



*Docks on the Wekiva River*

## Chapter 2 - Alternatives, Including the Preferred Alternative

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## INTRODUCTION

Many aspects of the desired future conditions of the Wekiva Wild and Scenic River System are defined in the Wild and Scenic Rivers Act and other national mandates and policies. Within these parameters, input was solicited from the public, government agencies, tribal officials, and other organizations regarding issues and desired conditions for the river. Information about existing visitor use and the condition of the river's resources and facilities was gathered to determine which areas of the river system attract visitors and which areas have sensitive resources.

Using the above information, two alternatives were developed to reflect a range of ideas for future river management. Alternative A, Continue Existing Management Direction, would continue current management practices and objectives as defined by each agency. Alternative B, Enhance Resource Protection and High-Quality Visitor Experiences (the preferred alternative) would coordinate management strategies among agencies to achieve the desired visitor experience and maintain optimal resource conditions.

This chapter includes tables that summarize the key differences between the alternatives and the key differences in the impacts that are expected from implementing each alternative. (The summary of impacts table is based on the analysis in Chapter 4, "Environmental Consequences.") This chapter also describes mitigating measures that would be used to lessen or avoid impacts, the future studies that would be needed, and the environmentally preferred alternative.

Additional plans or studies will be required before some of the results proposed in the alternatives are achieved. The implementation of any alternative also depends on future funding and environmental compliance. This environmental assessment does not guarantee that money will be forthcoming. The comprehensive river management plan establishes a vision of the future to guide day-to-day and

year-to-year management of the river, but full implementation could take many years.

## SUMMARY OF LEGISLATION

### **National Wild and Scenic Rivers Act of 1968**

Totaling 41.6 miles, the Wekiva River together with Rock Springs Run and Black Water Creek was designated by Congress as a national wild and scenic river under Section 3 of the Wild and Scenic River Act in October 2000 (PL 90-542). Unlike many rivers in the national system, which are entirely managed by federal or state entities, the Wekiva is a partnership wild and scenic river managed by a consortium of local stakeholders represented by the Wekiva River Advisory Management Committee (the advisory management committee), with oversight by the NPS. Section 7 of that act requires federal review of federally assisted projects occurring in the banks or beds of a wild and scenic river.

### **Wekiva River Protection Act of 1988**

The Wekiva River Protection Act, adopted by the Florida legislature in 1988, was an initial step toward achieving comprehensive protection of the Wekiva River System. The legislation required that Lake, Orange, and Seminole counties adopt comprehensive plan policies and land development regulations that apply to the designated Wekiva River Protection Area described in the statute. These policies and regulations were intended to better protect hydrologic resources, water quality, habitats, and aquatic/wetland-dependent wildlife species associated with the Wekiva River System. New policies and regulations included protecting rural character, limiting development densities, creating river corridor and wetland setbacks, and establishing protection zones. Also, agencies such as the St.

John's River Water Management District were required to create additional regulatory standards to better protect the Wekiva River System. Development of Regional Impact thresholds in the Wekiva River Protection Area were also reduced so that development plans of a smaller size would require review by the Florida Department of Community Affairs.

The legislation also addressed surface water influences on the river system. At the time the legislation was passed, groundwater influences on the Wekiva River System were not as well understood as they are at present. The extent of the groundwater basin that contributes to spring flow in the Wekiva River basin has been well defined relatively recently. This groundwater basin, also known as the Wekiva springshed, extends considerably west and south of the Wekiva River Protection Area. Until recently, the Wekiva springshed lacked the protective regulations that were put into place for the Wekiva River Protection Area because the springshed is mostly outside the geographic area defined by the 1988 act.

### **Wekiva Parkway and Protection Act of 2004**

This state legislation provided guiding principles for the design of the Wekiva Parkway, a limited access facility completing the Orlando beltway and connecting the city of Apopka to Sanford. The act includes requirements for structures to enhance wildlife movement and habitat connectivity and identifies four particular properties to be protected by acquisition or conservation easement near the proposed parkway. To ensure greater protection of water resources, the act designated another statutory area, described as the Wekiva Study Area, which included much of the groundwater contributing area to the west and south of the original Wekiva River Protection Area.

This act called for numerous actions and studies on the part of local governments and state agencies. These activities are overseen by the Wekiva River Basin Commission, which

was created as part of the legislation. Pursuant to this act, local government responsibilities included the adoption of comprehensive plan policies and land development regulations to optimize open space and promote a pattern of development that is protective of recharge areas, karst features, and natural habitat. Strategies identified in the act to accomplish this included clustering, greenway plans, land acquisition, conservation easements, low density development, and best management practices. The act also encouraged local governments to coordinate water supply plans, reuse plans, wastewater treatment, and the replacement of conventional septic systems with performance-based technology where necessary. The 2004 act also required the Florida Department of Environmental Protection and the Florida Department of Health to initiate rulemaking to implement stricter standards that reduce nitrate loading from wastewater treatment plants and individual on-site septic systems. It also called upon the St. Johns River Water Management District to pursue rulemaking to expand the area of recharge criteria to include the Wekiva Study Area, combine certain consumptive use and environmental resource permitting processes, and consider reducing the volume threshold for consumptive use permits.

Significant to Wekiva water quality concerns is a requirement in the act that the St. Johns River Water Management District develop a pollutant load reduction goal (PLRG) for the Wekiva Study Area. Pollutant load reduction goals are the precursors to TMDLs which require reductions in nutrient loadings to a water body that are needed to meet water quality goals. The first two steps of the PLRG process are to determine the nature of a water body's impairment and then identify the pollutants that are causing impairment. These steps led to the conclusion that nitrate and total phosphorus in the Wekiva River and Rock Springs Run should be reduced.

The act requires the Florida Department of Environmental Protection to adopt total maximum daily loads (TMDLs) for the Wekiva River and Rock Springs Run. This first

required that these waterbodies be added to the Impaired Waters List, which was completed in January 2007. Development of the total maximum daily loads uses the findings published in the PLRG study to create a regulatory requirement for external nutrient and other pollutant loads. These loads can be targeted for future reduction in the “Basin Management Action Plan” that will outline how the adopted total maximum daily loads will be implemented. Total maximum daily loads for nitrate and total phosphorus were adopted by the Florida Department of Environmental Protection in June 2008.

### Outstanding Florida Waters

The Wekiva River System has been designated as an “Outstanding Florida Water” by the state pursuant to Section 303 of the Federal Clean Water Act. The designation is the highest level of water quality protection within the state.

### RIVER CLASSIFICATION

The Wild and Scenic Rivers Act states that for a river to be eligible for designation it must be “free-flowing” and must possess one or more “outstandingly remarkable” scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values. The waters in the Wekiva River System that were designated were found to be free flowing and to possess five outstandingly remarkable values (ORVs). These ORVs are scenic, recreation, wildlife and habitat, historic and cultural, and water quality and quantity values.

The Wild and Scenic Rivers Act also requires that river segments be classified as *wild*, *scenic*, or *recreational*, depending on the river segment’s degree of natural character and use. The classifications are defined as follows:

**Wild river segments** — Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted.

These represent vestiges of primitive America.

**Scenic river segments** — Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

**Recreational river segments** — Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

The Wild and Scenic Rivers Act (PL 90-542) as amended in October, 2000, specified the following segments and classifications (see also the Classifications map following the description).

- (A) Wekiva River and Wekiwa Springs Run — The 14.9 miles of the Wekiva River from its confluence with the St. Johns River to Wekiwa Springs, to be administered in the following classifications:
- (i) From the confluence with the St. Johns River to the southern boundary of the Lower Wekiva River State Preserve, approximately 4.4 miles, as a wild river.
  - (ii) From the southern boundary of the Lower Wekiva River State Preserve to the northern boundary of Rock Springs State Reserve at the Wekiva River, approximately 3.4 miles, as a recreational river.
  - (iii) From the northern boundary of Rock Springs State Reserve at the Wekiva River to the southern boundary of Rock Springs State Reserve at the Wekiva River, approximately 5.9 miles, as a wild river.
  - (iv) From the southern boundary of Rock Springs State Reserve at the Wekiva River upstream along Wekiwa Springs Run to Wekiwa Springs,

- approximately 1.2 miles, as a recreational river.
- (B) Rock Springs Run — The 8.8 miles from the confluence of Rock Springs Run with the Wekiwa Springs Run forming the Wekiva River to its headwaters at Rock Springs, to be administered in the following classifications:
- (i) From the confluence with Wekiwa Springs Run to the western boundary of Rock Springs Run State Reserve at Rock Springs Run, approximately 6.9 miles, as a wild river.
  - (ii) From the western boundary of Rock Springs Run State Reserve at Rock Springs Run to Rock Springs, approximately 1.9 miles, as a recreational river.
- (C) Black Water Creek.--The 17.9 miles from the confluence of Black Water Creek with the Wekiva River to the outflow from Lake Norris, to be administered in the following classifications:
- (i) From the confluence with the Wekiva River to approximately 0.25 mile downstream of the Seminole State Forest road crossing, approximately 4.1 miles, as a wild river.
  - (ii) From approximately 0.25 mile downstream of the Seminole State Forest road to approximately 0.25 mile upstream of the Seminole State Forest road crossing, approximately 0.5 mile, as a scenic river.
  - (iii) From approximately .025 mile upstream of the Seminole State Forest road crossing to approximately 0.25 mile downstream of the old railroad grade crossing (approximately River Mile 9), approximately 4.4 miles, as a wild river.
  - (iv) From approximately 0.25 mile downstream of the old railroad grade crossing (approximately river mile 9), upstream to the boundary of Seminole State Forest (approximately River Mile 10.6), approximately 1.6 miles, as a scenic river.
  - (v) From the boundary of Seminole State Forest (approximately river mile 10.6) to approximately 0.25 mile downstream of the SR 44 crossing, approximately .9 mile, as a wild river.
  - (vi) From approximately 0.25 mile downstream of SR 44 to approximately 0.25 mile upstream of the County Road (CR) 44A crossing, approximately .6 mile, as a recreational river.
  - (vii) From approximately 0.25 mile upstream of the CR 44A crossing to approximately 0.25 mile downstream of the Lake Norris Road crossing, approximately 4.7 miles, as a wild river.
  - (viii) From approximately 0.25 mile downstream of the Lake Norris Road crossing to the outflow from Lake Norris, approximately 1.1 miles, as a recreational river.





0 2 4 Miles



## Classifications

### Wekiva Wild and Scenic River

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## ALTERNATIVE A: CONTINUE EXISTING MANAGEMENT DIRECTION BY AGENCIES

### CONCEPT

Alternative A would continue current management practices into the future (this is the no-action alternative required by the National Environmental Policy Act). Its goal would be to retain the existing visitor experiences and land use strategies based on agency jurisdiction. The comprehensive management plan for the river system required by the Wild and Scenic Rivers Act would not be implemented. No new coordinated planning efforts with state, county, and local governments and private landowners would be initiated, but ongoing efforts would continue. In this alternative, the river would be managed pursuant to existing federal, state, and local legislation. “No action” does not imply discontinuing the present uses or management actions or removing the existing Wild and Scenic River designation. The following provides a summary of legislation and agency oversight that is currently in place for managing the Wekiva River System, and that would continue under this alternative.

Because there would be no approved comprehensive river management plan as required by Section 3(d)(1) of the Wild and Scenic Rivers Act, this alternative would not be in compliance with the Act.

### RIVER MANAGEMENT

Under alternative A, the Wekiva Wild and Scenic River System would continue to be managed under the Wild and Scenic Rivers Act and according to agency management plans. A full description of the classified segments may be found on page 23 in this chapter.

### Federal Agencies and Programs

Numerous local, state, and federal agencies have management or regulatory jurisdiction over the Wekiva Wild and Scenic River System. However, none of the lands in the boundary of the system are owned by the federal government.

**National Park Service.** The National Park Service has oversight of partnership wild and scenic rivers to help communities preserve and manage their own river-related resources by bringing together state, county, and community managers to preserve the outstandingly remarkable values for which the rivers were designated. Specifically, the NPS allocates funds for managing the Wekiva Wild and Scenic River System and all other partnership rivers throughout the country. In addition, the NPS is responsible for reviewing any and all federally assisted water resources projects, pursuant to Section 7 of the Wild and Scenic Rivers Act, that could affect a wild and scenic river, particularly its free-flow condition and its outstandingly remarkable values.

