions under alternative C would promote protection of the park's fundamental resources to a greater degree than under alternative A and would allow visitors the opportunity to more fully understand the historical themes and events which are fundamental to the park.

Historic Structures

The historic structures at Paterson NHP are fundamental resources of the park. Information on Paterson NHP's historic structures was obtained through the review of historic district nomination forms, determination of eligibility documentation, landmark designation documentation, technical assistance reports, and general Paterson history overview documents.

The resource-specific context for assessing the impacts of the alternatives includes the following:

- The degree to which the National Register significance and integrity of historic structures that are considered fundamental resources—those vital to the national historical park's purpose and significance—is retained as the plan is implemented.
- The ability of historic structures to continue to represent and convey historical events and themes determined to be important to Paterson NHP—these themes are related primarily to the establishment of Paterson as a planned industrial city and the innovation which led to the city's success.
- The degree to which the proposed management of historic structures complies with the park's enabling legislation by providing for appropriate programs for the preservation, interpretation, and use of historic structures.

Alternative A: Establishing a New National Park (No Action Alternative)

Impacts of Alternative A (Historic Structures)

Under this alternative, decisions impacting historic structures would continue to be based on existing conditions and available information, but would, in general, continue to lack a comprehensive planning framework. The NPS would continue to provide technical assistance to, and work with, the city of Paterson and other land holders within the park's boundary to encourage protection and preservation of the exteriors of the park's fundamental historic structures, including the historic raceway system. In addition, the NPS would continue to work with others to document and research the park's historic structures to guide management

decisions. These cooperative efforts, if successful, would result in beneficial impacts to historic structures as the NPS works with others to promote preservation and rehabilitation of the documented exterior architectural values of the historic structures, as well as adaptive use of their interior spaces, in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties.

Historic structures that remain vacant or non-functioning, such as the S.U.M Steam Plant and the raceway system, could suffer a loss of historic fabric from vandalism, vegetative overgrowth, or deterioration from lack of maintenance, thus affecting their integrity and condition. Some of these adverse impacts would be minimized through regularly scheduled partner programs for "clean-up" of these areas.

Stabilization of the former ATP site's river wall would result in beneficial impacts to historic structures as that character-defining feature of the historic ATP mills would be preserved. In addition, stabilization of the wall would bolster the stability of the associated structures and ruins in which the wall supports resulting in beneficial impacts to historic structures which could be lost if the wall were to fail and collapse into the Passaic River. During stabilization construction, however, there could be adverse impacts to historic structures if structural stabilization requires removal or some or all portions of the mill foundations. The adverse impact associated with the damage or loss of historic fabric would be mitigated through additional documentation of the former ATP mill structures.

While stabilization of the river wall would require some removal of vegetation within the construction area, much of the remainder of the former ATP site would remain overgrown and gated off. As a result, the historic structures and ruins on the site would be expected to continue to deteriorate and lose integrity from continued vandalism and vegetation overgrowth that could damage historic structures, resulting in adverse impacts.

The partial rehabilitation of Hinchliffe Stadium would have a beneficial impact to historic structures. Rehabilitation of the stadium's façade would help to return its appearance to its historic condition and stabilize deteriorating features. Potentially opening the structure to the public for special events could lead to some damage to its contributing features, but this adverse impact would be mitigated through the park's and partner's efforts to educated the public and users of the site on the historical importance of the stadium.

Cumulative Impacts

Past, present and reasonably foreseeable projects and activities that have had or could have adverse cumulative impacts on the historic structures include the Levine Reservoir containment project. The Levine Reservoir containment project would result in the construction of two above-ground water tanks to replace the existing in-ground open water containment system. The circa 1885 reservoir is considered to be a contributing feature to the NHL District. Its containment would alter the historic appearance of the historic structure. The SHPO recommended mitigation through the use of documentation and sensitive design. The adverse impacts resulting from containment of the historic structure could be reduced if those mitigation measures are implemented.

The loss of the historic structure would result in an overall adverse impact. When combining the impacts of these projects with the impacts of alternative A, the cumulative impact would be adverse. Alternative A would contribute an adverse increment to the overall cumulative impact on historic structures.

Conclusion

Under alternative A, indirect adverse impacts (lack of overarching and resource management planning, leading to potential incremental deterioration of historic structures) and small direct adverse impacts as well as beneficial impacts (continued resource protection and mitigation) on historic structures would be expected. Beneficial impacts include the stabilization of fundamental historic structures and their continuing treatment based on appropriate historic preservation guidelines.

Adverse impacts on historic structures under alternative A would be expected to be slightly less than under the action alternatives in the short term due to fewer demo-

lition and construction activities, but greater in the long term due to incremental loss and deterioration resulting from a lack of overarching planning and prioritization. The impacts of alternative A on historic structures would be adverse, because loss would be expected to occur to fundamental resources such as the raceways and ATP site structures based on a lack of planned treatment. This adverse impact would be somewhat offset by mitigation actions as well as by beneficial impacts under this alternative. These adverse impacts, however, would not lead to the loss of integrity of key fundamental park resources and the park and its partners would continue to be able to provide interpretive programing for park visitors.

Alternative B: Landscape Exploration

Impacts of Alternative B (Historic Structures)

In addition to the Hinchliffe Stadium rehabilitation project described under alternative A, alternative B would stabilize and preserve additional fundamental historic structures within the park. Environmental remediation activities associated with stabilization of historic structures would likely result in both beneficial and adverse impacts to structures. In the short term, remediation could include removal or demolition of historic materials if they are found to be contaminated and a safety hazard. In the long term, remediation would enable the stabilization and rehabilitation of the historic structures and allow them to be accessed, resulting in increased options for their preservation. Rehabilitation of the Colt Gun Mill, Ivanhoe Wheelhouse, S.U.M. Buildings, and other fundamental historic structures would be preceded by survey and careful planning to avoid or lessen adverse impacts due to loss or damage of historic fabric during construction.

Rehabilitation of fundamental historic structures, along with the potential rehabilitation of other historic buildings and structures to accommodate programs such as community events or visitor education, is anticipated to result in beneficial impacts from the rehabilitation of these structures such as stabilization and repair, improved ability to maintain the structures, and new appropriate uses. There is also potential for adverse impacts: for example, during rehabilitation, historic fabric could be lost or destroyed, modifications needed for accessibility could alter the historic structures. The Secretary of the Interior's Standards for the Treatment of Historic Properties would be used to mitigate adverse impacts.

Under this alternative, raceway features would be preserved and potentially reused for compatible uses depending on results of further studies of feasibility and condition of the raceways. It is possible that some sections of the raceways could be restored and re-watered for interpretation or other uses such as flood control and storm water management. The actions would be anticipated to result in adverse impacts to the raceway features due to possible alterations needed to accommodate re-watering or alternative uses, which could result in the loss or replacement of historic materials, as well as continuing adverse impacts of water contact on the historic materials, resulting in increased likelihood of deterioration and increased need for maintenance and condition monitoring. There would likely be beneficial impacts resulting from rehabilitation including stabilization, repair, and preservation treatment of the raceway features. Climate change is likely to result in increased frequency and severity of flooding, which could result in increased potential for damage to the raceways if they are re-watered, resulting in adverse impacts, although this could be mitigated through rehabilitation methods that reinforce and stabilize the raceways in a way that accommodates the increased potential for flooding. In addition, the rehabilitation of the raceways would provide an opportunity to repair the current issues with flood waters leaking into the adjacent historic structures, which would result in beneficial impacts to historic structures.

In this alternative, the ATP site would be rehabilitated as a park-like setting, with many of the historic structures stabilized and preserved in their current state as ruins. These efforts would result in beneficial impacts to historic structures as the remaining historic fabric would be preserved and maintained. Remaining structures on the ATP site that are determined to be in poor condition or pose safety hazards would be demolished, resulting in an adverse impact on historic structures. However, thorough documentation of the historic structures prior to demolition would mitigate some of the adverse impacts.

Proposed treatment of historic structures under this alternative would be developed further based on planned studies and investigations that would provide additional material for public education and interpretation, increasing awareness and appreciation of the historic structures at Paterson NHP, support for their preservation, and resulting in beneficial impacts to historic structures. The implementation of mitigation measures would minimize adverse impacts.

Cumulative Impacts

Cumulative impacts associated with alternative B would be similar to those described under alternative A. The loss of historic Levine Reservoir would result in an overall adverse impact. When combining the impacts of this project with the impacts of alternative B, the cumulative impact would be beneficial. Alternative B would contribute a noticeable beneficial increment to the overall cumulative impact on historic structures as other fundamental structures within the park boundary are stabilized or preserved.

Conclusion

Actions proposed under alternative B have the potential to result in adverse and beneficial impacts to historic structures. Beneficial impacts are expected when historic structures are stabilized, preserved, and rehabilitated under the guidance of the Secretary of Interior's Standards. Direct and permanent adverse impacts are possible due to the demolition of structures. However, many of these structures are in ruinous or poor condition already, and so their thorough documentation and investigation prior to demolition would help to mitigate the adverse impacts of their removal. Implementation of these and other mitigation measures for actions that have the potential to cause adverse impacts would likely result in a lessening of the degree of impact on historic structures.