**U.S. Army Corps of Engineers.** The U.S. Army Corps of Engineers is charged with regulating waters of the United States. By definition these waters include coastal and navigable inland waters, lakes, rivers and streams; other intrastate lakes, rivers and streams (including intermittent streams); and mudflats, sandflats, wetlands, sloughs, wet meadows, and certain impoundments.

**U.S. Fish and Wildlife Service.** The U.S. Fish and Wildlife Service (USFWS) must be consulted if a federally protected species may be impacted by an activity within its jurisdiction. USFWS staff prepare an independent biological opinion, and an activity may not be authorized unless it is determined that the project is not likely to jeopardize the

continued existence of the species or result in the destruction of the habitat of the species.

## State Agencies and Programs

**Florida Department of Environmental Protection (FDEP).** All of the wild and scenic river segments are state waters. The Florida Department of Environmental Protection has programs regulating drinking water facilities, wastewater discharges (domestic and industrial), landfills (solid waste), facilities generating hazardous waste, and operations creating air discharges. Dredging, filling and/or construction activities in wetlands associated with private, single-family residences, domestic or industrial wastewater facilities, or landfills also are regulated by the department. In addition, this department sets water quality standards for the different categories of surface waters in the state. These standards are found in Chapter 62-302 of the *Florida Administrative Code*.

**Florida Division of Recreation and Parks (also called the Florida Park Service or FPS).** The Florida Division of Recreation and Parks is under the Florida Department of Environmental Protection. There are three state parks that are within the Wekiva Wild and Scenic River System. These three parks are: Wekiwa Springs State Park, which has uplands acreage of 8,581 and submerged acreage of 78, totaling 8,659 acres; Rock Springs Run State Reserve, which has uplands acreage of 13,699 and submerged acreage of 312, totaling 14,011 acres; and finally Lower Wekiva River Preserve State Park, which has upland acreage of 16,991 and submerged acreage of 413 totaling 17,405 acres. The total acreage of these three parks is 40,074 acres, which is combined under one management plan as the Wekiva River Basin State Parks.

The Florida Division of Recreation and Parks' mission is to provide resource-based recreation while preserving, interpreting, and restoring natural and cultural resources. At all three parks, a variety of recreation for the

visiting public is provided — from canoeing and swimming to guided horseback riding; both horses and canoes provided by the park concessioner. Wekiwa Springs State Park has a 60-site family campground, and for large groups there is the park's youth camp facility. There are four primitive campsites for canoeists along the both the Wekiva River and Rock Springs Run, with additional sites for hikers and horseback riders. Within the Wekiva River Basin State Parks boundaries there are more than 80 miles of multiuse trails for the public's enjoyment of nature, with an additional 15-mile canoe/kayak trail along the Wekiva River and Rock Springs Run.

In addition to providing public recreation, FPS devotes significant time and effort for the protection of natural and cultural resources. Within the Wekiva River Basin State Parks boundaries there are 19 distinct natural community types in both uplands and wetlands type categories. Within these communities there are a number of imperiled species that are inhabitants within state park boundaries, and great efforts were expended to protect their known habitats. These species range from the Florida scrub jays, gopher frog, Sherman's fox squirrel, and gopher tortoises in the uplands communities to bald eagles, wood storks, limpkins, and various species of egret and heron along the rivers. Also present is the American alligator, which has made an amazing recovery from its former status as an endangered species. The most prominent of all designated species on all three properties is the Florida black bear. In managing these species and their habitats, Recreation and Parks division staff use various tools and techniques in their management strategies — from prescribed fire to active exotic species removal. Various historic and cultural sites have been located, cataloged, and protected in all three parks, including the old Ethel cemetery and the numerous Timucuan and Seminole middens found through the park properties, especially along the river system.

**Wekiva River Aquatic Preserve.** Florida's aquatic preserves are administrated by FDEP's Office of Coastal and Aquatic

Managed Areas as part of a network that includes 41 aquatic preserves, including the Wekiva River Aquatic Preserve. The Wekiva River Aquatic Preserve provides an overlay of environmental protection measures along the Wekiva River and immediate surroundings, including part of the St. Johns River. The four long-term goals of the aquatic preserve program are to protect and enhance ecological integrity; restore areas to their natural condition; encourage sustainable use and foster active stewardship by local communities; and improve management through a process based on sound science, consistent evaluation, and continual reassessment.

Wekiva River Aquatic Preserve staff are responsible for more than 8,000 acres of state sovereign submerged lands, which include the entire Wekiva River, the lower 1-mile reach of Rock Springs Run, approximately 3 miles of the Little Wekiva River, 3 miles of lower Black Water Creek, and 20 miles of the St. Johns River from Interstate 4 in Sanford to State Road (SR) 44, just west of Deland and Lake Beresford. Resource management activities conducted by staff include interagency coordination, evaluation of projects that may impact the aquatic preserve, exotic plant control, education programs, monitoring of wetland birds and other wildlife including listed species, fostering stakeholder participation in protecting the preserve, community assistance, restoration projects, and participation on various technical advisory committees.

Title to submerged lands is held by the Board of Trustees of the Internal Improvement Trust Fund (the trustees). The governor and cabinet, sitting as the trustees, act as guardians for the people of the state and regulate the use of these public lands. Management authority for aquatic preserves is provided in Chapters 258 and 253, Florida Statutes. Administrative rules directly applicable to uses allowed in aquatic preserves are found in Chapters 18-20, *Florida Administrative Code*.

**Florida Department of Agriculture and Consumer Affairs.** The Florida Department

of Agriculture and Consumer Services (DACS), Division of Forestry, manages more than 27,000 acres in east Lake County. Known as Seminole State Forest, these lands provide essential connectivity in the Wekiva basin, extending north of Rock Springs Run State Reserve to the Ocala National Forest. Although mostly held by the state of Florida as Board of Trustee lands, about 3,000 acres surrounding Black Water Creek are owned by the St Johns River Water Management District.

Seminole State Forest is managed by the Florida Division of Forestry with the goal of protecting and maintaining the native biological diversity of the many ecosystems that comprise the state forest, while integrating public use of the resources. Multiple-use management promotes recreation, timber, wildlife, endangered species, environmental education and many other values that benefit Florida's citizens and visitors. Seminole State Forest land management activities generally assist in preserving the natural ecosystem around most of Black Water Creek. Boating on the creek is managed through a permit system.

**St. Johns River Water Management District.** The Wekiva basin is entirely within the St. Johns River Water Management District boundary (SJRWMD or the district). The district oversees numerous activities to ensure the sustainable use and protection of water resources on designated and other river segments. The district has two primary regulatory programs — the consumptive use permit (CUP) program and the environmental resource permit (ERP) program.

The district holds title to several parcels within the Wekiva basin, including approximately 3000 acres within the Black Water Creek drainage basin. The district also holds protective conservation easements over various privately-owned parcels. In addition, this district manages a small parcel on the Wekiva River for the Audubon Society.

Part II of Chapter 373, Florida Statutes, authorizes the water management districts to require permits for the consumptive use of groundwater and surface water. The St Johns River Water Management District requires a CUP applicant to establish that a proposed withdrawal of water meets a three-pronged statutory test: (1) the use must be reasonable-beneficial; (2) the use must not interfere with existing legal uses; and (3) the use must be consistent with the public interest. Chapter 40C-2, *Florida Administrative Code*, contains the criteria necessary to demonstrate that a use is reasonable-beneficial.

Part IV of Chapter 373, Florida Statutes, authorizes the water management districts and the Florida Department of Environmental Protection to require environmental resource permits for the construction and operation of surface water management systems (a term encompassing most land development activities) whether in uplands or wetlands. Criteria that an applicant must meet are contained in Chapter 40C-4, *Florida Administrative Code*. Additionally, where any regulated activity is located in, on, or over wetlands or other surface waters, the environmental resource permit applicant must establish that the activity is not contrary to the public interest, or, if within an Outstanding Florida Water, that the activity would be clearly in the public interest. Public interest criteria for activities affecting surface water and wetlands are contained in Section 373.414, *Florida Statutes*.

The St. Johns Water Management District has adopted special environmental resource permit criteria for the Wekiva River Hydrologic Basin in Chapter 40C-41, *Florida Administrative Code*. A permit applicant proposing a project in this basin must meet the criteria in both chapters 40C-4 and 40C-41, *Florida Administrative Code*.

### Local Governments

The Wekiva River Protection Act of 1988 (Chapter 359, Part II, Florida Statutes) required that Lake, Orange, and Seminole counties adopt comprehensive plan policies and land development regulations that protect natural resources and rural character within the Wekiva River Protection Area. Policies and regulations control the density and intensity of development in the protection area, as well as prescribe certain regulatory requirements. The Wekiva Parkway and Protection Act, adopted in 2004, expanded upon that framework to require special consideration of springshed and groundwater resources within a designated “Wekiva Study Area,” and emphasized the protection of open space. In addition to county governments, the 2004 legislation applies to all 12 municipalities that are within in or partially within the designated study area.

## ALTERNATIVE B: ENHANCE RESOURCE PROTECTION AND HIGH-QUALITY VISITOR EXPERIENCES (PREFERRED ALTERNATIVE)

### CONCEPT

Alternative B, the preferred alternative, would seek to enhance natural and cultural resource protection and promote high-quality visitor experiences through a set of comprehensive management strategies and actions. The outstandingly remarkable values as identified in the Wekiva Wild and Scenic River System Comprehensive Management Plan (scenic, recreation, wildlife and habitat, historic and cultural, and water quality and quantity) would receive enhanced protection and management attention. Current protective measures in place under alternative A would continue, including existing management direction of the Wekiva River System by state and local agencies. The NPS would oversee and coordinate implementation of the comprehensive river management plan with the Wekiva River System Advisory Management Committee (the advisory management committee).

Approval of the preferred alternative would meet the requirements of Section 3(d)(1) of the Wild and Scenic Rivers Act for a comprehensive river management plan.

The description of alternative B appearing in this chapter includes the goals, objectives, and action steps of the *Wekiva Wild and Scenic River System Comprehensive Management Plan* prepared by the Wekiva Wild and Scenic River System Advisory Management Committee which is available from the advisory management committee.

### BOUNDARIES

Section 3(b) of the Wild and Scenic Rivers Act requires the establishment of boundaries for a river corridor. The act allows for river corridor boundaries that do not exceed 320 acres of land per river mile, generally compris-

ing an area 0.25 mile from the ordinary high water marks on either side of the river. In the case of the Wekiva River, designated as a locally managed partnership river, federal land acquisition is expressly not authorized, and the act does not provide the federal administering agency (in this case the NPS) to regulate actions on nonfederal lands.

Thus, in accordance with Section 3(b) of the Act, the boundaries of the Wekiva Wild and Scenic River System are hereby established as a corridor one-quarter (0.25) mile from the ordinary high water marks on either side of the rivers for a total width of one-half mile. Establishment of these boundaries in no way encumbers the rights of private landowners or local or state government entities with land holdings inside the boundaries. Further, the boundaries do not preclude the advisory management committee and others from engaging in management actions that are beneficial to the protection and enhancement of the river's outstandingly remarkable values that extend outside the boundaries.

These statutory boundaries are intended to support the protection of the river's outstandingly remarkable values via means other than federal landownership and federal regulation — such as incentive-based approaches, conservation easements, locally adopted zoning ordinances, and land management actions undertaken by nonfederal land managers (e.g., the Florida Department of Environmental Protection). However, Section 7 of the act does require federal regulation of any federally assisted water resources project occurring within the bed or banks of the Wekiva Wild and Scenic River System. See Alternative B, Boundary map.

### Management Areas Related to Outstandingly Remarkable Values

Several of the management objectives and actions called for in the plan to protect or restore the identified outstandingly remarkable values occur well outside the statutory boundary. The advisory management committee has recognized that some resource management issues — notably water quality and water quantity — correspond to resource management areas that involve the entire watershed and springsheds.

## RIVER MANAGEMENT

Under alternative B, the agency involvement and jurisdiction described under alternative A would continue. However, with alternative B, the advisory management committee, in partnership with the NPS and state and local land managers, would take the lead role in coordinating multijurisdictional river management issues and ensuring that the management actions in the plan would be implemented by the appropriate agencies as available staff and funding allows.

The *Comprehensive River Management Plan* includes a long-term framework for protecting and managing the identified outstandingly remarkable values, managing use by visitors, and other factors. Under the preferred alternative, for each outstandingly remarkable value (scenic, recreation, wildlife and habitat, historic and cultural, and water quality and quantity) there are two or more proposed goals for management. As outlined in the following text, each goal has a series of objectives and actions that, if achieved, would contribute to accomplishment of that particular goal.

The Wekiva Wild and Scenic River System would be managed according to the segment classifications to maintain their outstandingly remarkable values (see following Classifications map). Segments classified as *wild* would be managed to maintain primitive shorelines in an undisturbed state. Segments classified as

*scenic* would be managed to maintain river values and the largely primitive and natural-appearing shorelines while providing some user accessibility. More development may exist in segments classified as *recreational*, but those segments would be managed to offer high-quality recreational opportunities while preserving the outstandingly remarkable values present.

### Scenic Values

***Goal 1: Maintain and enhance healthy native plant and animal communities in the Wekiva River System.***

#### Objectives

- A. Continue to monitor and control nuisance and invasive exotic vegetation within the Wekiva River System using the category I and II lists produced by the Florida Invasive Pest Plant Council as a guide. Species that require attention include, but are not limited to, hydrilla, water hyacinth, wild taro, elephant ear, para grass, Chinese tallow, East Indian hygrophylla, and cattail.
  - i. Implement as shown under goal 3 for wildlife and habitat.
- B. Assess the impacts associated with the proliferation of invasive exotic fishes such as, but not limited to, armored catfish within the Wekiva River System and develop actions for expanding monitoring and control strategies.
  - i. Implement as shown under goal 3 for wildlife and habitat.
- C. Monitor and control invasive exotic invertebrates within the Wekiva River System, including but not limited to channeled apple snails if they become established, and develop actions for expanding monitoring and control strategies.



#### Classification

- Recreational
- Scenic
- Wild

0 2 4 Miles



## Alternative B, Boundary

### Wekiva Wild and Scenic River

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- i. Implement as shown under goal 3 for wildlife and habitat.
- D. Expand current partnerships with private businesses and concessioners who operate on the river system or within the Wekiva basin parks to ensure that their activities are protective of wild and scenic river values and to provide unified, supporting messages to their clients about the wild and scenic status of the Wekiva River System and regulations and guidelines for its use.
  - i. Develop a set of unified messages that reinforce the wild and scenic status of the river system.
  - ii. Compile a list and description of all regulations and guidelines that apply to use of the river (local, state, and federal) for public distribution that include the locations of pullout areas and picnic and camping facilities.
  - iii. Provide materials as needed to help concessioners educate their customers about proper and sustainable use of the river system.
  - iv. Work with private business and concessioners to improve operational practices, including but not limited to shoreline protection, wake control, and litter.
  - v. Assess the need to train private businesses and concessioners about river stewardship and develop a program if needed.

*Scenic Values Goal 2: Maintain and enhance the wild and scenic character of the Wekiva River System by limiting the intrusion of the visual and auditory aspects of human development and activity.*

## **Objectives**

- A. To minimize visual disturbance, continue to enforce development regulations for private waterfront properties and businesses relating to land clearing, preservation of native vegetation, signs and structures including but not limited to bridges, launch areas, docks, and overlooks within the Wekiva River System corridors. If necessary, improve government regulations regarding these activities and structures.
  - i. Work with county governments and St. Johns River Water Management District to clearly identify the current relevant regulations.
  - ii. Encourage a regime of strict interpretation and enforcement of these regulations for new developments in the river corridor.
  - iii. Develop a checklist for assessing current state of properties in the river corridor for all parameters listed.
  - iv. Use checklist to assess properties in the river corridor.
  - v. Develop a plan for communication with residents to remedy problem areas.
- B. Support a prohibition of access for gasoline-powered, motorized watercraft to Rock Springs Run and Black Water Creek, except for authorized service vessels.
  - i. Support revisions to management plans to achieve this objective.
  - ii. Encourage patrols by off-duty law enforcement officers (these patrols could have multiple law enforcement purposes across the entire system).
- C. Ensure that the new road bridge proposed for the Wekiva Parkway, as

- well as any related construction, is designed to limit its visual and auditory intrusion on the Wekiva River.
  - i. Coordinate closely with the agencies responsible for designing and building the bridge throughout the process, including but not limited to the Orlando Orange County Expressway Authority and Florida Department of Transportation; coordinate with the Wekiva River Basin Commission and the Wekiva Coalition.
  - ii. Ensure that light intrusion is minimized.
- D. Continue to implement and strengthen development regulations and practices for preservation of native vegetation, land clearing, structures, and plantings at publicly owned recreation areas within the Wekiva River System.
  - i. Assess current regulations and practices and their implementation at all public recreation areas.
  - ii. Develop plans to remedy any problem areas.
  - iii. Put remedies into action according to plans.
- E. Establish regulations limiting the intrusion of artificial light to protect dark skies within the river corridor of the Wekiva River System.
  - i. Coordinate with Seminole, Orange, and Lake County governments to establish these regulations.
  - ii. Once regulations are established, coordinate with these entities, as well as the Florida Park Service and the Florida Fish and Wildlife Conservation Commission, on enforcement.
- F. Create rules and enforcement mechanisms to regulate noise pollution within the Wekiva River System appropriate to the wild, scenic, or recreational designations of the different river segments.
  - i. Establish decibel levels of acceptable noise in the three river segments.
  - ii. Include assessment of noise levels in the recreation impact monitoring and management plan.
  - iii. Based upon this assessment, establish, post, and enforce noise regulations as part of river use guidelines.
- G. Redesign the junction of SR 44 and CR 44A to limit visual and auditory intrusions on Black Water Creek so that only one bridge crosses the creek at this location.
  - i. Coordinate with the Florida Department of Transportation and Lake County to raise this issue and encourage a new design.
  - ii. Schedule and implement reconstruction.
- H. Continue to implement, upgrade, and strengthen the existing Adopt-a-River monitoring, control, and removal plan for litter along and within the Wekiva River System.
  - i. Continue and assess the effectiveness of current litter collection efforts.
  - ii. Reestablish the Adopt-a-River Volunteer program.
  - iii. Build messages about litter control into the river use regulations and guidelines as specified in objective D above.
- I. Except for the Wekiva Parkway, work to ensure that no new roads for motor

vehicle traffic are constructed across waters of the Wekiva River System, and ensure that any trails for bicycle or pedestrian use are limited in scale to minimize visual intrusion and are located within existing disturbed areas to prevent adverse impacts on native vegetation, shorelines, and riparian corridors.

- i. Monitor the status of proposed state and local road projects and engage in planning efforts as necessary to meet this objective.
- ii. Coordinate with Orlando Orange County Expressway Authority, the Florida Department of Transportation, FDEP Office of Greenways and Trails, and local governments regarding the location and design of trails.

## **Recreation Values**

***Goal 1: Provide opportunities for recreation on the Wekiva River System that are compatible with the area's natural and cultural features and management objectives.***

### **Objectives**

- A. Conduct a recreation assessment to determine who is currently using the river, how use is projected to change, determining level of use, and what uses are compatible with each river segment.
  - i. Conduct a survey of current users of the Wekiva River, Rock Springs Run, and Black Water Creek, as well as the adjacent section of the St. Johns River.
  - ii. Research the trends in current and potential use of the Wekiva River area using boat registrations for Seminole, Lake, and Orange counties, as well as

- iii. Conduct compatibility and carrying capacity studies to determine what types of use and what level of use (including amount, speeds, size of watercraft, etc.) would be appropriate for the river system.
- iv. Determine what types of use should and should not be allowed along the Wekiva River System.
- v. Determine where different types of recreation should occur, including where any access points or recreation sites should be created or removed (e.g., see the design guidelines in appendix B).

- B. Develop a facilities master plan that indicates what facilities should be provided to support the uses determined to be appropriate by the recreation assessment.

- i. Determine which facilities should be provided to support the conclusions of a future recreation assessment, including: public access areas, camping areas, picnic areas, parking, restrooms, and boat rentals.
- ii. Create a map of the location and type of facilities needed.
- iii. Determine a cost estimate and priority for each element of a future facilities master plan.
- iv. Seek funding and sponsorship opportunities for proposed facilities.

- C. If necessary to protect and secure public access, pursue the public acquisition of established privately operated recreation sites on the Wekiva River System to maintain long-term access for passive recreation in accord with

the findings of the recreation facilities assessment.

- i. Monitor the status of commercial properties with existing access along the river. If a privately operated access site comes up for sale, consider purchasing the property to maintain sufficient public access to the Wekiva River System.
- ii. Revise management plans or develop new plans as appropriate for additional properties.

D. If necessary to protect and secure public access, pursue the public acquisition of new sites for river access based upon the findings of the recreation assessment and facilities master plan.

- i. Based upon findings of the future recreation assessment, and in accord with the maintenance of all wild and scenic values, determine potential sites for public access not currently in public ownership.
- ii. If one of these targeted sites becomes available, consider acquisition for purposes of maintaining or improving river access.
- iii. Revise management plans or develop new plans as appropriate for additional properties.

***Recreation Value Goal 2: Ensure that river recreation minimizes environmental impacts and user conflicts and is compatible with the preservation of natural and cultural qualities of a national wild and scenic river.***

#### **Objectives**

- A. Develop a recreation impact monitoring and management plan that identifies limits of acceptable change (thresholds) and management actions

for ecological and social impacts from recreation.

- i. Determine which resources should be monitored and protected within the Wekiva River System.
- ii. Determine where resources that should be monitored and protected are located and map these resources.
- iii. For each resource to be monitored and protected, determine the level of impact or user capacity that is acceptable for that resource.
- iv. Create a monitoring program to keep track of resources and determine if, when, and how they have been altered by recreation activities.
- v. Create an action program that lays out the steps that would be taken if a resource has been degraded beyond an acceptable level.
- vi. Determine who would implement the steps needed to address resource impacts.

B. Expand current partnerships with private businesses and concessioners who operate on the river or within the Wekiva basin parks to ensure that their activities are protective of wild and scenic river values, and to provide unified, supporting messages to their clients about the wild and scenic status of the Wekiva River System and the regulations and guidelines for its use.

- i. Develop a set of unified messages that reinforce the wild and scenic status of the river system.
- ii. Develop a set of unified regulations and guidelines for public distribution that include the locations of pullout areas and picnic and camping facilities.

- iii. Provide materials as needed to help concessionaires educate their customers about proper and sustainable use of the river system.
  - iv. Work with private business and concessionaires to improve operational practices, including but not limited to shoreline protection, wake control, and litter.
  - v. Assess the need to train private businesses and concessionaires about river stewardship and develop a program if needed.
- C. Support a prohibition of gasoline-powered, motorized watercraft on Rock Springs Run and Black Water Creek, except for authorized service vessels.
- i. Work with state agencies to extend prohibition of motorized water craft on Black Water Creek.
  - ii. Assess existing enforcement of rules associated with motorized water craft on Black Water Creek and Rock Springs Run, and modify as necessary.
  - iii. Encourage patrols by off-duty law enforcement officers (these patrols could have multiple law enforcement purposes across the entire system).
  - iv. Include guidelines for monitoring and addressing motorized boat use along the river in the monitoring and management program.
  - v. Ensure that concessioners that rent motorized boats within the Wekiva River System (including the St. Johns River) alert their customers about limits on motorized boat access in these areas.

## Wildlife and Habitat Values

***Goal 1: Protect aquatic and aquatic-dependent organisms and their habitats throughout the Wekiva River System and its associated wetlands.***

### Objectives

- A. Coordinate with the St. Johns River Water Management District, Florida Department of Environmental Protection, and other interested or affected parties to ensure adequate water quantity and quality in the Wekiva River System to maintain a diversity of aquatic and aquatic-dependent species and habitats (see Water Quality and Quantity section).
  - i. Implement all goals, objectives, and strategies as described in the water quality and quantity section.
- B. Conduct species-specific surveys followed by annual monitoring for aquatic invertebrates in the Wekiva basin springs, such as Wekiwa Springs hydrobe, Wekiwa siltsnail, and Orlando cave crayfish, to establish baseline population levels and document population trends.
  - i. Contract with aquatic scientists to establish baseline populations and to develop a monitoring protocol that specifically targets the Wekiwa Springs hydrobe, Wekiwa siltsnail, and Orlando cave crayfish.
  - ii. Implement a monitoring program for aquatic invertebrates using the protocol.
  - iii. Contract analysis of invertebrate sampling to document population trends.
- C. Continue to monitor the condition of, and any changes to, submerged aquatic vegetation beds, particularly eelgrass beds that are a distinctive component

of the Wekiva River System and indicative of a healthy riverine system.