Alternative B would be expected to result in small and direct adverse impacts (selected removal of structures) and beneficial impacts (long-range planning for preservation; stabilization, preservation, and rehabilitation of structures). Beneficial impacts from the alternative, coupled with mitigation measures, would help offset adverse impacts because fundamental resources would be protected and would be better able to convey important themes of the park.

Alternative C: Industrial Heritage Immersion

Impacts of Alternative C (Historic Structures)

Alternative C includes the most intensive reuse of the park's historic structures for active visitor use, resulting in additional adverse and beneficial impacts. This alternative emphasizes the rehabilitation of park historic resources for new uses. In this alternative, the emphasis would be on retaining and stabilizing historic structures, such as the ruins on the ATP site, for interpretive activities and possible visitor access as well as related new uses where appropriate.

Historic structures would be adapted to provide visitors with a unique view into the industrial setting of Paterson in a safe and accessible manner. The exteriors of historic structures would be preserved to the extent possible to maintain the historic scene, while building interiors are rehabilitated for visitor use, concessions, and interpretation. Modifications to the Colt Gun Mill, S.U.M. Building, Ivanhoe Wheelhouse, ATP site ruins, and other structures to accommodate these compatible uses could involve removal of historic materials in the process, as well as addition of new features to support new uses and accessibility. These alterations have the potential to result in adverse impacts to the historic integrity and character of fundamental historic structures, both temporarily in the construction period and potentially over the long term. However, the actions would also be anticipated to result in beneficial impacts to historic structures due to the stabilization and rehabilitation of these resources, and the retention of the fundamental historic resources that support the historic district and the park.

Under alternative C, raceway features would be preserved, and the upper portion of the system would potentially be partially re-watered for interpretation or other uses such as flood control and storm water management. This alternative would limit the uses of the raceway system structures. The actions would be anticipated to result in adverse impacts to the raceway features due to possible alterations needed to accommodate re-watering or alternative uses, similar to the impacts noted under alternative B, but smaller in scope, affecting only the upper raceway area. There would be anticipated to be beneficial impacts resulting from rehabilitation and preservation treatment of the race-

way features, reducing the potential for damage from flooding and wear.

Cumulative Impacts

Cumulative impacts associated with alternative C would be similar to those described under alternative A. The loss of the historic Levine Reservoir would result in an overall adverse impact. When combining the impacts of this project with the impacts of alternative C, the cumulative impact would be beneficial. Alternative C would contribute a noticeable beneficial increment to the overall cumulative impact on historic structures through the preservation of the park's fundamental historic structures.

Conclusion

Actions proposed under alternative C include a more intensive program of rehabilitation for use of historic structures within the ATP site than other alternatives. These actions have the potential to result in adverse impacts during construction activity, similar to alternative B, and greater beneficial impacts than under alternatives A and B as more of the park's historic structures are stabilized or preserved. Beneficial impacts are expected when historic structures are stabilized, preserved, and rehabilitated for new uses under the guidance of the Secretary of Interior's Standards. Direct and permanent adverse impacts are possible due to the demolition of low-priority structures, and if adaptation for reuse is not completed in accordance with appropriate standards. However, implementation of mitigation measures for actions that have the potential to cause adverse impacts would likely result in a lessening of the degree of adverse impact on historic structures.

Beneficial impacts from the alternative, coupled with mitigation measures, would help offset adverse impacts. The park's historic structures would be stabilized and preserved to a larger extent under alternative C and would allow the NPS and its partners to appropriately preserve and interpret these park resources. Stabilization and rehabilitation efforts of these alternatives would also serve to protect the integrity of the fundamental historic structures and allow those structures to adequately represent their place within the historical context of the park.

Archeological Resources

Information on archeological resources was obtained through background research which included review of existing reports provided by Paterson NHP—archeological overviews and assessments, various archeological reports related to development projects, National Register nomination forms, and general historical background documents for the park. Potential impacts on in situ archeological resources are assessed based on the amount of disturbance a resource has experienced and the level of remaining integrity of the resource.

The resource-specific context for assessing the impacts of the alternatives includes the following:

- The ability to provide meaningful information to the park's archeological record and provide opportunities for archeological research; the archeological record for Paterson NHP is relatively incomplete—numerous archeological resources have been destroyed or covered over by historical landfilling, grading, and other land modifications.
- The degree to which the management of archeological resources complies with the park's enabling legislation by providing for appropriate programs for preservation and interpretation of certain historical and cultural resources.

Alternative A: Establishing a New National Park (No Action Alternative)

Impacts of Alternative A (Archeological Resources)

Throughout the NPS-managed areas within the legislative boundary of the park, resource protections related to existing legislation and NPS policies would continue for archeological sites. Decisions affecting archeological sites would continue to meet NPS policies for resource protection, but would lack a comprehensive planning framework. Archeological resources would continue to be managed in a piecemeal fashion which could lead to adverse impacts if unknown archeological resources are allowed to deteriorate or be otherwise disturbed in heavily used areas of the park.

Archeological resources and submerged cultural resources would remain in situ and undisturbed,

resulting in beneficial impacts. If archeological resources are threatened with loss from the effects of natural processes, human activities, preservation treatments, park operations, or development activities, those archeological items would be recovered, recorded, or otherwise preserved. Removal of archeological resources could result in some adverse impacts as they could be damaged during the removal process, but NPS policies and guidelines would be followed to reduce adverse impacts as much as possible.

Cooperating Partnerships remain the same in all alternatives. The NPS would continue to work with its partners to undertake required archeological study and monitoring to protect subsurface resources in the park and surrounding areas. The NPS would provide technical assistance regarding the preservation and interpretation of archeological resources in the Great Falls Historic District, and work with private and public landowners and with the city of Paterson and its partners to interpret known resources. Beneficial impacts would result from technical assistance and education efforts as landowners and visitors to the park could gain a better understanding on the importance of preserving and protecting the park's archeological resources.

In the short term, the ATP River Wall/River Walk project has the potential to result in adverse impacts to archeological resources as the ground is disturbed during construction, but these adverse impacts would be offset by careful pre-construction monitoring and investigation to preserve or record any archeological material found within the construction area. In the long term, stabilization of the River Wall/River Walk is anticipated to be beneficial to the preservation of archeological resources by stabilizing the river wall that retains the ATP site and protects nearby subsurface resources from erosion and flooding. Natural processes, such as erosion and flooding, along other unprotected areas of the river could contribute to the loss or destruction of archeological resources in the park, resulting in additional adverse impacts to a rcheological resources.

Cumulative Impacts

No other past, present, or reasonable foreseeable future projects were identified that have impacts on archeological resources; therefore, there are no cumulative impacts.

Conclusion

Under alternative A, indirect adverse impacts (lack of overarching resource management planning, leading to possible incremental deterioration of resources) and small direct adverse impacts (ground disturbance for individual projects) as well as beneficial impacts (continued resource protection and mitigation) on archeological resources would be expected. Adverse impacts on archeological resources under alternative A would be expected to be slightly less than under the action alternatives in the short term due to less demolition and construction activities, but greater in the long term due to incremental loss resulting from a lack of overarching planning and prioritization. The treatment of archeological resources under alternative A would still adhere to management policies in terms of preserving and interpreting the resources. Continued cooperative efforts with partners, specifically through pre-construction archeological investigations, would provide additional opportunities for archeological research and improve the park's archeological record.

Alternative B: Landscape Exploration

Impacts of Alternative B (Archeological Resources)

Under alternative B, stabilization of the ATP River Walk/River Wall would result in adverse and beneficial impacts as described under alternative A. In addition, the raceways and ATP site could undergo extensive stabilization and rehabilitation efforts which could impact archeological resources. The raceways could be preserved and re-watered which could require some excavation in addition to other ground-disturbing activities. Likewise, construction work at the ATP site could also require extensive ground-disturbing activities as contaminated soils are capped or removed, structures are stabilized, and unsafe structures and ruins are demolished. Pre-construction archeological surveys for both the raceways and ATP site would help to lessen the degree of adverse impacts to archeological resources in these areas, but some adverse impacts may still occur. Any archeological material found during construction would be appropriately stored and/or documented. If resources could not be avoided, an appropriate documentation strategy would be

employed. Additional beneficial impacts would also occur as a result of opening the ATP site to the public where it would be more accessible to access for security purposes, decreasing the opportunity for vandalism and theft as compared to alternative A.

Facility improvements at Overlook Park have the potential to adversely impact archeological resources as well as rehabilitation of the Ivanhoe Wheelhouse due to additional ground disturbance. Other ground-disturbing activities which could adversely impact archeological resources in the park would include vegetation removal and trail construction These activities would be preceded by survey and careful planning to avoid, or lessen, adverse impacts.

Archeological investigations completed before construction efforts under alternative B could also provide additional information and potential resources for public education and interpretation which could increase awareness and appreciation of the park's resources and promote their protection and preservation, resulting in beneficial impacts

Cumulative Impacts

No other past, present, or reasonable foreseeable future projects were identified that have impacts on archeological resources; therefore, there are no cumulative impacts.

Conclusion

Actions proposed under alternative B have the potential to result in adverse and beneficial impacts for archeological resources. Beneficial impacts are expected when archeological resources to remain undisturbed and adverse impacts could result from potential ground disturbance during construction, especially along the raceways and ATP site. Pre-construction surveys and implementation of mitigation measures for actions that have the potential to cause adverse impacts would likely result in a lessening of the degree of adverse impacts on archeological resources. Some beneficial impacts to archeological resources could be expected through preservation education as partners and visitors gain and better understanding and appreciation of the park's archeological resources.

Potential adverse impacts on archeological resources would be expected to be greater in this alternative than under the no action alternative. The additional archeological investigations required under the actions of alternative B, however, would provide the NPS and park partners an opportunity for expanding on existing archeological research and help to create an archeological record for the park. Any artifacts found could, in turn, provide additional historical and cultural resources to interpret.

Alternative C: Industrial Heritage Immersion

Impacts of Alternative C (Archeological Resources)

Stabilization of the ATP River Walk/River Wall would also occur under alternative C and would result in adverse and beneficial impacts as described under alternative A. Alternative C would also include extensive preservation and rehabilitation efforts for the raceway system and the ATP Site. Treatment of the ATP Site under alternative C would be similar to alternative B, but on a greater scale as more structures are rehabilitated for use which could lead to additional structural and utility construction as compared to alternative B. Treatment of the raceway system under alternative C would also result in similar adverse impacts as compared to alternative B, but on a larger scale as more of the system could be rehabilitated and re-watered under alternative C. Additional components of the raceway system, including dams, gates, and wheelhouses, could also be rehabilitated where feasible. The NPS and partners would rely on pre-construction archeological investigations and surveys to determine the extent and location of archeological materials. Archeological resources would be avoided where possible and carefully removed, recorded, and stored as described under Chapter 2 where resources cannot be avoided. These mitigation measures would serve to reduce adverse impacts associated with ground-disturbing activities along the raceway system and the ATP site. Additional beneficial impacts would result following rehabilitation of the ATP site as it is open to the public and more easily accessed for security purposes, both of which could lead to fewer incidents of vandalism and theft of remaining archeological resources.

Other actions under alternative C which could impact archeological resources include the preservation of the S.U.M. Administration Building and Steam Plant Foun-

dation as well as construction of new trails/paths and removal of vegetation where needed. Ground-disturbing adverse impacts to archeological resources under alternative C would be similar in scale and extent to alternative B and would be mitigated by pre-construction planning and archeological surveys (as described under alternative B above) to offset some of the adverse impacts.

As with alternative B, archeological investigations completed before construction efforts under alternative C could lead to additional research and information pertaining to the park's archeological resources and provide additional opportunities for public education and interpretation, increasing awareness and appreciation of the park's resources and helping to promote their protection and preservation. These actions have the potential to result in additional beneficial impacts.

Cumulative Impacts

No other past, present, or reasonable foreseeable future projects were identified that have impacts on archeological resources; therefore, there are no cumulative impacts.

Conclusion

Alternative C would result in both adverse and beneficial impacts to archeological resources. Adverse impacts under alternative C would result primarily from ground-disturbing construction related to the raceway system rehabilitation efforts and rehabilitation of the ATP site. Adverse impacts from these actions would be similar to those under alternative B, but to a larger degree under alternative C as more of the raceway system is rehabilitated and re-watered. Other ground-disturbing activities, such as preservation of the S.U.M. Building and Steam Plant Foundation, would have similar adverse impacts to alternative B. Under alternative C, pre-construction planning and surveys would help to mitigate adverse impacts related to construction activities. Actions proposed under alternative C would serve to provide additional information to the park's archeological record and provide additional opportunities for research as new archeological surveys and investigations are conducted. Findings from these investigations would provide additional opportunities for interpretive and educational programming to comply with the park's enabling legislation.

Field Trip

Impacts on Natural Resources

Water Resources

Surface water and groundwater are managed by the NPS as integral components of park aquatic and terrestrial ecosystems. Water resources are legally regulated and protected under provisions of the Clean Water Act, including sections 305(b) and 303(d), which establish state water quality monitoring and reporting standards; section 402, which regulates pollution and sediment in runoff; and section 404, which regulates dredge and fill activities that affect wetlands. The NPS has several guiding principles with respect to water resources, as outlined in the "Water Resource" section of the NPS Management Policies (NPS 2006b). These include considering a watershed approach to managing water resources, minimizing human disturbances that adversely affect water resources, and working with appropriate agencies to obtain the highest possible standards available under the Clean Water Act. NPS policy also encourages developing cooperative agreements with other agencies as appropriate to help maintain or restore the quality of park water resources.

This is a primarily qualitative analysis of the beneficial or adverse impacts on water resources. Sources of information used to assess impacts on water resources under the proposed alternatives include USGS gage height measurements, NJDEP water quality reports, and watershed planning information. Resource-specific context for assessing the impacts of the alternatives on water resources includes the following:

- The Passaic River is named as a fundamental resource for Paterson NHP.
- Water resources affect the quality and availability of water-based recreation (e.g., fishing, self-propelled watercraft).

Alternative A: Establishing a New National Park (No Action Alternative)

Impacts of Alternative A (Water Resources)

Nonpoint source pollution and runoff from areas within the park would continue to be exacerbated during periods of heavy rain and flooding. Recreational use along the Passaic River would continue to cause some erosion and soil runoff along social trails on the steep slopes of the Valley of the Rocks, resulting in localized and generally negligible adverse impacts to water quality due to increased sedimentation. Runoff and storm seepage from the site could result in adverse impacts to water resources if soil contaminants leach into the adjacent Passaic River. The current lack of permanent stormwater best management practices (trail and slope stabilization) throughout the park would result in adverse impacts to water resources as debris and runoff would continue to be deposited in the river.

Under alternative A, construction activities related to the ATP river wall stabilization project would require clearing, excavation, and grading activities which could result in adverse water quality impacts due to increased soil and sediment loads being released into the Passaic River. These adverse impacts would be lessened through an appropriate erosion and sediment control plan and best management practices in accordance with the New Jersey Soil Erosion and Sediment Control Act, The Standards for Soil Erosion and Sediment Control in New Jersey (NJ Department of Agriculture—State Soil Conservation Committee), and the New Jersey Stormwater Best Management Practices Manual (NJDEP Division of Watershed Management). These mitigation measures would minimize the potential erosion of exposed soils, slow the rate at which stormwater leaves the site, and capture eroded soils before they enter the downstream water flow.

As part of the ATP river wall stabilization project, the ATP site would be investigated for potential contaminants and undergo any remediation necessary for potentially contaminated soils (which could include actions such as covering and containing soils, removing soils, or remediating soils). Treatment of contaminated soils through removal or remediation could have beneficial impacts on water quality by reducing contamination levels in stormwater runoff. Following construction activities, areas along the ATP river wall would be replanted with grasses or other appropriate vegetation to prevent future soil runoff into adjacent stormwater systems and the river.

Water resources would continue to be managed under existing guidelines, including NPS Management Policies (NPS 2006b), and the park would continue

to work with partners on completing baseline water quality surveys and studies. The baseline information and the park's continued cooperation with other local and state water resource protection agencies would result in beneficial impacts on water resources as these agencies increase public understanding of water resource protection and stewardship.

Climate change may add adverse impacts on water resources under alternative A through the possibility of increased duration, intensity, and frequency of storms. Extreme precipitation events linked to climate change are anticipated to affect the potential for heightened streamflow during relatively short periods. Additional water volume from these storms could increase riverbank erosion at the park, as well as increase the rate and volume of stormwater runoff into the Passaic River, adversely impacting water quality by increasing sedimentation and turbidity. Changes in the timing and location of precipitation due to climate change also have the potential to reduce streamflow at times. Impacts from reduced water levels during low flow or drought conditions caused by changes to precipitation patterns would reduce streamflow within the Passaic River passing through the park, including over the Great Falls. Low flows would reduce water available for all users, including that available to sustain riparian vegetation and aquatic life, and would leave less water to dilute pollutants from runoff.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions which have the potential to impact water resources within the park include the Levine Reservoir Containment Project. The Levine Reservoir project would include ground-disturbance during construction activities which could contribute to nonpoint source pollution and runoff. However, it is likely that the proposed project would be designed to incorporate measures to minimize adverse impacts on water resources, such as storm water management techniques.

The impact of these past, present, and reasonably foreseeable future actions would generally be adverse, but would only expect to last during construction activities. When combined with the impacts of alternative A, it is likely that the overall cumulative impact would be adverse, with alternative A contributing a noticeable adverse increment to the overall cumulative impact.

Conclusion

Impacts on water resources associated with alternative A would range from beneficial to adverse. In general, ATP river wall construction activities and recreational trail usage along the Passaic River would result in adverse impacts to water resources due to nonpoint source pollution and runoff.

Beneficial impacts resulting from alternative A would include soil remediation efforts in the ATP site which would reduce the likelihood of contaminants discharging into the Passaic River. Additionally, the ATP river wall project would result in beneficial impacts as soils are stabilized with vegetation lessening the impacts of stormwater runoff and erosion. Additional beneficial impacts would result from the park's continued partnerships with local and state agencies to study and educate the public on creating and protecting healthy water ecosystems.

The cumulative impact would be adverse, and alternative A would contribute a noticeable adverse increment to the overall adverse cumulative impact. Impacts to water resources as a result of actions associated with alternative A would be beneficial primarily due to site improvements and soil remediation efforts at the ATP site. Alternative A would also result in adverse impacts on water quality; however, water quality conditions would not be expected to degrade below current conditions. When considered in the context of the standards set forth in NPS management policies, both the adverse and beneficial impacts would be relatively small and would not result in any noticeable changes in existing water quality.