- i. Consult with aquatic ecologists to determine an optimal status for eelgrass beds within the Wekiva River System and to develop a protocol for measuring and monitoring the health of eelgrass.
  - ii. If needed, based upon monitoring, establish a restoration program for eelgrass beds to reestablish the optimal condition, with a goal for time of completion.
  - iii. Contract with fishery scientists to establish the baseline of the bluenose shiner population (a rare fish that favors eelgrass beds) within the Wekiva River System and to develop a monitoring protocol.
  - iv. Implement a monitoring program to track bluenose shiner populations as an additional indicator of eelgrass health and within guidelines of the monitoring protocol.
- D. Continue monthly bird surveys on the Wekiva River System and surrounding riverine systems and produce an annual report that assesses trends in bird populations.
- i. Consult with statisticians and ornithologists for appropriate analysis of monthly bird survey data to assess population trends.
  - ii. Continue monthly bird surveys using volunteers and the quarterly contracted survey.
- E. Assess the extent to which West Indian manatees use the lower Wekiva River and the various factors associated with their feeding, movement, and other behaviors in relation to the St Johns River.
- i. Contract with marine mammalogists to study manatee behavior in and their use of the lower Wekiva River.
- F. Establish annual monitoring programs for reptiles and amphibians.
- i. Consult with herpetologists to determine the most effective ways of monitoring the status of reptile and amphibian populations associated with the river system.
  - ii. Implement monitoring program.
- G. Expand efforts to promote bear awareness and take steps to decrease human-bear conflicts.
- i. Implement multimedia presentations for public lands visitors, homeowner associations, schools, and private organizations.
  - ii. Distribute printed material published by governmental agencies such as the Florida Fish and Wildlife Conservation Commission or nonprofit conservation organizations.
  - iii. Encourage, or require the use of, bear-proof trash receptacles for residents within the Wekiva basin in areas with frequent bear activity.
- Wildlife and Habitat Goal 2: Maintain habitat quality, landscape diversity, and ecosystem connectivity within the Wekiva basin and associated ecosystems with an emphasis on the black bear as an umbrella species.***
- Objectives**
- A. Support design and construction of the Wekiva Parkway and associated roadway modifications, consistent with purposes of the Wekiva Parkway and



Protection Act and the National Wild and Scenic River Act, to enhance habitat connectivity and corridors for wildlife movement.

- i. Promote cooperation among agencies, local governments, and conservation organizations to complete the Wekiva Parkway project in a timely manner.
    - ii. Ensure that an ample section of the Wekiva Parkway is elevated to provide for movement of bear and other wildlife.
    - iii. Manage vegetation, fencing, and other features of the Wekiva Parkway to facilitate wildlife movement.
    - iv. Monitor movement and behavior patterns of bears and other wildlife underneath bridged sections of the Wekiva Parkway.
  - B. Evaluate and where possible pursue corrective action to remove impediments to the movement of bears and other wildlife between the Wekiva basin and Ocala National Forest north of the Wekiva Parkway caused by roads or incompatible land uses. Address the potential impact of road construction on such wildlife movement through design for wildlife crossings and other mitigative measures.
    - i. Install wildlife underpasses under roadways that cross the Wekiva basin ecological corridor such as SR 44 and CR 42.
    - ii. Reconfigure roadways that present an unnecessary hindrance to wildlife movement, such as the junction of SR 44 and CR 44A at Black Water Creek.
    - iii. Pursue habitat restoration or enhancement projects where needed.
    - iv. Remove barriers to wildlife movement, such as structures,
- walls, or fences (except where necessary to guide wildlife to areas of safe passage).
- C. Discourage additional new road construction within the Wekiva basin that could impede the normal movement of bears and other wildlife, and attempt to avoid the construction or expansion of new roads within public conservation land. Address the potential impact of road construction on such wildlife movement through design for wildlife crossings and other mitigative measures.
    - i. Establish policies to discourage new road construction and maintenance that could impede the normal movement of bears and other wildlife, and to discourage the construction or expansion of new roads within public conservation land; ensure that any new road construction and maintenance activities do not impede normal movement of bears and other wildlife.
    - ii. Consolidate transportation improvements within existing roadways, provide alternatives that remove traffic from the basin, and provide measures that mitigate the impact of road construction on the movement of wildlife.
  - D. Prioritize and pursue private lands needed for preservation through acquisition and/or conservation easements.
    - i. Pursue programs at the federal, state, and local level for the protection of conservation lands, including but not limited to (a) encourage annual state legislative funding for Florida Forever and as appropriate its expansion, (b) the

- appropriation of special funding for key acquisitions and easements, (c) the expansion of local acquisition and easements programs, and (d) partnerships with private conservation organizations.
  - E. Identify private lands with critical and unique features (such as springs or other karst features) or underrepresented habitats within the Wekiva basin and springshed; prioritize and pursue such lands from willing sellers for preservation through acquisition and/or conservation easements.
    - i. Consult with local governments, environmental agencies and conservation organizations such as The Nature Conservancy and local land trusts for help in identifying and protecting critical and unique features within the Wekiva basin.
  - F. Identify areas within the Wekiva River System floodplain with impacted hydrology and develop a plan to improve the hydrology of the associated riparian habitats.
    - i. Consult with the St. Johns River Water Management District to determine if impacted areas have been identified and if a plan is already developed to restore hydrological function.
    - ii. Support the development of a plan and its implementation if necessary.
  - G. Continue and improve the implementation of prescribed fire on public conservation lands within the Wekiva basin, including within ecotones (transition areas between separate habitat types) and riparian zones.
    - i. Continue and enhance interagency cooperation with prescribed fire planning and implementation.
    - ii. Establish designated smoke corridors, with ordinances where needed, to facilitate the work of prescribed burns.
    - iii. Educate residents about the importance of prescribed fire to maintain healthy ecosystems.
  - H. Work with local, state, and federal agencies, and the private sector to encourage the designation of common open space for the protection of functional habitat corridors for wildlife movement in development plans within the Wekiva basin.
    - i. Support city and county land development regulations, and landowner incentives, for open space preservation on new developments.
- Wildlife and Habitat Goal 3: Reduce the impacts of invasive species and exotic species on native species and habitats throughout the Wekiva River System and its associated wetlands.***
- Objectives**
- A. Continue to monitor and control nuisance and invasive exotic vegetation within the Wekiva River System using the category I and II lists produced by the Florida Invasive Pest Plant Council as a guide. Species that require attention include, but are not limited to, hydrilla, water hyacinth, wild taro, para grass, Chinese tallow, East Indian hygrophylla, and cattail.
    - i. Continue and expand current efforts to eradicate and/or control the spread of hydrilla, water hyacinth, wild taro, para grass, and Chinese tallow.

- ii. Establish a monitoring system to track trends for these and other invasive exotic species.
  - iii. Monitor spread of East Indian hygrophila currently found in Little Wekiva and develop a protocol to prevent its spread in the Wekiva River System as needed.
  - iv. Continue to monitor for the occurrence of new invasive exotic species and institute control measures as needed.
  - v. Restrict cattail to shorelines and prevent expansion to new locations to prevent large-scale invasions of in-stream or riparian habitats.
- B. Assess the impacts associated with the proliferation of invasive exotic fishes such as, but not limited to, armored catfish within the Wekiva River System and develop actions for expanding monitoring and control strategies.
- i. Contract with fishery biologists to assess any impacts of armored catfish on the Wekiva River System.
  - ii. Continue, and expand as feasible, current efforts to remove armored catfish.
  - iii. Develop a protocol for monitoring and controlling exotic fishes.
  - iv. Implement a monitoring and control program for exotic fishes using the protocols.
- C. Monitor and control invasive exotic invertebrates within the Wekiva River System, including but not limited to channeled apple snails (should they become established), and develop actions for expanding monitoring and control strategies.
- i. Support research on the impacts of channeled apple snails on aquatic habitats,

native apple snail populations, and limpkin populations, and adjust control strategies as appropriate.

- ii. If control is warranted, establish a program to remove channeled apple snails and channeled apple snail egg clusters.

## **Historic and Cultural Values**

***Goal 1: Identify, protect, and preserve historic and cultural resources from human-related and natural threats.***

### **Objectives:**

- A. Complete a comprehensive survey of the historic and cultural resources within the Wekiva basin, particularly those that are either directly or indirectly functionally related to the river system.
  - i. Identify and prioritize areas that have not been surveyed.
  - ii. Survey the areas.
  - iii. Document a description of each new site found.
  - iv. File a record of each site with the Florida Master Site File.
- B. Establish a system to prioritize significant historic and cultural resources for protection efforts.
  - i. Identify significant resources based on existing archeological surveys and results of the comprehensive survey in objective 1A.
  - ii. Use expert input as recommended by Florida Division of Historical Resources to create a priority system.
  - iii. The priority system should address items outlined in the "BMP Guide" (see objective C below.)

- iv. Use the priority system to assign a priority to known sites and newly discovered sites.
- C. Implement the “Best Management Practices (BMPs) Guide to Protecting Archaeological Sites” (Florida Bureau of Archaeological Research) to stabilize and protect, at a minimum, high priority sites.
  - i. Create a protocol for implementing the best management practices.
  - ii. Implement the best management practices based on the priority assigned to sites.
- D. Assign at least one trained public agency staff member (“Cultural Resources Coordinator”) to regularly monitor and implement protection and management strategies associated with historic and cultural resources.
  - i. Assess staff roles and availability within each agency.
  - ii. Create a strategy to assign one person as the cultural resources coordinator, specifying the percent of their time that is devoted to monitoring sites and implementing protection and management strategies.
  - iii. Create an agreement or memorandum of understanding to create this position through a partnership of multiple agencies.
  - iv. The cultural resources coordinator should focus on coordinating the accomplishment of objectives in this section, particularly 1A, 1B, and 1C.
- E. Work with the law enforcement divisions of each agency to target high priority sites for regular patrol and enforcement of state cultural resources protection laws to deter vandalism and looting. Frequently visited sites receive less vandalism.
- F. Ensure that law enforcement personnel attend training on archeological resource protection.
  - i. Identify key law enforcement personnel that need to attend the training that is available from the Florida Bureau of Archaeological Research.
- G. Continue regular maintenance by public employees and volunteers at sites that receive regular public use to deter vandalism and looting. Well-maintained sites receive less vandalism.
  - i. Use resources from the Florida Bureau of Archaeological Research, such as the Stewardship Volunteer Program and Sitewatch Program.
- H. On private lands, work closely with the landowner to protect and preserve identified priority sites, using best management practices as needed.
  - i. Establish and implement an outreach protocol to inform private landowners of the importance of the site(s), why the site(s) should be protected, and the resources available to

- assist them in protecting and managing the site(s).
    - ii. Refer to the resources from Florida Bureau of Archaeological Research for guidance on cultural resource protection for private landowners, including the “Best Management Practices: An Owners’ Guide to Protecting Archaeological Sites — Preserving and Protecting Florida’s Archaeological Sites for Future Generations.”
  - I. Establish additional protections for Shell Island through discussions with Rollins College, with advisement from the Florida Division of Historical Resources.
    - i. Perform an assessment of the Shell Island site to determine additional site protection needs.
    - ii. Consider all options for additional protection, including public acquisition.
  - J. Establish site-specific strategies to protect high priority cultural resources from looting in accordance with best management practices.
    - i. Consider strategies outlined in the “BMP Guide “(see objective C), such as native groundcover and natural barriers for camouflage.
    - ii. As soon as vandalism or looting is discovered at a site, prevent further disturbance by immediately repairing the damage.
    - iii. Use expert input to design and implement site-specific strategies.
    - iv. Coordinate with the Florida Division of Historical Resources before conducting any ground-disturbing activities.
  - K. Assess causes of erosion and other forms of natural degradation at high priority sites and take site-specific corrective actions to problems as needed.
    - i. Consult with an archeologist and other qualified professionals to determine the nature of the threats and the appropriate site-specific protection measures to stabilize the site.
    - ii. Coordinate with the Florida Division of Historical Resources before conducting any ground-disturbing activities.
  - L. Ensure that, wherever feasible, all current and future recreational trails are routed at least 50 feet from cultural sites, with adequate natural vegetation barriers between the trail and site to discourage access.
    - i. Assess the current trail system to make sure it adheres to this objective.
    - ii. Evaluate all future proposed trails to ensure that they adhere to this objective.
  - M. Create partnerships with educational institutions to promote research of the significant historic and cultural resources in the Wekiva basin.
    - i. The cultural resources coordinator should identify educational institutions and create these partnerships.
- Historic and Cultural Goal 2: Foster an understanding among the public of the significance of the historic and cultural resources of the Wekiva basin.***
- Objectives:**
- A. Write a comprehensive history of human habitation in the Wekiva River

basin area. Use this information to update all documentation (land management plans, websites, and printed materials) with an accurate account of the history of the basin.

- i. Coordinate with historical societies, etc., to identify a qualified person or a small team to write a comprehensive history of the Wekiva River basin area.
  - ii. Publish the history in hard copy and make it, or some version of it, available online.
  - iii. Perform an inventory and assessment to identify all documents (land management plans, websites, and printed materials) that need to be updated.
  - iv. Update the documents identified in the inventory and assessment.
- B. Ensure that messages provided by resource managers, private businesses, and concessioners include clear language to indicate that looting and vandalism of cultural resource sites is illegal and that enforcement actions would be taken.
  - i. Ensure that a consistent message is used on any signs at all river access points throughout the basin.
  - ii. Ensure that historic and cultural resource protection is addressed in any river use guidelines.
- C. Ensure that educational programs and interpretation of cultural resources within the Wekiva basin include a consistent message about the importance of these resources.
  - i. Develop fact sheets on the historic and cultural resources in the Wekiva basin.

- ii. Include key messages that should be delivered at every education and public relations opportunity.

D. Incorporate historic and cultural research findings into educational programs, interpretation, and public relations materials, as appropriate.

- i. Provide a summary of research findings to agency education and outreach staff.

E. Identify and establish at least one cultural site within the basin to be used as a public education site.

- i. Identify a cultural site that is appropriate for use as a public education site.
  - ii. Create messages about cultural resources and the people who left them in the Wekiva basin. Include the top three messages created in objective C above and suggestions about proper treatment of the site and rules to prevent disturbance.
  - iii. Ensure that construction of structures and facilities does not damage the site.
  - iv. Place interpretive and educational signs and related facilities to avoid or minimize visual intrusion on any scenic vistas associated with the site.
  - v. Direct the flow of people and vehicles to prevent damage over the long term.

## Water Quality and Quantity Values

*Goal 1: Protect instream water quality of the Wekiva River System.*

### Objectives

- A. Protect springs, surface waters, wetlands, karst features, and high recharge areas within the Wekiva basin

and springshed through land acquisition and the purchase of conservation easements.

- i. Support wildlife and habitat goal 2, objective D, action i.
  - ii. Create an acquisition inventory of potential areas of significance to the Wekiva system, including high recharge areas and areas of aquifer vulnerability in the Wekiva springshed that may not be near the river itself (with special emphasis on high recharge areas and areas of aquifer vulnerability that also have habitat value).
  - iii. From the inventory in (ii), rank the importance of potential areas, thereby creating a prioritized list of potential acquisitions.
  - iv. From steps ii and iii, determine potential funding sources and steps for acquisition through existing programs.
  - v. Investigate/pursue additional funding mechanisms at the federal, state, and local level for the protection of conservation lands within the Wekiva basin and springshed, including but not limited to appropriation of special funding for key acquisitions and easements, expansion of local government acquisition and easements programs, and the creation and strengthening of partnerships with private conservation organizations.
- B. Continue to strictly interpret the “Outstanding Florida Waters” statute for all impacts to the Wekiva River System.
- i. Review proposed activities for potential risk of water quality degradation and Outstanding Florida Waters violations.
- ii. Investigate any activity that may be causing water quality degradation and pursue corrective actions.
- C. Evaluate the effectiveness of stormwater treatment techniques, enforcement, and regulations currently in place and as appropriate strengthen these provisions.
- i. Review and evaluate the effectiveness of the local government stormwater master plans in the Wekiva basin.
  - ii. Encourage local governments to identify the most cost effective stormwater treatment measures.
  - iii. Contact the Florida Department of Environmental Protection Watershed Management staff regarding the revision of the state stormwater rule that is underway; request that a presentation be made to the advisory management committee regarding this revision.
  - iv. Assess resources that would be used for enforcement purposes among responsible agencies (St. Johns River Water Management District and local governments have their own stormwater regulations).
  - v. Prioritize most important areas and regulations for water quality in the Wekiva River System based on (iii), and evaluate whether enforcement resources are sufficient in these areas based on (iv). Make recommendations for changes in efforts and/or priorities based on findings.
- D. Continue to monitor the condition of and any changes to submerged aquatic vegetation beds, particularly eelgrass



beds, which are a distinctive component of the Wekiva River System and indicative of a healthy riverine system.

- i. Determine an optimal status for eelgrass beds within the Wekiva River System. Based on this determination, map areas in which condition is degraded.
  - ii. Based on the results of (i), work with Wekiva River Aquatic Preserve personnel to determine whether limiting exposure to recreational use or management changes would improve condition of eelgrass beds.
  - iii. If needed, based on (i) and (ii), establish a restoration program for eelgrass beds to reestablish the optimal condition, with a goal for time of completion.
- E. Support research and monitoring efforts pertaining to algal growth, particularly filamentous algae, which can indicate the presence of increased nutrients within the Wekiva River System.
  - i. Continue the research program that was initiated during the Pollutant Load Reduction Goals (PLRG) study on the Wekiva River and Rock Springs Run.
  - ii. Assess whether additional research and monitoring is needed.
  - iii. Review findings annually and modify research and monitoring techniques accordingly.
- F. Support implementation of the Wekiva River System Total Maximum Daily Loads (TMDL)/Basin Management Action Plan (BMAP) program, whose goal is to reduce nutrient loads in water bodies within the Wekiva River System.
  - i. Review the future TMDL evaluations and provide input to the Florida Department of Environmental Protection on TMDL development prior to approval of any revised TMDLs.
  - ii. Promote public, local government and agency participation in preparing the basin management action plan and implementation of projects and activities designed to reduce pollutant loads.
  - iii. Support research and the evaluation of new information regarding groundwater and surface water nutrient impacts in the Wekiva River springshed and basin; and ensure that all information is appropriately used in any future decisions and actions.
- G. Create and implement a communication program for residents, businesses, landscaping professionals, and public employees whose work involves landscaping to address fertilizer application practices and the harm caused by nutrient loading to surface water and groundwater quality.
  - i. Identify a lead agency to create this program.
  - ii. Develop a program based on concepts of community based social marketing.
- H. Evaluate and implement feasible stormwater retrofit projects and new stormwater treatment technologies — both on-site and regionally within the Wekiva basin and springshed, to meet existing requirements and/or provide innovative treatment approaches for nutrient removal.
  - i. Identify potential retrofit projects and technologies on

- individual properties within the Wekiva basin and springshed.
  - ii. Select projects for feasibility studies and future construction.
  - iii. Identify future opportunities for new regional stormwater treatment projects.
- I. Enforce, assess, and as appropriate strengthen regulations of the St. Johns River Water Management District and state and local governments pertaining to sinkholes and other karst features that can be a direct conduit for nutrients and pollutants into the aquifer, including but not limited to adjacent land use, setbacks, buffers, and discharges.
  - i. Request that representatives of the St. Johns River Water Management District, Florida Department of Environmental Protection, and local governments make a presentation to the advisory management committee regarding existing regulations and potential improvements to regulations relating to the protection of groundwater quality from pollution via sinkholes and karst features.
  - ii. Evaluate resources that could be used for enforcement purposes.
  - iii. Prioritize most important areas and regulations for protection of groundwater quality in the Wekiva River System based on (i), and evaluate whether enforcement resources are sufficient in these areas based on (ii).
  - iv. Make recommendations for changes in protection efforts and priorities based on findings.
- J. Encourage proper maintenance of existing septic systems throughout the Wekiva basin and springshed. Within areas identified to be "more vulnerable" and "vulnerable" by the "Wekiva Aquifer Vulnerability Assessment," encourage the use of performance-based onsite wastewater treatment systems.
  - i. In consultation with the county health departments, develop and implement a program to ensure the periodic pump-out of existing septic systems.
  - ii. Develop and implement an educational program to support (i).
  - iii. Develop and implement a program of incentives for property owners who have septic systems within the "more vulnerable" and "vulnerable" areas of the basin to upgrade to high performance systems.
  - iv. Create a program to ensure compliance with required maintenance of performance-based systems in the Wekiva River basin and springshed.
- K. Evaluate the potential need for performance-based systems within areas vulnerable to surface water contamination, targeting properties that are immediately adjacent to the Wekiva River System, and establish appropriate programs to retrofit or replace existing systems, if necessary.
  - i. Review and update the inventory of properties on septic systems that are immediately adjacent to Wekiva River System water bodies.
  - ii. Collaborate with the Florida Department of Health to determine age of systems and whether there are known problems or complaints regarding these systems.

- iii. Coordinate with the Florida Department of Health and Florida Department of Environmental Protection to assess the impact on water quality of septic systems adjacent to the Wekiva River System.
  - iv. Determine whether anticipated water quality improvement warrants replacement of those septic systems adjacent to the Wekiva River System.
  - v. Depending upon the results of (iv), develop incentive-based programs to offer landowners for retrofits and replacements.
- L. Convert urban areas with high septic tank density to central sewer where feasible and environmentally necessary within the Wekiva Study Area.
  - i. Expand septic system mapping undertaken for TMDL documentation to better map areas with high septic system density and include entire springshed.
  - ii. Evaluate infrastructure/utility expansion and mandatory hook-up plans of local governments.
  - iii. Consider results of (i) and (ii) in light of aquifer vulnerability in high septic density areas. Prioritize areas based on aquifer vulnerability.
  - iv. Collaborate with local governments to incorporate results of (iii) into utility expansion and mandatory hook-up plans.
- M. Support ongoing projects that improve water quality in the Little Wekiva River. These projects include wastewater treatment plan updates, projects identified in the Little Wekiva watershed, and projects recommended in the Wekiva Parkway and Protection Act Stormwater Master Plan.
  - i. Review St. Johns River Water Management District and local government project listings, using these to create a master project list of ongoing projects. Include wastewater treatment plant upgrades and shoreline stabilization.
  - ii. Prioritize project list based on impacts to the Little Wekiva River.
  - iii. Refer to action steps for Objective G (TMDL program) because a final BMAP will include a similar list of projects.
- N. Enforce, assess, and as appropriate strengthen regulations and the educational efforts of state agencies and local governments relating to lawn and landscaping practices and the responsible use of fertilizers to limit nutrient loading within the Wekiva springshed.
  - i. Support implementation and enforcement of the FDACS Urban Turf Fertilizer Rule (Rule 5E-1.003(2) *Florida Administrative Code* - Labeling Requirements for Urban Turf Fertilizers) and appropriate nutrient limitation recommendations of the Urban Fertilizer Task Force.
  - ii. Evaluate agency legislative authority, and determine potential ways strengthening agency regulations and enforcement regarding fertilizer use, including expansion of authority as needed.
  - iii. Strengthen agency regulations and enforcement as appropriate, pursuant to (ii).
  - iv. Evaluate local government regulations and enforcement relating to turfgrass, landscaping, and fertilizer use; identify potential ways to strengthen regulations and enforcement.

- v. Strengthen local government regulations and enforcement as appropriate, pursuant to (iv).
  - vi. Work with state agencies and local governments to establish incentive programs to reduce turf grass area and promote landscaping that does not require the intense use of fertilizers.
  - vii. Request information from local wastewater treatment utilities or the Florida Department of Environmental Protection regarding the typical water quality concentrations (including nitrates and phosphorus) of reclaimed water intended for irrigation.
  - viii. Promote education regarding the nutrient concentrations and fertilizer effect in reclaimed water and that fertilizer application can be reduced when reclaimed water is used for irrigation.
- O. Support research regarding the impacts of land application of reclaimed water from wastewater treatment plants (advanced and conventional) on shallow groundwater and the Florida Aquifer to determine if additional treatment is required.
- i. Invite a representative of the FDEP, SJRWMD or an academic establishment to present information to the advisory management committee regarding what is known about the impacts of using reclaimed water on groundwater quality.
  - ii. Based on (i), determine whether research is ongoing to address data gaps and pursue additional research if appropriate.
  - iii. Based on (ii), determine whether reclaimed water application presents a potential threat to groundwater quality and determine whether additional treatment is required.
- Water Quality and Quantity Goal 2: Protect Flow Regimes of the Wekiva River System.***
- Objectives**
- A. Evaluate existing and proposed withdrawals of water within the Wekiva River basin and springshed in light of their potential impact to the Wekiva River System, and as appropriate strengthen policies and regulations that limit and manage water consumption.
    - i. Obtain an inventory and map of existing groundwater withdrawals in the Wekiva springshed and basin requiring a consumptive use permit (CUP) and develop an estimate of private individual wells that do not require a CUP.
    - ii. Evaluate impacts to the Wekiva River System from existing and proposed withdrawals.
    - iii. Review new withdrawal proposals and provide comment during the consumptive use permit process.
    - iv. Continually update inventory and evaluations in (i) and (ii).
    - v. Participate in the rulemaking process: (1) to consolidate environmental resource permits (ERP) and consumptive use permits (CUP) for projects requiring both an ERP and a CUP that involve irrigation of urban landscape, golf courses, or recreation areas; (2) to further limit and manage water consumption as may be appropriate.
  - B. Support planned efforts to evaluate and update existing Minimum Flows

and Levels (MFLs) of the Wekiva River at the State Road 46 bridge. Identify whether there is a need for additional MFLs or revisions to existing MFLs to adequately protect the Wekiva River System.