Alternative B: Landscape Exploration

Impacts of Alternative B (Water Resources)

Under alternative B, expanded interpretive and educational programming would result in beneficial impacts to water resources as visitors learn more about protection of the natural resources associated with the Great Falls and Passaic River. Improvements to visitor facilities and programming would be expected to

increase visitation levels to the park. Over the long-term, increased visitation would have the potential to trample vegetation and expose soils in heavily used areas of the park resulting in adverse impacts as the potential for erosion and subsequent sedimentation into the river is increased. Where this occurs, management actions would stabilize soils and reestablish vegetation where possible.

Construction projects in and along the banks of the Passaic River, such as the stabilization of the Ryle Dam and enhancement of viewing areas, would result in adverse impacts during construction as ground is disturbed potentially resulting in increased river sedimentation. Flow direction and rates of the river could also be impacted during stabilization of the Ryle dam which could create additional adverse impacts on riparian vegetation and species. The park would work with partners to implement erosion and sediment control measures during these activities to reduce the severity and length of adverse impacts.

Trail improvements would include reconstruction of existing trails and construction of new trails. Trail construction activities, especially on steep slope areas, could increase the potential for soil erosion and sedimentation, with the potential to create localized adverse impacts to water quality. On-site investigation would occur prior to construction to determine soil stability, potential trail surfaces, and construction best management practices. Permanent stormwater management measures would be incorporated where feasible to reduce pollutants in stormwater discharged from the reconstruction or addition of new trails resulting in beneficial impacts. As a result of these measures, any adverse impacts to water quality resulting from construction of the trails would be negligible.

Construction activities related to the rehabilitation or stabilization of existing structures, such as the rehabilitation of the Steam Plant Foundation or stabilization of the ATP ruins, would temporarily disturb soils and could create an increased potential for soil erosion and transport of surface pollutants via stormwater runoff into adjacent water bodies. Similarly, demolition of select ATP ruins could result in adverse impacts as soils are disturbed and potential stockpiling of soils and debris could result in additional sediment runoff during heavy precipitation. The park would work with partners to develop an erosion and sediment control plan prior to construction in order to reduce erosion of exposed soils, slow the rate at which water leaves the site, and capture eroded soils and concentrated nutrients before entering adjacent the Passaic River. Following construction, exposed soil areas would be vegetated or paved and permanent stormwater management measures would be used to reduce stormwater pollutants discharged from the park.

Beneficial impacts resulting from soil stabilization and remediation efforts as part of the ATP river wall stabilization project would be the same as described under alternative A above. Adverse impacts associated with this project would also be similar to those described under alternative A.

Portions of the raceways would be rehabilitated, re-watered, and used for interpretation purposes. During construction, temporary adverse impacts to water quality would be expected due to soil disturbances from construction equipment and vehicles, but the park would work with partners to ensure steps are taken to minimize impacts to water quality through silt fencing and other best management practices.

Once completed, water flowing through the partially re-watered raceways could collect additional debris or stormwater pollutants, especially in areas adjacent to roadways and sidewalks. In addition, the shallow, slower-flowing raceway water could create an increase in water temperature compared to that of the Passaic River. The increase in pollutants and warmer water temperature has the potential to adversely impact water resources of the Passaic River, including riparian habitat and aquatic life, as water from the raceways empties into the river.

River flow agreements and water allocation permits would continue to be in force to maintain passing flow requirements over the Great Falls. Adverse impacts related to available streamflow affecting riparian vegetation or aquatic life are not anticipated, as the raceway re-watering would be designed to preserve park fundamental resources and balance natural resource processes with cultural resource manage-

ment goals and visitor use objectives. The park and its partners would continue to work with other users that divert water from the Passaic River to manage an appropriate streamflow over the Great Falls.

Expanded water quality monitoring would provide information needed to better address management concerns. Sampling would occur in the Passaic River and, as funding permits, the NPS would increase the frequency and numbers of samples, particularly during high flows. This data would document existing conditions, help identify probable sources of contamination, and assist with determining appropriate management actions. These actions would result in beneficial impacts to water quality. Additional beneficial impacts would result from expanded technical assistance to agencies, organizations, and communities involved in water quality planning and management in vicinity of the park.

Cumulative Impacts

The sources of other impacts (i.e., those not related to alternative B) would remain the same as described under alternative A. When combined with the impacts of alternative B, the overall cumulative impact would be beneficial, with alternative B contributing a negligible adverse impact, primarily through construction projects, and an appreciable beneficial increment to the overall cumulative impact.

Conclusion

Overall, alternative B would result in beneficial impacts on water resources. The remediation of contaminated soils at the ATP site would eliminate a source of pollutants along the Passaic River. Improvements to the trail system within Valley of the Rocks would decrease existing surface runoff and sedimentation. Additional beneficial impacts on water quality would result from increased research and monitoring of water resources. Although these benefits would be expected to result in improvements to water quality, beneficial impacts as a result of alternative B would not likely substantially change or improve the overall quality of water resources within Paterson NHP.

Construction activities, including the presence of construction vehicles and equipment, could have temporary adverse impacts on water resources depending on the nature and location of the action, but the use of mitigation measures would lessen the severity of the adverse impacts and impacts would only expect to occur during the time of construction. These impacts would be consistent with the regulations and policies that govern water resources and the overall quality of water resources would not be degraded below existing conditions. In addition, the use of mitigation measures to offset adverse impacts would likely result in less sedimentation and runoff as compared to existing conditions, resulting in a small improvement in existing water quality.

The cumulative impact would be beneficial, and alternative B would contribute negligible adverse and appreciable beneficial increments to the overall beneficial cumulative impact. Site improvements, soil remediation, and increased water quality monitoring would result in beneficial impacts while construction projects would result in the majority of the adverse impacts. Neither the beneficial or adverse impacts would be expected to improve or degrade water quality conditions above or below current condition. When considered in the context of the standards set forth in NPS management policies, both the adverse and beneficial impact would be relatively small and would not result in any noticeable changes in existing water quality.

Alternative C: Industrial Heritage Immersion

Impacts of Alternative C (Water Resources)

Several actions proposed under alternative B are also proposed under alternative C. These actions include: expanded interpretive and educational programming, stabilization of the Ryle Dam, improved viewing areas, trail improvement efforts at Valley of the Rocks, rehabilitation and stabilization of existing structures, ATP river wall and soil remediation efforts, continuation of river flow agreements, and water quality improvement coordination with external agencies. These actions would have similar beneficial and adverse impacts as were described under alternative B above.

Under alternative C, the entire raceway system, including the upper, middle, and lower raceways; middle tailrace; dams; gates; and wheelhouses, would

be rehabilitated and re-watered as a functional historic raceway landscape. Rehabilitation of the raceway system under alternative C, would be a much more extensive construction project than under alternative B which could result in increased temporary adverse impacts to water quality due to the soil disturbances from construction equipment and vehicles. The park would work with partners to ensure steps are taken to minimize impacts to surface and ground waters through silt fencing and other best management practices for water quality. Adverse impacts to water resources following construction (increased water temperature and pollutant levels) would be similar, although on a slightly larger scale, to those describe under alternative B.

Under alternative C, the rehabilitated raceway system could require a larger quantity of water flow in order to fill the entire raceway system and maintain the functioning system components. This could reduce water flow over and immediately downstream of the falls, especially during periods of drought when the Passaic River is already flowing low. This adverse impact would only expect to occur during limited times of the year and would only be expected to last a short period of time.

The ATP site would undergo a more extensive rehabilitation under alternative C than under alternative B with additional ruins being rehabilitated or stabilized for visitor use. Additional soil compaction and an increased potential for erosion would be expected during the construction process. Once completed, the rehabilitated ATP site would result in beneficial impacts to water resources as the site is cleared of debris and replanted with pervious material to slow and filter water runoff.

Cumulative Impacts

Cumulative impacts under alternative C would be the same as described under alternative A above. When combined with the impacts of alternative C, the overall cumulative impact would be beneficial, with alternative C contributing a negligible adverse impact, primarily through construction projects, and an appreciable beneficial increment to the overall cumulative impact.

Conclusion

Like alternative B, impacts on water resources associated with the individual components of alternative C would range from beneficial to adverse and similar to those described under alternative B Increased construction efforts related to rehabilitation of the raceway system and ATP site could result in temporary adverse impacts to water resources due to both compaction of soils and increase soil disturbance. Over the long-term, a reduction in water volume and flow over the Great Falls in order to maintain a functioning raceway system would result in intermittent adverse impacts to water resources during times of drought. These adverse impacts would not remain constant and would not be expected to degrade the overall quality of water resources below current conditions.

Benefits to water resources would result from soil remediation efforts and site improvements where efforts to stabilize and rehabilitate structures would remove excess debris and pollutants, as well as improve vegetative cover to reduce runoff and help to filter stormwater. Beneficial impacts to water resources in alternative C would be expected to result in improvements to water quality in the long-term, but would not likely substantially change or improve the overall quality of water resources within the park.

Cumulative impacts would be beneficial with alternative C contributing a negligible adverse and appreciable beneficial increment to the overall beneficial cumulative impact. Neither the beneficial or adverse impacts would be expected to improve or degrade water quality conditions above or below current condition. When considered in the context of the standards set forth in NPS management policies, both the adverse and beneficial impact would be relatively small and would not result in any noticeable changes in existing water quality.

Floodplains

This is a primarily qualitative analysis of the beneficial or adverse impacts on floodplain processes or conditions based on the known and potential floodplains within the study area and information provided by experts in the NPS and other agencies.

Resource-specific context for assessing the impacts of the alternatives on floodplains includes the following:

- Floodplains are not identified as a fundamental resource or value.
- Executive Order 11988 directs all federal agencies to avoid long and short-term impacts associated with occupancy, modification and development of floodplains when possible.
- NPS Director's Order 77-2 implements Executive Order 11988 and established NPS policy to preserve floodplain values and minimize potentially hazardous conditions associated with flooding.
- Floodplain functions and values (store floodwaters, minimize erosion of adjacent soils, provide riparian habitat, etc.) are intrinsic to floodplains and cannot be easily duplicated or replaced.

Alternative A: Establishing a New National Park (No Action Alternative)

Impacts of Alternative A (Floodplains)

The floodplains inside the park boundaries are primarily within and adjacent to the riverbanks, as well as along McBride Avenue. Regular storms would not generally result in flooding of these facilities; however, heavy storm events such as tropical storms or hurricanes could cause flooding. The possibility of increased duration, intensity, and frequency of storms due to climate change under alternative B would cause adverse impacts to floodplains by increasing the frequency and intensity of flooding within floodplains.

Under alternative A, the ATP River Wall would be stabilized and rehabilitated and a River Walk established along the historic wall to connect Overlook Park to the ATP site. This rehabilitation work would occur within the regulatory floodway; however, it would stabilize the existing wall which currently acts as a bulkhead along the river's edge and lessen the potential of bulkhead failure in the future. The project would not change the size, shape, or footprint of the existing wall and would not result in any increase in the wall's intrusion into the floodplain or reduce current floodplain functions or capacity. Stabilization of the river wall could result in adverse impacts during construction, but once the river wall is complete, a beneficial impact would result from securing the wall and retaining a reliable bulkhead and maintain a consistent floodway through the park. All construction activities within the regulatory floodplain would be in compliance with all floodplain regulations and would not change the nature or function floodplain along the Passaic River.

Some existing structures, such as dams and elements of the raceway system, would remain within the floodway and would continue to alter the natural flow of water. While the natural flow of water through the floodplains would continue to be altered by these structures, the structures also provide the city protection from frequent flooding.

Cumulative Impacts

No other past, present, or reasonable foreseeable future projects were identified that have impacts on floodplains; therefore, there are no cumulative impacts.

Conclusion

Alternative A would result in adverse and beneficial impacts. Adverse impacts would result during construction of the ATP river wall, but would only last during the duration of the project. Overall, alternative A would result in beneficial impacts to floodplains primarily resulting from the stabilization of the ATP river wall which acts as a river bulkhead and retention of other man-made structure which all help to protect the city from frequent floods. These beneficial impacts would preserve the floodplain and protect lower elevations in Paterson from flooding. Overall, neither the beneficial nor the adverse impacts of alt A would cause any change in the current size or footprint of the floodplain or its functions.

Alternative B: Landscape Exploration

Impacts of Alternative B (Floodplains)

In addition to the ATP river wall project described above under alternative A, alternative B would include a coordinated, comprehensive research and monitoring program to better understand and manage the broad range of natural resources, especially surrounding the elements of the Passaic River and its floodplain, including aspects of climate change and its impacts. These strategies would include educating NPS staff, its partners, and members of the communities and the general public about natural resource protection and

climate change to encourage responsible planning when development is proposed within the floodplain.

Under alternative B, site improvements and visitor amenities such as improved viewing areas, signage and wayfinding, wayside exhibits, interpretive walkways and trails, plantings, lighting, and fencing would be installed within the regulatory floodway and the 100 and 500-year floodplains in some locations around the Great Falls and along the river. Streetscape elements and improved intersections could also be installed within the park boundaries. These activities would occur within the 100-year floodplain if located along McBride Avenue; however, these elements would be placed within the existing streetscape, require little physical development, and would not result in changes to the existing size, function, or values of the regulatory floodway or the 100-or 500-year floodplains.

Overlook Park would be re-oriented and rehabilitated to provide an enhanced viewing area for the Great Falls and the Valley of the Rocks and improved space for informal and formal gatherings and events. The updated space would continue to function as it does today with respect to retaining and conveying floodwaters.

The partial re-watering and rehabilitation of the raceways could result in both adverse and beneficial impacts to floodplains. Dams and structures related to the raceway system would continue to impede the natural flow of water resulting as described under alternative B, but raceway rehabilitation efforts could include opportunities for the raceways to collect excess runoff or floodwaters during large storm events, creating beneficial impacts by increasing floodplain capacity and reducing the potential for flooding along McBride Avenue.

Cumulative Impacts

No other past, present, or reasonable foreseeable future projects were identified that have impacts on floodplains; therefore, there are no cumulative impacts.

Conclusion

Overall, alternative B would result in both beneficial and adverse impacts on floodplains. Resource management efforts such as a comprehensive research and monitoring program, stabilization of the ATP site's river, and new public education programs would result in beneficial impacts. Additional beneficial impacts could result from using the raceway system to divert floodwaters from McBride Avenue. Adverse impacts resulting from alternative B would be mostly attributable to construction activity relating to site improvements and the ATP river wall stabilization and the continued presence of structures within the floodplain. In the context of NPS policies to preserve floodplain functions and values, the beneficial and adverse impacts would be considered negligible because there would be no change in the existing flooplain capacity and function and there is likely to be a small increase in floodplain capacity over what currently exists.

Alternative C: Industrial Heritage Immersion

Impacts of Alternative C (Floodplains)

Alternative C would include beneficial and adverse impacts associated with site improvements within the area of the Great Falls and along the river, and stabilization of the ATP River Wall as described under alternative B above.

In addition, alternative C would rehabilitate elements of the raceway system that fall within the floodplain. Construction within the floodplain has the potential to alter existing flood lines and change the current course of water flow during construction. Once the rehabilitation project is complete, however, the floodplain should remain unchanged compared to its current state. As with alternative B, rehabilitation of the raceways could allow the raceways to be utilized for flood control purposes. Alternative C also allows for rehabilitation of other elements of the raceway system, like the control gates, which could provide additional capabilities to control or divert floodwaters through the raceways, increasing floodplain capacity over current conditions.

Cumulative Impacts

No other past, present, or reasonable foreseeable future projects were identified that have impacts on floodplains; therefore, there are no cumulative impacts.

Conclusion

Similar to alternative B, alternative C would result in beneficial and adverse impacts on floodplains. Resource management efforts such as a comprehensive research

and monitoring program, stabilization of the ATP site's river, and new public education programs would result in beneficial impacts. Beneficial impacts resulting from rehabilitation of the entire raceway system could increase the ability to divert floodwaters to or from the raceways and allow for the diversion of floodwaters from McBride Avenue during heavy storm events. Adverse impacts resulting from alternative C would be mostly attributable construction activity relating to site improvements and the ATP river wall stabilization and the continued presence of structures within the floodplain. As with alternative B, the impacts of alternative C would be negligible because the only change from existing conditions would be a small increase in floodplain capacity.

Visitor Use and Experience

NPS Management Policies (NPS 2006b) states that the enjoyment of park resources and values by the people of the United States is part of the fundamental purpose of all parks and that the NPS is committed to providing appropriate, high-quality opportunities for visitors to enjoy the national parks. Because many forms of recreation may not be suitable for a national park setting, the NPS would therefore seek to do the following:

- provide opportunities for forms of enjoyment that are uniquely suited and appropriate to the superlative natural and cultural resources found in a particular unit
- defer to local, state, and other federal agencies; private industry; and NGOs to meet the broader spectrum of recreational needs and demands that are not dependent on a national park setting

Unless mandated by statute, the NPS would not allow visitors to conduct activities that would have the following effects:

- impairing park resources or values
- creating an unsafe or unhealthful environment for other visitors or employees
- being contrary to the purposes for which the park was established
- unreasonably interfering with the atmosphere of peace and tranquility, or the natural soundscape maintained in natural, historic, or commemorative locations in the park

Potential impacts on visitor use and experience are assessed based on the current description of visitor use and experience presented in chapter 3 of this document. Enjoyment of park resources and values by visitors is part of the fundamental purpose of all national parks.

Impacts on visitor use and experience were determined considering the best available information, and the following analysis is qualitative rather than quantitative due to the conceptual nature of the alternatives. Information on visitor use and opinions was taken from the public scoping information for this plan.

This impact analysis encompasses various aspects of visitor use and experience, including the effects on visitation levels; diversity of recreation opportunities and national park experiences; visual quality; visitor education, interpretation, and understanding; visitor health and safety; and soundscapes. Adverse impacts are those that most visitors would perceive as undesirable. Beneficial impacts are those that most visitors would perceive as desirable.