- i. Request an identification (including an MFL map) of and status report on all MFLs within the Wekiva River basin.
  - ii. Review and comment on the existing MFLs, proposed MFLs, and the St. Johns River Water Management District's MFL Priority List and Schedule.
  - iii. Pursue the adoption of new MFLs or the revision of existing MFLs as appropriate based on (ii).
- C. Evaluate the protection of Outstandingly Remarkable Values that may be affected by MFLs of the Wekiva River System; determine whether additional protection is required, and if so whether such protection may be achieved by refinement of MFLs, by a federal water reservation pursuant to Section 13(c) of the Wild and Scenic Rivers Act, through a water management district water reservation pursuant to Section 373.223 (4), Florida Statutes, or by other processes.
  - i. Determine if existing flow and water level protection measures adequately protect the outstandingly remarkable values of the Wekiva River System.
  - ii. If additional protection is needed, determine whether that protection can be best achieved by refinement of MFLs, by a federal water reservation pursuant to Section 13 (c) of the Wild and Scenic Rivers Act, by a water management district water reservation pursuant to Section 373.223 (4), Florida Statutes, or by other processes.
- iii. Work with the SJRWMD and the National Park Service to take the most appropriate action based on (ii).
- D. Evaluate existing SJRWMD environmental resource permit (ERP) and consumptive use permit (CUP) rules and current enforcement methods that pertain to residential, commercial, industrial, and agricultural water use and landscaping to identify opportunities for additional water conservation.
  - i. Evaluate existing ERP and CUP rules and request presentation from the SJRWMD on existing rules and methodology for permit review.
  - ii. Compare the SJRWMD rules to local ordinances.
  - iii. Assess water conservation enforcement programs and resources for local governments and the SJRWMD.
  - iv. Identify opportunities for improving efficiency and water conservation, such as limiting turf grass, requiring Florida-friendly landscaping, use of dry retention, preserving non-irrigated open space to reduce water consumption and promote aquifer recharge, and use of water-efficient fixtures/appliances for new construction.
  - v. Revise SJRWMD rules and local regulations as appropriate based on (iv).
- E. Work with the SJRWMD to evaluate and as appropriate strengthen regulations and incentive programs to conserve water within the Wekiva basin and springshed, including but not limited to those addressing water allocation, water consumption, water billing rate structures, irrigation, and lawn or landscaping practices. Work with local governments to evaluate and

as appropriate strengthen regulations and incentive programs to conserve water, including but not limited to those addressing plumbing codes, installation of irrigation systems, lawn and landscaping ordinances, and water billing rates.

- i. In light of results of Objective D, determine need for revisions or new regulations to improve water conservation.
- ii. Revise local government regulations as appropriate.
- iii. Work with state agencies and local governments to establish incentive programs to reduce turf grass area, promote landscaping that does not require intense irrigation, and promote other means of water conservation.

F. Promote the efficient use of reclaimed water within the Wekiva basin and springshed. Evaluate whether the use of reclaimed water has an adverse impact on outstandingly remarkable values that may be affected by flows and water levels of the Wekiva River System. Evaluate whether transports of water outside of the Wekiva basin and springshed have an adverse impact on Outstandingly Remarkable Values that may be affected by flows and water levels of the Wekiva River System.

- i. Request information from the Florida Department of Environmental Protection or local wastewater treatment utilities regarding existing reclaimed water programs and plans for expansion.
- ii. Study whether the use of reclaimed water (including reclaimed water supplies supplemented with groundwater or surface water) can have an adverse impact on the

ORVs that may be affected by flows and water levels.

- iii. Revise strategies and plans for the use of reclaimed water, as necessary based on (i) and (ii), and promote the use of reclaimed water only where appropriate.
- iv. Study whether the transport of water outside of the Wekiva basin and springshed can have an adverse impact on the ORVs that may be affected by flows and water levels.
- v. Revise strategies and plans for the transport of water, as necessary based on (v).

G. Encourage compliance with best management practices for irrigation by nursery, landscaping, and agricultural businesses.

- i. Request information on the results of best management practices compliance surveys from the Florida Department of Agriculture and Consumer Services.
- ii. Request information from the St. Johns River Water Management District regarding compliance with consumptive use permit requirements and permitted withdrawal amounts.
- iii. Based on (i) and (ii), determine whether additional action is needed to protect groundwater volume and achieve compliance with best management practices and use permits.

H. Work with local governments, agencies, and the private sector to encourage a more water-conscious form of development within the Wekiva basin and springshed.

- i. Promote Low-Impact Development workshops, such as those offered by the Program on

- |     |   |   |
|-----|---|---|
| ii. | Resource Efficient Communities (University of Florida); arrange for workshops to be offered in the Wekiva area. | private sector to encourage a more water-conscious form of development using techniques identified in Objective D (iv). |
|     | Coordinate with local governments, agencies, and the  |   |

## USER CAPACITY (CARRYING CAPACITY)

### OVERVIEW

Comprehensive river management plans must address user capacity management. User capacity is defined as the type and level of use that can be accommodated while maintaining the desired conditions of a river's resources and visitor experiences. The following description of a user capacity program is included as a component of preferred alternative B.

User capacity management involves establishing desired conditions, monitoring, evaluating, and taking actions (managing visitor use) to ensure that the identified outstandingly remarkable values are protected. The premise is that with any use on public lands comes some level of impact that must be accepted; therefore it is the responsibility of the managers to decide what level of impact is acceptable and what management actions are needed to keep impacts within acceptable limits. Instead of just tracking and controlling user numbers, it may be necessary to more actively manage the levels, types, and patterns of visitor use and other public uses as needed to preserve the condition of the resources and quality of the visitor experience. The monitoring component of this process helps to evaluate the effectiveness of management actions and provides a basis for informed management of public use.

The user capacity management process can be summarized by the following major steps:

1. Establish desired conditions for resources and visitor experiences.
2. Identify indicators (things to monitor to determine whether desired conditions are being met, e.g., soil loss, vegetation damage).
3. Identify standards (limits of acceptable change) for the indicators.

4. Monitor indicators to determine if there are trends or if standards are being approached.
5. Take management action to maintain or restore desired conditions.

With limited staffs and budgets, managers must focus on areas where there are definite concerns and/or clear evidence of problems. This means monitoring should generally take place where conditions are approaching the standards, conditions are changing rapidly, specific and important values are threatened by visitation, and/or the effects of management actions taken to address impacts are uncertain.

User capacity is addressed in this environmental assessment in the following ways:

- It outlines desired resource conditions, visitor experience opportunities, and types of facilities to support the resource conditions and visitor experiences for different areas.
- It describes the rivers system's most pressing use-related resource and visitor experience concerns. This helps managers focus limited resources on specific potential indicators and determine what kinds of baseline information is needed.
- It identifies potential indicators that could be monitored in the future to determine if desired conditions are not being met because of unacceptable impacts from public use. As river managers collect more detailed information on use-related concerns, specific indicators would be selected for monitoring and corresponding standards (limits of acceptable change) would be identified.
- It outlines representative examples of management actions that might be used to avoid or minimize unacceptable impacts from public use.
- It identifies specific geographic areas for special monitoring attention.



The last steps in the user capacity process, which would continue indefinitely, involve monitoring the identified indicators and taking management actions as needed to minimize impacts. As a means for providing flexibility in the face of changing conditions, river managers would use an adaptive management approach when appropriate. (Adaptive management is a management system based on clearly identified outcomes, monitoring to determine if management actions are meeting outcomes, and if not, making changes that would best ensure that outcomes are met or that outcomes are reevaluated.) If new use-related resource or visitor experience concerns arise in the future, additional indicators and standards would be identified as needed to address these concerns.

### **DESIRED CONDITIONS FOR OUTSTANDINGLY REMARKABLE VALUES**

#### **Scenic**

The existing scenic resources/values are protected or enhanced through management actions and plans of the various agencies. The Advisory Management committee would work with other entities to ensure that scenic resources are considered in future project planning.

#### **Recreational**

Recreational values (including access and appropriate activities) are maintained or enhanced according to the description and management guidelines for each river segment classification.

#### **Wildlife and Habitat**

Wildlife populations and their habitat are protected from further degradation or enhanced through interagency efforts included in alternative B such as exotic species control, habitat restoration, land preservation, wildlife management, and similar projects.

#### **Historic and Cultural**

Historic and cultural resources/values are preserved in place. Damage to resources is reduced or eliminated. Future projects are surveyed for cultural resources prior to ground disturbance and impacts are mitigated.

#### **Water Quality and Quantity**

Hydrologic resources are protected from degradation or enhanced through interagency efforts.

### **EXISTING VISITOR ACTIVITIES**

Recreational activities in the Wekiva basin include canoeing/kayaking, bank fishing, boat fishing from motorized and non-motorized boats, pleasure boating, personal watercraft use, picnicking, camping (primitive, developed, and horse), tubing, swimming in undeveloped and developed areas, snorkeling, wildlife watching, hiking, horseback riding, and hunting.

### **OVERVIEW OF CURRENT AND POTENTIAL USE-RELATED IMPACTS**

This section discusses existing and potential use-related impacts that may occur in or along the designated rivers and may pose challenges for managing for the desired conditions of the outstandingly remarkable values described in this environmental assessment.

Existing facilities along the river system generally support enjoyable visitor opportunities and protect resources, and based on projected trends would continue to function fairly well. Parking areas often fill to capacity during the summer weekends. As a result, visitors may be frustrated in trying to reach certain areas and may be turned away or asked to wait for an opening. There is only one designated campsite (Tram Camp) on

the Wekiva River. Camping at unauthorized sites along the river may impact sensitive resources.

In the summer, high volumes of use in Rock Springs Run, Wekiwa Springs Run, and the Wekiva River cause crowded conditions at times. Concerns have been expressed about this issue and its related impacts on visitor experience. If use increases or patterns of use change, crowding on the rivers may worsen and/or become more frequent. In addition to crowding, use on the rivers is resulting in excessive impacts on the riverbanks and associated floodplains, such as proliferation of informal trails, erosion, vegetation damage and loss, litter, and improper disposal of human waste.

Concerns have also been raised about impacts to the river and its scenic values due to unpermitted commercial uses and activities.

Although most impacts on water quality are from sources away from the river system, impacts from visitor use are also a concern (e.g., increased sedimentation and *E. coli*). Use levels on Black Water Creek are currently quite low, and it is anticipated that they will remain low.

Intentional as well as inadvertent impacts on cultural resource sites are a management concern. For example, recreational use on Shell Island is causing impacts from trampling and visitor-created trails. In addition, pothunting (illegal digging and taking of artifacts) frequently occurs here. The island is owned by Rollins College and is closed to the public, but this closure is being blatantly ignored.

## POTENTIAL USER CAPACITY INDICATORS AND RELATED MANAGEMENT ACTIONS

Although no comprehensive visitor use study or carrying capacity study has been performed to date, some of the Florida state

parks do have limits on the daily visitor capacity based on the number of people or vehicles that can be accommodated by park facilities. Kelly Park, managed by Orange County, also has a daily user limit. Boating on Black Water Creek is managed through a permit system by Seminole State Forest. There is a need for establishing indicators or thresholds (i.e., water quality, amount of trash, bank erosion, species diversity, condition of archeological resources, visitor experience, etc.) to determine the limits of capacity for the system as a whole.