The resource-specific context for assessing the impacts of the alternatives on visitor use and experience includes:

- Visitor understanding of the history, significance, and contemporary connections of the park's cultural and natural resources.
- The opportunity for visitors to experience the natural scenic views and setting, the historic scenic views and setting, and the experiential element of the falls.
- The ability for visitors to enjoy recreation experiences such as walking and biking on trails; picnicking; and visiting historic sites.
- The ability for visitors to experience feelings associated with open space in a high-density area.

Alternative A: Establishing a New National Park (No Action Alternative)

Impacts of Alternative A (Visitor Use and Experience)

Cooperating partners would continue to work with the park to facilitate visitor understanding of park interpretive themes as well as promote active engagement with park resources. The continued expansion of education and interpretation programs and activities generated through partnerships would have a beneficial impact on visitor experience as visitors would have more opportunities to learn about the park's historic resources and the history of Paterson. Stabilization of the ATP River Wall/River Walk would create beneficial impacts by increasing the pedestrian connections within the park and facilitating access between Overlook Park and the ATP site, as well as increasing visitor access to the riverfront along the ATP site. Construction noise from these two projects could disrupt the visitor experience and these areas would be closed to the public during construction, causing adverse impacts.

Maintenance of the existing views within the park would create beneficial impacts on visitor experience; however, the visual quality and ability for the visitor to understand the historic setting of Paterson would continue to be adversely impacted by deteriorating historic structures. Views of un-rehabilitated historic structures would detract from the visual quality of the historic setting within the NHL Historic District and ATP site structures would continue to deteriorate, adversely impacting views to the ATP site. The existing streamflow over the Great Falls would continue and, depending on precipitation patterns, its visibility from visitor vantage points could change when water flows drop to lower levels than usual, adversely impacting views of the falls. In addition, water flow in the raceway system would remain restricted, adversely impacting visitors' ability to see how the raceway system works. Educational and interpretive programs and other visitor services provided by the park and park partners would continue at current levels at the park, within the Historic District, and remotely via some online interpretive programming. Visitor contact points would continue to be provided by partners and at the park's Welcome Center; however, visitors' ability to fully explore the park and NHL Historic District could be adversely impacted by limited availability of staff to answer questions and guide tours, and limited waysides that provide interpretive information.

Beneficial impacts to community health and visitor physical fitness would occur by maintaining access to existing trails and constructing the new ATP river walk for fitness and wellness activities, such as walking, running, dog walking, and exercise routines, and by encouraging recreational use of the park.

Rehabilitation of Hinchliffe Stadium would have beneficial impacts on visitor experience as interpretive programming could be expanded to include the history of the stadium, its connection to the city, and the impact it had on the families who worked in the Paterson mills.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions which have the potential to impact visitor use and experience within the park includes the Levine Reservoir Containment Project. During construction, construction vehicles and activities could create noise disturbances which would detract from the visitor experience in nearby areas of the park. The impact of this action would generally be adverse, but would only expect to last during construction activities. When combined with the impacts of alternative A, it is likely that the overall cumulative impact would be adverse, with alternative A contributing a noticeable adverse increment to the overall cumulative impact.

Conclusion

Impacts to visitor use and experience associated with alternative A would be both beneficial and adverse. Expanding interpretive and educational programs would result in some beneficial impacts to visitor use and experience as visitors become more informed about the history of the park and resource protection. Overall, alternative A would result in adverse impacts as the continued disrepair of park resources and lack of exhibits and waysides would hinder visitors' ability to understand the history of the park and its relationship to the Great Falls and Passaic River. The cumulative impact would be adverse and alternative A would contribute and noticeable adverse increment to the overall adverse

cumulative impact. Based on this information, the largely adverse impacts of alternative A on visitor use and experience would reduce the overall visitor experience of learning about the history of the place, but visitors would still have the opportunity to experience some of the historic sites and many of the recreational opportunities open to the public. The opportunity of experiencing a recreational and natural open space within the context of an urban area would be available to visitors as well as the historic and natural scenic views within the park.

Alternative B: Landscape Exploration

Impacts of Alternative B (Visitor Use and Experience)

Increased visitor opportunities, services, facilities and interpretative and educational programs proposed in alternative B would result in beneficial impacts on visitor use and experience because alternative B would include upgraded and new facilities designed to accommodate larger visitor numbers, as well as improved systems for moving visitors through, and potentially to, the park and increasing connectivity.

As visitation increases, use of the transportation systems that provide access to the park would also increase (vehicular, public transit, and pedestrian/bicycle facilities) which could cause crowding and congestion. In order to help mitigate these adverse impacts, the park and its partners would work together on new transportation planning to improve vehicular and pedestrian access and movement in the park and the NHL Historic District. These changes could include improved sidewalks, walking paths, lighting, and planting between these areas to provide for a safe and pleasant experience. Increased transit service would also be considered. Visitor experience in alternative B would be centered on the Great Falls Area and the park's cultural landscapes, with the addition of a new visitor contact facility in the area and a rehabilitated Overlook Park. Public access to park areas would be expanded with the opening of the ATP site for interpretive use at the exterior of the ATP structures and for passive recreation. In alternative B, the raceway system would be rehabilitated and the Upper Raceway would be re-watered, providing visitors the opportunity to experience the working raceway system and promote a better understanding of how the system functions and how it powered the mills. These expanded opportunities for visitors to experience and understand park resources would have beneficial impacts on visitor experience.

Alternative B would use contact stations staffed by park rangers and park partners, wayside exhibits, interpretive media, improved signs and wayfinding, and improved streetscapes and sidewalks to better support access to park interpretive and recreation opportunities, and to help connect visitors with the information and support services they need to plan and enjoy their visit to the park. These efforts to make the park more welcoming, improve connectivity, and improve visitor orientation would result in a beneficial impact on experience at the park.

In alternative B, trails and pedestrian walkways would be improved in all areas, with a focus on access to natural resources, including the Passaic River and the Valley of the Rocks, and connections to other natural and scenic areas outside the park boundary, such as to the Morris Canal Greenway and Garrett Mountain. Making the ATP site safe and accessible to the public, increasing the number of trails and walkways parkwide, and providing different experiences and views along those trails would have a beneficial impact on visitor experience and recreation.

Construction activities related to new facilities and/or elements would have adverse impacts to visitor experience as they would cause some disruptions to visitor experience as specific areas of the park could have limited access or closures to ensure visitor safety while construction is completed.

Alternative B would offer visitors additional access to key views of the park: from new locations, from improved existing overlooks, through vegetation management, and via rehabilitation of historic structures. All of these actions would help to enhance the character and views of the park (scenic, natural, and historic), improving the visual quality and experience of historic and natural settings for visitors and resulting in beneficial impacts.

In alternative B, visitors would have new opportunities to understand the significance of the park's natural

resources as well as its historic sites and structures. Educational and interpretive programs and other visitor services provided by the park and park partners would be enhanced and the park would continue to seek additional partnerships to help provide new interpretive and educational programming. In order to expand interpretive themes and connect with resources outside park boundaries, the park and park partners would work together on educational and interpretive programming that supports the purpose and mission of the park. Alternative B would also provide increased opportunities for physical activity aimed at improving physical health. The addition of new trails and increased connectivity would facilitate physical activity and improve physical health. Opportunities for solitude and natural immersion experiences could increase mental health as well.

Cumulative Impacts

Cumulative impacts under alternative B would be similar to those described under alternative A. When combined with the impacts of alternative B, it is likely that the overall cumulative impact would be beneficial, with alternative B contributing a noticeable beneficial increment to the overall cumulative impact.

Conclusion

Impacts to visitor use and experience associated with alternative B would result in mostly beneficial impacts with some adverse impacts. Proposed improvements to the park's landscape and rehabilitation of the park's historic resources would result in benefits to the visitor experience as resources are preserved and interpretation and educational programs are expanded. Improvements and expansion of visitor facilities throughout the park would also contribute beneficial impacts to visitor use and experience. Adverse impacts would primarily result during construction as sites may be closed off to visitors during these times and could occur through overcrowding during peak visitation. Adverse impacts under alternative B would be relatively small because construction disturbance would only last for a short time and could be scheduled during times of low visitor use. The beneficial impacts under alternative B would be more substantial as a larger number and greater variety of opportunities for recreation, interpretation, and education of the park's resources are created.

Educational Programs

These beneficial impacts would be in accordance with the park's overall purpose, significance, and mission.

Alternative C: Industrial Heritage Immersion

Impacts of Alternative C (Visitor Use and Experience)

Impacts related to increased visitation, visitor transportation, visitor orientation, availability of educational and interpretive programs, visitor safety and community health, physical fitness, soundscapes, and impacts related to construction activities would be the same as those listed under alternative B above. Other impacts to visitor use, experience and recreation resources from alternative C would be similar to those described in alternative B; however, alternative C would focus visitor experience on Paterson's industrial history, the industrial landscape, and their relationship to the falls and river.