Some potential indicators that may be monitored to better understand the magnitude and trends of the most pressing use-related concerns described in the previous section have been identified. Final selection of indicators and standards for monitoring purposes and implementation of management actions that affect use will comply with NEPA (1969), Section 106 of the National Historic Preservation Act, and other laws and regulations as appropriate.

Most of the agencies that have management responsibility on the river system recognize that visitor use-related impacts may be occurring on their lands and are planning ways to deal with this issue. Potential user capacity indicators and management actions may include the following (see the description of alternative B for additional related actions):

- **Water quality**

*Monitoring indicators: quality of water including pollutants, nutrient concentrations, sediments, and dissolved solids*

Management actions that may be considered to avoid or minimize impacts on water quality include encouraging low-impact practices (e.g., Leave No Trace); providing more waste disposal facilities; redistributing use to lesser used areas or off-peak times; and reducing/ eliminating certain uses, activities, or equipment that are contributing to water quality degradation.

- **Litter**

*Monitoring indicators: amount and type of observed litter in the water and on shore*

Management actions that may be considered to avoid or minimize litter include encouraging personal responsibility for waste disposal, prohibiting disposable containers (e.g., plastic or Styrofoam cups, coolers, etc.), and providing more animal-proof waste receptacles.

- **Impacts on riverbanks such as erosion, vegetation damage or loss, and creation of informal trails**

*Monitoring indicators: overall health of riparian communities, changes in plant diversity, and sedimentation from erosion*

Management actions that may be considered to avoid or minimize riverbank impacts include encouraging low-impact practices; directing use to designated areas or facilities; providing more waste disposal receptacles; increasing the number of signs to direct visitors to appropriate facilities; reducing use levels or redistributing use to lesser used areas or off-peak times, designating additional sites for camping or pull-outs, or restoring sites if necessary.

- **Improper human waste disposal**

*Monitoring indicators: direct observation or odor*

Management actions that may be considered to prevent or minimize improper human waste disposal include encouraging proper waste disposal, providing more toilet facilities, directing use to appropriate facilities, and reducing use levels.

- **Overcrowding at parking areas**

*Monitoring indicators: available parking spaces and parking in unauthorized areas*

Management actions that may be considered to prevent or minimize these impacts include providing advanced planning information that encourages visitation to lesser used areas or at off-peak times, providing real-time information about parking availability, adding more parking or redesigning parking areas for greater efficiency, and actively redistributing use to other sites when areas are full.

- **Crowding from high use levels at developed water play areas**

*Monitoring indicators: direct observation of conflicts and visitor complaints*

Management actions that may be considered to prevent or minimize crowding at water play areas include providing information on visitor etiquette, encouraging visitation at off-peak times, and limiting the number of people in a swimming area at one time (first-come first-served, permit system, etc.). Different restrictions or limits based on the type of watercraft (motorboats, personal watercraft, canoes/kayaks) may be appropriate.

- **Crowding from high use levels on rivers**

*Monitoring indicators: direct observation of conflicts, visitor complaints.*

Management actions that may be considered to prevent or minimize crowding on the river system include providing information on visitor etiquette, redistributing visitation to lesser used areas or off-peak times, and limiting the number of watercraft on the river (first-come first-served, permit system, etc.). Different restrictions or limits based on the type of watercraft (motorboats, personal watercrafts, canoes/kayaks) may be appropriate.

- **Impacts on wildlife and habitat from user activities on the river system.**  
*Monitoring indicators: population numbers, apparent health, and hazards to wildlife.*

Management actions that may be considered to prevent or minimize user-caused impacts include providing information on sensitive species and protective measures, redistributing visitation to less critical areas, and limiting the number of watercraft during sensitive periods. Management actions that may be considered to prevent hazards to wildlife include providing information regarding the proper use and disposal of fishing line and tackle, limiting fishing to certain areas, and discouraging the feeding of wildlife.

- **Vandalism and unintentional damage to historic and cultural sites**  
*Monitoring indicators: changes in condition or evidence of disturbance*

Management actions that may be considered to prevent or minimize impacts on cultural resource sites include providing more information on the sensitivity and value of the cultural resources, hardening or protecting heavily used areas with special materials, increasing ranger patrols in target areas, using remote monitoring techniques, and directing use away from (or

enforced closure of) particularly vulnerable sites.

- **Impacts on scenic values**  
*Monitoring indicators: number and type of visual intrusions*

Management actions that may be considered to prevent or minimize impacts on scenic quality include working with state and local agencies to mitigate the potential impacts of new development such as docks, bridges, and recreational facilities.

## **AREAS FOR SPECIAL MONITORING ATTENTION**

Areas that warrant special resource and/or visitor experience monitoring attention include the following:

- Shell Island and other known archeological sites
- popular camping or stopping areas
- water play areas (Wekiwa Springs, Rock Springs, and Wekiva Falls) for water quality issues
- areas of concentrated watercraft use such as near commercial canoe rental facilities and popular access sites (e.g., Kings Landing sites, Wekiva Island, Wekiva Falls canal, and Katie's Landing)

## PROGRAMS AND STUDIES NEEDED

In the process of developing a cohesive management strategy for the Wekiva Wild and Scenic River System, a number of needed baseline programs and studies were identified. Additional data needs would be identified by the advisory management committee as part of the implementation of alternative B. After completion and approval of this environmental assessment, these programs and studies would need to be completed to fully implement the comprehensive river management plan. In addition to the planning and data needs listed below, others may be identified by the advisory management committee as part of the implementation of the approved alternative.

### VISITOR MANAGEMENT AND SOCIOECONOMIC IMPACTS

- Complete a visitor experience and resource protection (VERP) or similar plan to establish the river system carrying capacity and thresholds (limits of acceptable change) for ecological and social impacts from recreation. The plan would define compatible uses for each river segment and develop an impact monitoring and management strategy based on a recreation assessment that also addresses carrying capacity. (Indicators and management strategies for capacity re discussed in more detail under User Capacity.)
- Develop a facilities master plan that describes what facilities should be provided to support users determined appropriate by the recreation assessment.
- Conduct an assessment of enforcement effectiveness of regulations related to protecting outstandingly remarkable values. Consider additional enforcement mechanisms, innovative inter-agency cooperation, and associated staffing needs.

- Develop a coordinated public education/outreach plan to implement and elaborate on the action steps in this plan. Education should focus on proper etiquette on a wild and scenic river, the importance of protecting sensitive resources (middens, shoreline vegetation, wildlife, etc.), and applicable regulations.
- As part of an education/outreach plan, include programs such as river clean-up (“Adopt-a-River”), Junior River Rangers, speaking engagements for advisory committee members, and other similar initiatives.
- Complete a socioeconomic study of the river system region, and how river uses impact concessioners, local communities, and businesses.

### RESOURCE MANAGEMENT

- Conduct a survey for historic and cultural resources, including an archeological site condition assessment with monitoring and stabilization recommendations.
- Establish monthly and annual species-specific monitoring programs to establish baseline population levels and document trends.
- Assess the impacts associated with the proliferation of invasive exotic species, and develop actions for expanding monitoring and control strategies.
- Identify areas within the Wekiva River floodplain with impacted hydrologic resources and develop a plan to improve the hydrology of the associated riparian habitats.
- Evaluate the impact of existing and proposed ground and surface water withdrawal on flows and ecological processes of the Wekiva River System, and determine whether additional

- programs, policies, regulations, reservations of water are warranted to protect the river system.
- Conduct research regarding the impacts of land application of reclaimed water from wastewater treatment plants on shallow groundwater and the Floridan Aquifer to determine if additional treatment is required.

## IMPLEMENTATION

### ROLE OF ADVISORY COMMITTEE AND WEKIVA BASIN WORKING GROUP

The proposed management plan as outlined in alternative B would guide the future management of the Wekiva National Wild and Scenic River System. Interagency cooperation with the advisory management committee would be needed to produce coordinated and targeted efforts to implement the plan. The following scheme for plan implementation is recommended under alternative B.

The advisory management committee was established according to NPS rules to be responsible for overseeing the development of the comprehensive river management plan. This committee should continue to operate and oversee plan implementation. The Wekiva River Basin Working Group (working group), which has met for at least 15 years, should consider taking on a supporting role in the implementation of this plan. Many key members of the advisory management committee currently serve on the working group, whose mission it is to encourage interagency coordination within the Wekiva basin. Implementing the management plan would fit well with this mission. It may be advantageous for the advisory management committee and the working group to hold occasional joint meetings.

### INTERAGENCY COOPERATION

It is recognized that there is already considerable interagency cooperation occurring among the various government agencies that work within the Wekiva basin. This is largely because of the coordinated efforts of the Wekiva River Basin Working Group over many years. A critical step to achieve interagency cooperation under the preferred alternative would be to secure the support of

state, county, and municipal agencies that have jurisdiction in the Wekiva basin. Each agency and local government that has jurisdiction to manage public lands within the Wekiva basin has its own mission and may produce a separate management plan based upon its own internal guidelines and management planning. Implementation of the approved *Comprehensive River Management Plan* would be facilitated if each management plan of agencies and local governments is reviewed to ensure compatibility with this plan. Most agency management plans receive periodic updates. It is recommended that particular attention be paid to the *Comprehensive River Management Plan* and this environmental assessment during any updates to ensure compatibility.

A written section on interagency cooperation should become a regular part of all agency plan updates. Additionally, it is recommended that all agencies compare staffing structures for any overlaps or deficiencies to optimize staff resources.

### FUNDING

Approval of this environmental assessment would not guarantee that funding will be forthcoming regardless of which alternative is approved. Funds to implement the river management plan would be sought from a variety of sources. The NPS has funds available for wild and scenic river management. These funds are disbursed annually on a competitive basis. A portion of the funds available are allotted to each NPS region and then disbursed to eligible rivers within each region based on need.

Partnership wild and scenic rivers have been successful in leveraging scarce resources to implement their respective river management plans. Leveraging funds from the private sector; local, state, and federal

governments; and the river partners have attained a level of river management that would not be possible with NPS-only support (for examples, see <http://www.nps.gov/nero/rivers/riversfunding.htm>).

Other funding sources include federal and state specialized program funds, such as for exotic plant management, and those from private foundations.



## THE ENVIRONMENTALLY PREFERABLE ALTERNATIVE

The environmentally preferable alternative is determined by applying the criteria suggested in NEPA of 1969, which guides the Council on Environmental Quality (CEQ). The council provides direction that the environmentally preferable alternative is the alternative that would best promote the national environmental policy as expressed in Section 101 of NEPA:

1. fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
2. assure for all generations safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
3. attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
4. preserve important historic, cultural and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice;
5. achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities; and
6. enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Criterion 6 is beyond the scope of this project because: (a) the Wekiva Wild and Scenic River System is not within a national park unit (which would otherwise address criterion 6 via agency policy), and (b) the development of local recycling programs and renewable resource enhancement are not objectives or goals of the river management partnership.

Alternative A represents the current management direction for the Wekiva Wild and Scenic River System. Systemwide planning

would occur primarily through existing efforts of the Wekiva Basin Working Group, but would not have the cohesive, results-oriented focus achieved through implementation under alternative B (with the *Wekiva Wild and Scenic River System Comprehensive Management Plan*). The protection of cultural and natural resources would be less integrated under alternative A than under alternative B. Alternative A would not fully realize criteria 1, 3, 4, and 5.

Alternative B, the preferred alternative, would lead to increased management attention to and emphasis on preserving all wild and scenic river values. It would protect and enhance natural and cultural resources (criteria 1, 4, and 5). It also would create opportunities for high-quality, resource-dependent visitor experiences through traditional recreational uses (criteria 2 and 3).

After careful review of the potential resource and visitor impacts, NPS staff and the advisory management committee have concluded that the NPS preferred alternative also is the environmentally preferable alternative. Alternative B would enhance the ability of the NPS, advisory management committee, and partner agencies to protect natural and cultural resources while allowing visitors to enjoy a wide range of traditional river-related recreational activities.

Alternative B would (a) provide a high level of protection for natural and cultural resources while attaining the widest range of neutral and beneficial uses of the environment without degradation; (b) maintain an environment that supports diversity and variety of individual choice; and (c) integrate resource protection with opportunities for an appropriate range of visitor uses. Thus, this alternative would surpass the other alternative by best realizing the fullest range of national environmental policy goals as stated in Section 101 of the National Environmental Policy Act.

## MITIGATIVE MEASURES

To ensure that implementation of the action alternative protects unimpaired natural and cultural resources and the quality of the visitor experience, a consistent set of mitigative measures is recommended to be applied to actions proposed in the plan.