A contact station would be located within the Historic District and park historic resources would be rehabilitated and opened to the public to provide access and additional space for educational and interpretive programming. The raceways would be fully re-watered and associated structures opened to the public for interpretation and a range of activities under alternative C, providing visitors a more expanded experience of the working raceway system than under alternative B. The rehabilitated ATP site would be transformed into

Educational Programs

a visitor destination, providing more interpretation of industrial uses than under alternative B and adding new amenities and interior and exterior visitor use spaces (for example, a restaurant or exhibit space). All of these elements would provide additional interpretation of park resources than that available under alternative B. The expanded park access, new interior and exterior space for visitor activities and increased opportunities for visitors to experience and understand park resources would have beneficial impacts on visitor experience. As in alternative B, trails and pedestrian walkways would be improved in all areas under alternative C; however the focus would be on the historic routes, paths, and roads within the site and connections to the Historic District and city neighborhoods and beneficial impacts to visitor experience and recreation would be similar to those in alterative B.

Like alternative B, key park views would be preserved. Alternative C would offer visitors additional access to key views of the park and from within the Historic District through rehabilitation and preservation of historic structures, vegetation management, and from enhancement of existing overlooks. All of these actions would help to enhance the character and views of the park (scenic, natural, and historic), improving the visual quality and experience of historic and natural settings for visitors and resulting in beneficial impacts.

Visitors would have new opportunities to understand the significance of the park's historic resources relating to industrial history and the connections between the natural and cultural components of the industrial system in alternative C. This would be accomplished through rehabilitation of historic structures that opens them to the public, expanded interpretation of the ATP site with additional space for visitor activities, and expanded interpretation of the park's cultural landscapes, buildings, and significance.

Cumulative Impacts

Cumulative impacts under alternative B would be similar to those described under alternative A. When combined with the impacts of alternative C, it is likely that the overall cumulative impact would be beneficial, with alternative C contributing a noticeable beneficial increment to the overall cumulative impact.

Conclusion

Overall, impacts to visitor use and experience under alternative C would be both beneficial and adverse impacts. A greater emphasis on historical and cultural resource management could result in greater knowledge and recognition of cultural resources and their interpretation. Locating visitor facilities within the NHL historic district could also result in a greater dispersal of visitors across multiple destinations within and around the city. Expanded public outreach, collaborative programming with partners, improvements to interpretive exhibits, and the development of new facilities that expand programming options within the park would result in beneficial impacts in terms of visitation numbers, a broader visitor audience, and expanded interpretive, educational, and recreational opportunities for visitors. Adverse impacts under alternative C would primarily result during construction activity as some areas of the park may require closure during those times. Improvements to the park's cultural and natural resources as well as expanded opportunities for interpretive and educational programming would provide visitors with a greater number of opportunities to understand the history and significance of the park and experience the park's historical setting. As new areas of the park open for public use, visitors would be able to experience a larger area of urban open space and views that had previously been unavailable.

Impacts on Socioeconomics

Potential impacts on Paterson NHP's social and economic environment are assessed based on the current description of Paterson NHP's context presented in this GMP/EA. They are directly related to the proposed levels of visitor use that are anticipated under each alternative. The resource-specific context for assessing the impacts of the alternatives to the surrounding communities includes the following:

- the effect of visitor use and experience improvements on community setting and lifestyle in the surrounding communities
- the effect of visitor use and experience and partners' programming improvements on the community facilities and services in the surrounding populations
- the effect of changes in park spending to operate the park
- the effect of changes in the level of visitor use at the park, which contributes to visitor spending in the surrounding communities

Alternative A: Establishing a New National Park (No Action Alternative)

Impacts of Alternative A (Socioeconomics)

Under alternative A, existing visitor uses and experiences would be maintained and, other than repairs and the improvements described in the common to all alternatives section in chapter 2, no new visitor facilities would be constructed.

Stabilization and construction of the ATP River Wall/River Walk would provide new site amenities, such as new pathways and access to the ATP site. The social impact from the improved community facilities would be beneficial. Park and park partner spending related to the ATP River Wall/River Walk project would have beneficial impacts on the construction and trade industry. The surrounding communities would still be impacted by heavy traffic and lack of parking in areas surrounding the park. As improvements are made under alternative A, these congestion issues could become worse resulting in adverse impacts to those communities.

Cumulative Impacts

The Levine Reservoir Containment Project would require construction activities that would generate spending in the area, resulting in cumulative beneficial impacts on the construction and trade industry. Alternative A would contribute beneficial impacts from limited construction spending by the park and park partners.

Conclusion

Impacts to the socioeconomic environment associated with alternative A would be largely localized and would result in both beneficial and adverse outcomes. Some beneficial impacts to community character would result from the stabilization of the ATP river wall and construction of the river walk. There are no proposed actions under this alternative that would have a noticeable adverse or beneficial impact on the local or regional economy. Based on this information, the beneficial and adverse impacts of alternative A on the socioeconomic environment would not be readily detectable and would not be expected to result in changes to the surrounding community's setting or lifestyle. A slight rise in visitation and local spending in the community could arise as some management actions are implements, but these changes would not be expected to produce noticeable elevations in the overall economy of the surrounding area.

Alternative B: Landscape Exploration

Impacts of Alternative B (Socioeconomics)

Implementing alternative B would occur against the same backdrop of economic and demographic conditions in the surrounding communities described in alternative A. The effects of alternative B would provide support for the surrounding communities' overall quality of life through the additional recreational and cultural activities. In addition, many of the proposed improvements are focused on preserving historic and natural resources, which provide settings that are considered to enhance the quality of life in the community, creating beneficial impacts for the community. In some instances, informal uses of currently unprogrammed space at the park would be removed and replaced with park programming and amenities. For example, the corner of the park at Wayne Avenue and Maple Street is currently informally used

for overnight parking, a use that would be removed under alternative B. While there could be localized adverse impacts due to replacement of these types of informal uses, the community would also gain additional recreational and open space. It is anticipated that the alternative would not directly affect population changes or housing inventory.

Under alternative B, it is estimated there would be an increase in visitation as well as overall activity in and around the city of Paterson. The variety and quality of visitor services and recreational opportunities at the park would be enhanced and improved under alternative B. The alternative would also establish connections to regional open space attractions such as Garrett Mountain. These actions are likely to increase visitor use and demand for and impact on available transportation facilities and systems. These increases could cause crowding and congestion within existing vehicular, transit, and pedestrian/bicycle networks. In addition, visitor use of street parking in residential areas, particularly on the north side of the park could increase. To mitigate these adverse impacts, the park and park partners would work to improve pedestrian connections and continue to support efforts to encourage the expansion of public transportation routes from existing bus and railroad stations to the park and other attractions in the area.

Additionally, for those services that are envisioned for joint management and maintenance between the NPS and the city of Paterson or other partners, there could be resultant increases in public service costs. While the fees and costs for additional visitor and/or transportation systems remain unknown, the cost offsets for the benefits provided cannot be determined. As a result, the economic impact of these facilities and services is unknown; however, the social impact from the increased availability of community facilities and services would be beneficial.

The impact of additional nonresident visitors in local accommodations would marginally affect water and wastewater treatment plants if there were incremental demand for the local area hotels. Tax revenues generated by visitor spending would help to provide resources to meet these future needs. Overall, there would beneficial impacts on community facilities and services.

Park and park partner spending for improvements and operations would also be anticipated to increase under alternative B, although the funding could come from any of the management entities. Although spending levels are difficult to assess at this time, new development and rehabilitation spending, particularly at the ATP site, would be less under alternative B than under alternative C. Park spending on improvements would likely have a moderate beneficial impact on the construction and trade industry. In alternative B there would be fewer private sector business opportunities in areas such as concessions than in alternative C. Therefore, park spending on operations including employment, supplies and materials would be less. Overall construction, development, and expanded operations would have a beneficial impact on park spending and employment.

Under alternative B, there would be an increase in annual visitor use at the park over the long term, resulting in a benefit for visitor use spending. The rate of increase would be commensurate with the timing of proposed improvements and expansion. At this time, it is difficult to gauge what percentage of visitors would come from the local area and what percentage would come from outside the area, although several of the improvements (e.g., the visitor contact station and park-like interpretive ATP site) would likely attract additional nonresident visitors. Regardless of whether it is from local or nonresident visitors, the additional visitor use would result in additional retail and recreational expenditures. Depending on the demand profile of visitors drawn by the new facilities, there could be new lodging expenditures. State and local governments would collect additional sales tax from increased visitor spending, a beneficial impact for these agencies' budgets.

Cumulative Impacts

Impacts of the other actions that contribute to cumulative impacts are the same as described under alternative A. Taken together, these cumulative actions would contribute beneficial cumulative impacts on socioeconomic resources. When the impacts on

socioeconomic resources as a result of alternative B are combined with these other projects in the study area, an overall beneficial cumulative impact would be expected. With an increase in visitation and resultant increase park and visitor spending, alternative B would contribute an imperceptible beneficial impact.

Conclusion

Overall, impacts to the socioeconomic environment associated with alternative B would be largely localized though some impacts may affect the regional tourist economy and would range from beneficial adverse. Beneficial impacts to community character and land use and development would be result from the rehabilitation and preservation of the park's cultural and natural resources and pursuing a cooperative stewardship model of governance. Proposed changes related to the park experience, particularly the inclusion of visitor facilities would be expected to result in an increase in visitation which could have beneficial impacts on the local and regional tourist economy.

Proposed construction under this alternative would be of benefit to the local and regional economy. Based on this information, the beneficial impacts of alternative B on the socioeconomic environment would improve the local and regional economy, but may be negligible considering the size of the regional area. Improved park facilities and recreational opportunities would provide the surrounding community with additional forms of recreational and educational experiences. Rehabilitation efforts throughout the park would also improve the setting and create a more welcoming open space for the surrounding community.