The implementing agency should prepare appropriate environmental review (i.e., those required by state legislation) for these future actions. The implementation of an action would need to comply with U.S. Army Corps of Engineers Section 404 permits and other applicable state and local permits.

The following mitigating measures and best management practices are recommended to avoid or minimize potential impacts from implementation of the alternatives. These measures were considered as part of the alternatives in the analyses of environmental impacts.

### CULTURAL RESOURCES

- Agencies should continue to develop inventories for and oversee research about archeological, historical, and ethnographic resources to better understand and manage the resources.
- Conduct archeological site monitoring and routine protection. Conduct data recovery excavations at archeological sites threatened with destruction where protection or site avoidance during design and construction is infeasible.
- Continue consultations with culturally associated American Indian people. Protect sensitive traditional use areas to the extent feasible.
- Wherever possible, locate new projects and facilities in previously disturbed or existing developed areas. Design

facilities to avoid known or suspected archeological resources.

- If previously unknown cultural resources are discovered during project work, all work in the area should cease until the site can be evaluated by a qualified person and appropriate treatment can be implemented.
- Design, locate, and construct facilities to avoid or minimize adverse effects on cultural resources and intrusions into the cultural landscape.

### NATURAL RESOURCES

- Conduct surveys for rare, threatened, and endangered species as warranted.
- Locate and design facilities and actions to avoid adverse effects on rare, threatened, and endangered species. If avoidance is infeasible, minimize and compensate for adverse effects on rare, threatened, and endangered species in consultation with the appropriate resource agencies. Conduct work outside critical periods for the specific species.
- To prevent water pollution during construction, use best management practices such as erosion control measures, minimized discharge to water bodies, and regular inspection of construction equipment for leaks of petroleum and other chemicals. Minimize the use of heavy equipment in a waterway.
- Design, locate, and construct facilities to avoid or minimize adverse effects on natural resources and visual intrusion into the natural landscape.

## SUMMARY TABLES OF ALTERNATIVES AND CONSEQUENCES

**TABLE 1. COMPARISON OF ALTERNATIVES**

|                                    | Management   | Alternative A: Existing Management Direction  | Alternative B: Enhance Resource Protection and High-Quality Visitor Experiences (Preferred Alternative)   |
|------------------------------------|--|---|---|
| <b>Meeting Purpose and Need</b>    |  | Does not meet purpose and need as described in this document.   | Fully meets purpose and need as described in this document.   |
| <b>Scenic Values</b>               | Maintain and enhance healthy native plant and animal communities in the Wekiva River System.   | Continue monitoring and control of invasive exotic plants and animals by each agency.   | Continue existing management plus enhanced coordination of interagency approach for control of exotic invasive species, maintenance of native vegetation, and water navigability.   |
|                                    | Maintain and enhance the wild and scenic character of the Wekiva River System by limiting the intrusion of the visual and auditory aspects of human development and activity.                  | Periodic removal of litter on shoreline by agency staff and volunteers. Continued enforcement of county setback codes.                  | In addition to alternative A direction, seek to reestablish Adopt-a-River program for litter control. Establish regulations to limit noise and light pollution. Support prohibition of gas-powered watercraft on Rock Springs Run and Black Water Creek.  |
| <b>Recreation Values</b>           | Provide opportunities for recreation in the Wekiva River System that are compatible with the area's natural and cultural features and management objectives.                                   | Continue to offer boating, camping, hunting, fishing, horseback riding, biking, and opportunities to view wildlife in designated areas. | Provide opportunities for recreation as in alternative A. Also complete a visitor use study and a facilities master plan that addresses types and volumes of these uses. Pursue public acquisition of private land to ensure protection of public access. |
|                                    | Ensure that river recreation minimizes environmental impacts and user conflicts and is compatible with the preservation of natural and cultural qualities of a national wild and scenic river. | Continue current agency policies and procedures governing visitor use and law enforcement.  | Develop a recreation/visitor use study that identifies limits of acceptable change and management actions for ecological and social impacts from recreation. Adjust agency procedures accordingly.  |
| <b>Wildlife and Habitat Values</b> | Protect aquatic and aquatic-dependent organisms and their habitats throughout the Wekiva River System and associated wetlands.   | Continue monitoring and management of aquatic and aquatic-dependant species and habitats by each agency.                                | Improve interagency coordination to maintain a diversity of aquatic and aquatic-dependant species. Expand species-specific surveys and monitoring. Assess West Indian manatee use of lower Wekiva River.  |

*Table1: Comparison of Alternatives*

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| <b>Wildlife and Habitat Values (cont.)</b>     | Maintain habitat quality, landscape diversity, and ecosystem connectivity within the Wekiva basin and associated ecosystems with an emphasis on the black bear as an umbrella species. | Continue land acquisition within Wekiva-Ocala Greenway to protect habitats and habitat connectivity among cooperative agencies. Continue use of prescribed fire by state staff to control invasives and preserve riparian habitats. Provide comment to individual agencies on infrastructure projects affecting connectivity. | Continue land acquisition within Wekiva-Ocala Greenway to protect habitats and habitat connectivity among cooperative agencies. Seek to limit or remove impediments for movement of bears and other wildlife between Wekiva basin and Ocala National Forest and coordinate efforts pertaining to infrastructure projects such as the Wekiva Parkway. Improve implementation and interagency coordination of prescribed fire on public lands. Develop a plan to improve hydrology of riparian habitats. Include habitat protection as an analysis criterion in visitor use study and establishment of limits of acceptable change. |
|  | Reduce the impacts of invasive species and exotic species on native species and habitats throughout the river system and its associated wetlands.                                      | Continue monitoring and control of invasive exotic plants and animals by each agency.   | Assess impacts and develop expanded monitoring and control of invasive or exotic species (such as armored catfish and channeled apple snail) as appropriate.  |
| <b>Historic and Cultural Resources/ Values</b> | Identify, protect, and preserve historic and cultural resources from human-related and natural threats.  | Conduct ground-disturbing activities in accordance with state (FDHR) guidelines. Complete surveys and monitoring of sites by agency staff and consultants as budget allows.   | Complete a comprehensive survey and condition assessment of the Wekiva basin area. Train and assign staff to monitor/protect sites. Work with Rollins College for protection of Shell Island. Implement best management practices with state (FDHR) assistance. As in Alternative A, conduct ground-disturbing activities in accordance with state (FDHR) guidelines.   |
|  | Foster an understanding among the public of the significance of the historic and cultural resources of the Wekiva basin.   | Continue ongoing state and county education and interpretation programs.  | Prepare comprehensive history of Wekiva basin and update agency documentation. Identify at least one cultural site to be used as public education site. Ensure consistency in public interpretation.  |

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| <b>Water Quality and Quantity Values</b> | Protect instream water quality in the Wekiva River System. | Continue monitoring and analysis of nutrient flow by state (FDEP) and St. Johns River Water Management District. Use state (FDEP) guidelines for wastewater management in Wekiva basin and state (FDACS) agricultural best management practices. Inspection of sites would be done by state (CAMA) staff. | In addition to alternative A efforts, support implementation of the Wekiva system total maximum daily load program. Evaluate and help implement septic system upgrades and stormwater retrofit projects. Strengthen regulations pertaining to sinkholes and other karst features. Support research of impacts of reclaimed water on shallow groundwater and the Floridan Aquifer.  |
|  | Protect flow regimes in the Wekiva River System.           | Continue use of the consumptive use permitting program and conformance with the existing minimum flows and levels (MFLs). Continue ongoing monitoring by St. Johns River Water Management District staff.   | In addition to alternative A practices, evaluate withdrawals of water and strengthen policies to limit water consumption. Evaluate outstandingly remarkable values (ORVs) affected by flows and determine whether a water reservation and/or refinement of minimum flows and levels are needed. Work with St. Johns River Water Management District on water conservation regulations and incentive programs. Evaluate use of reclaimed water and its transport outside the Wekiva basin and springshed. |

Table 2: Comparison of Environmental Consequences

TABLE 2. COMPARISON OF ENVIRONMENTAL CONSEQUENCES

| Topic                              | Alternative A: Existing Management Direction   | Alternative B: Enhance Resource Protection and High-Quality Visitor Experiences (Preferred Alternative)  |
|------------------------------------|--|--|
| <b>Scenic Values</b>               | Implementing alternative A would result in a continuation of existing policies and management actions that relate to scenic and aesthetic values of the Wekiva River System. Thus, this alternative would have a long-term, minor adverse impact that is localized to widespread. The continuation of adverse impacts would primarily be caused by: invasive and exotic vegetation, litter, loss of shoreline vegetation, degraded midden appearance, recreation overcrowding, motorized watercraft, private development, roads and bridges in the river viewshed, and light pollution from development.   | Compared to alternative A, the coordinated, multiagency actions included in alternative B would contribute to the protection of scenic values of the Wekiva Wild and Scenic River System. Thus, alternative B would have long-term, beneficial impacts that range from localized to widespread.  |
| <b>Recreation Values</b>           | <p>Implementing alternative A would result in a continuation of current management actions.</p> <p>Overall, this alternative would continue to have long-term, adverse and beneficial impacts that range from localized to widespread.</p> <p>Adverse impacts would be caused primarily by increasing recreation demand and crowding, an increase in uncontrolled access to the river system, motorized watercraft, use of unofficial rest areas, and inadequate public education. The continued removal of navigational hazards in the waterways, however, would have a localized beneficial impact.</p>  | Compared to alternative A, the coordinated, multiagency actions included in alternative B and the implementation of a carrying capacity program would contribute to the preservation and improvement of the river system's recreation values. Thus alternative B could result in long-term, beneficial, and localized to widespread impacts on the recreation values of the Wekiva Wild and Scenic River System.   |
| <b>Wildlife and Habitat Values</b> | <p>Implementing alternative A would result in a continuation of current policies and management actions that relate to wildlife and habitat protection associated with the Wekiva River System. Continued adverse impacts would be long term and minor and primarily caused by</p> <ol style="list-style-type: none"> <li>(1) displacement of riparian and aquatic plant communities from recreational use and development</li> <li>(2) disturbance of wildlife and habitat from recreational use and litter</li> <li>(3) invasive and exotic vegetation</li> <li>(4) invasive and exotic animal species</li> <li>(5) habitat fragmentation from roads and development</li> <li>(6) wildlife mortality on roads</li> <li>(7) degraded water quality and quantity</li> </ol> <p>However, continued prescribed fire and invasive plant control actions would yield impacts that are long term and beneficial. Alternative A would be <i>not likely to adversely affect</i> special status species.</p> | Alternative B would contribute to preserving and enhancing wildlife and habitat values in the Wekiva River basin and would result in long-term, beneficial impacts that are widespread. The coordinated, multiagency actions included in alternative B would help minimize and mitigate many threats to individual species and natural communities, and thus contribute to the protection of wildlife and habitat values in the Wekiva basin. Alternative B would be <i>not likely to adversely affect</i> special status species. |

| Topic  | Alternative A: Existing Management Direction   | Alternative B: Enhance Resource Protection and High-Quality Visitor Experiences (Preferred Alternative)   |
|--|--|---|
| <b>Historic and Cultural Resource Values</b> | Implementing alternative A would result in a continuation of current policies and management actions that relate to the historic and cultural resource values of the Wekiva River System. As a result, this alternative would have a long-term, adverse impact that ranges from minor to moderate, particularly if development and recreation demand increase substantially. Alternative A would result in a continuation of <i>adverse effects</i> on some cultural resources under Section 106.  | Compared to alternative A, the coordinated, multiagency actions included in alternative B would help contribute to the protection of the historic and cultural resource values of the Wekiva Wild and Scenic River System. Thus, alternative B would result in long-term, beneficial impacts. Overall, implementing alternative B would have <i>no adverse effect</i> on cultural resources and values under Section 106. |
| <b>Water Quality and Quantity Values</b>     | Implementing alternative A would result in a continuation of current actions that address water quality and water quantity threats in the Wekiva River System. In terms of recreation impacts on water quality, this alternative would continue to have an impact that is long term, minor, and adverse. Regarding land use effects on water quality, effects from alternative A would continue to be long term, negligible to beneficial, and localized to widespread. Finally, with respect to flow regimes (water quantity), alternative A would have an impact that is long term, minor, adverse, and localized to widespread. | Alternative B would result in long-term, beneficial impacts that range from localized to widespread. The coordinated, multiagency actions included in alternative B could help contribute to the protection of the water quality and water quantity value conditions of the Wekiva Wild and Scenic River System.  |