Alternative C: Industrial Heritage Immersion

Impacts of Alternative C (Socioeconomics)

Impacts under alternative C related to community setting and facilities; population and housing inventory; visitation increases; utilities; and visitor spending would be the same as those described above in alternative B. Alternative C would establish pedestrian connections to the Historic District and city neighborhoods, as well as thematic linkages to other historic sites in the region, thereby helping to stimulate heritage tourism. It is anticipated that there would be more private sector business opportunities in areas such as concessions under alternative C due to the more intensive program of rehabilitation for use of historic and cultural resources within the ATP site.

Park and park partner spending for improvements and operations would also be anticipated to increase under alternative C, although the funding could come from any of the management entities. Although spending levels are difficult to assess at this time, new development and rehabilitation spending, particularly at the ATP site, would be greater under alternative C than under alternative B. Park spending on improvements would likely have a beneficial impact on the construction and trade industry. As there would be more private sector business opportunities in areas such as concessions in alternative C than the other alternatives, park and park partner spending on operations including supplies and materials, would be greater. Overall construction, development, and expanded operations would have a beneficial impact on park spending.

Cumulative Impacts

Impacts of the other actions that contribute to cumulative impacts (i.e., those not related to alternative B) are the same as described under alternative A. Taken together, these cumulative actions would contribute beneficial cumulative impacts on socioeconomic resources. When the impacts on socioeconomic resources as a result of alternative C are combined with these other projects in the study area, an overall beneficial cumulative impact would be expected. With an increase in visitation and resultant increase park and visitor spending, Alternative C would contribute an imperceptible beneficial impact.

Conclusion

Overall, impacts to the socioeconomic environment associated with alternative C would be largely localized though some impacts may affect the regional tourist economy. As described under alternative B, benefits to community character could be expected from the rehabilitation and preservation of the park's resources and cooperative stewardship. Similar to alternative B, beneficial impacts to the local and regional economy could result from increased visitation and construction activity under alternative C. Proposals to expand the park staff to meet the implementation requirements under this alternative would be an economic benefit.

Based on this information, the beneficial impacts of alternative C on the socioeconomic environment would improve the local and regional economy, but may not be readily detectable considering the size of the regional area. Improved visitor programming and facilities would have a positive impact on opportunities and lifestyle of the surrounding communities by providing additional educational and recreational resources. Improvements to the surrounding community's setting could also be expected as park facilities and resources are rehabilitated and preserved.

Local Visitors

Impacts on Park Operations

Impact analyses are based on the current description of park operations and park facilities presented in "Chapter 3: Affected Environment" of this GMP/EA. Park operations and park facilities includes both the quality and effectiveness of the infrastructure and the park's ability to maintain the infrastructure used in the operation of the park in order to adequately protect and preserve vital resources and provide for an effective and safe employee and visitor experience.

The resource-specific context for assessing the impacts of the alternatives on park operations and park facilities includes the following:

- Parks must operate within the constraints of the unit-specific budget and number of staff positions that have been allocated by Congress and the NPS Director's Office; and
- Park staff members must provide for an effective and safe visitor experience and protect resources in the entire park.

Alternative A: Establishing a New National Park (No Action Alternative)

Impacts of Alternative A (Park Operations)

Under alternative A, park staff would continue to engage in public education, public outreach, research initiatives and development of partnership programs. The park would rely on nearby NPS units, regional office staff, and Washington Support Office staff to supplement the park for technical assistance and other needed plans or studies. In addition, park partnership agreements would continue to be employed to assist the NPS with research, education, interpretation, and maintenance efforts. These partnership efforts would have a beneficial impact on park operations by supplementing park programs and freeing up staff time to complete other projects and administrative duties. These efforts, however, require oversight and time commitments.

Park visitation may increase under alternative A as the park becomes more established and partnerships are further developed which could result in adverse impacts as additional tours are scheduled. This increase in park staff time, however, could be minimized through additional self-guided programming for park visitors.

The park is currently in the acquisition process to acquire several parcels of land surrounding the Great Falls. If NPS acquisition of land should occur, adverse impacts to park operations would result as additional workloads would be added to park staff and/or the existing operational budget would be stretched to maintain the newly acquired parcels. The ability of the park to plan for and respond to changing maintenance and operations needs of NPS owned property would be strained and park resources could slowly deteriorate.

Cumulative Impacts

No other past, present, or reasonable foreseeable future projects were identified that have impacts on park operations; therefore, there are no cumulative impacts.

Conclusion

Impacts associated with alternative A would be localized, and adverse. The majority of impacts are associated with the capacity of current staffing levels in terms of time constraints to expand on existing programming or a potential expansion of current NPS ownership of property. As park visitation and NPS-owned facilities grow, there would be no corresponding increase in operating funds to address the increased need for staffing or maintenance of facilities. The adverse impacts of alternative A on park operations, however, could be mitigated through partnerships or collaboration with NPS staff from other park units to supplement park operational needs. Under alternative A, the park would continue to create partnerships to assist with maintaining and preserving park resources as well as providing interpretive and educational programming. Working with partners to accomplish these goals would allow the park to meet their responsibilities while staying within the NPS's Congressionally-allocated budget.

Alternative B: Landscape Exploration

Impacts of Alternative B (Park Operations)

Alternative B places an emphasis on increased recreational use of the park's landscape with the addition of new activities, special events, and interpretive and educational programs. Park administrative functions would be part of an expanded visitor contact station in the Scenic Falls and River Area. The NPS and its partners would seek funding to employ additional full-time and seasonal employees to assist with new programming and maintenance of park property which could lower the staff time and financial comment of the park by itself.

Under alternative B, the NPS would work with park partners to preserve, stabilize, and rehabilitate some historic structures, add new trail systems, and rehabilitate portions of the landscape. The actions proposed under alternative B are greater in scale and extent than those proposed under alternative A and would require additional funding and staff support. These actions would result in an increased need for park staff time to assist with planning and maintenance of these amenities as well as supporting the potential increase in visitation, expanded activities, and new park uses.

While the increased costs and staffing needs resulting from actions under this alternative would have potential for an adverse impact on the park's operations, this would be combined with greater support and coordination with partners, which would partly offset the adverse impacts on park operations that the addition of new visitor facilities and recreation activities could create. As long as staffing levels increase at a commensurate level to match the needs of new facilities and programs, impacts to NPS operations would be negligible.

Cumulative Impacts

No other past, present, or reasonable foreseeable future projects were identified that have impacts on park operations; therefore, there are no cumulative impacts.

Conclusion

Overall, operations impacts associated with alternative B would largely be localized and would have both beneficial and adverse impacts on park operations, maintenance, and facilities. Most of the adverse impacts related to alternative B would be associated with an increase in interpretation and maintenance needs with limited staffing increases. Increasing partnerships could mitigate staffing workloads. The impacts of many proposed actions that are considered would be readily detectable and many actions would result in noticeable improvements to park operations. Park partner relationships would be a strong component of alternative B and cooperation among the partners for completing proposed management actions would allow the park to accomplish goals set forth under alternative B while still remaining within the constraints of the park's budget. Collaborative efforts to rehabilitate and preserve key resources throughout the park and administer interpretive and educational programs would provide for a safe and effective visitor experience.

Alternative C: Industrial Heritage Immersion

Impacts of Alternative C (Park Operations)

Actions under this alternative place an emphasis on the adaptive reuse of historic structures, which could include the addition of concessions and other compatible uses. Concessions would provide a revenue

stream that would potentially offset some of the added costs of maintaining rehabilitated buildings and structures, lessening the adverse impacts of increased costs on the park operations. The NPS would employ additional full-time and seasonal employees.

Under alternative C, historic structures, such as the raceways and other historic structures and ruins, would be stabilized and rehabilitated for visitor use as possible (see "historic structures" section above for details). A new visitor contact station would be added within an existing building in the Historic District, the Colt Gun Mill would be rehabilitated for new compatible uses, and the ATP site would be opened for visitor use. New paths and walks would expand visitor access throughout areas of the park that are currently off limits or limited access. All of these actions would result in increased needs for park maintenance, and for park staffing to support the increased visitation, expanded activities, and new uses.

While the increased costs and staffing needs resulting from actions under this alternative would have potential for an adverse impact on the park's operations, this would be combined with greater support and coordination with partners as well as addition of concessions, which would partly offset the adverse impacts on park operations that the addition of new visitor facilities and recreation activities could create. As long as staffing levels increase at a commensurate level to match the needs of new facilities and programs, impacts to NPS operations would be negligible.

Cumulative Impacts

No other past, present, or reasonable foreseeable future projects were identified that have impacts on park operations; therefore, there are no cumulative impacts.

Conclusion

Under alternative C, the park would look to invest both time and funding into rehabilitating and preserving key park resources and expanding the interpretive and educational programming above current levels. These actions would have adverse impacts on park operations as funding and staffing are limited. Cooperation with existing partners and the creation of new partnerships, however, would alleviate the financial burden of proposed actions from park operations and allow the park to continue to operate within the constraints of its Congressionally-allocated budget. Additional partnership opportunities which would expand on current interpretive and educational programming would allow staff to provide and effective experience for visitors.

Raceway